Usage of Iodized Salt in Processed Food in Indonesia

KEMENTERIAN KESEHATAN
REPUBLIK INDONESIA

BADAN POM
Badan Pengawas Obat dan Makanan

gain
Global Alliance for Improved Nutrition

clarity.

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ABBREVIATIONS

AKG	Nutritional Adequacy Rate
b/b	weight/weight
Bn	Billion
BPOM	National Agency of Drugs and Food Control
CoA	Certificate of Analysis
g	Gram
IDR	Indonesian Rupiah
IP	Manufacturer with import license
IT	Registered Importer (non manufacturer) with import license
KIO_3	Potassium Iodate
Kg	Kilogram
Km	Kilometer
Mg	Milligram
Mn	Million
Ml	Milliliter
MT	Metric Ton
NaCl	Sodium chloride (salt)
p.a	Per annum
ppm	Parts per million
PET	Polyethylane Terephthalate
PT	Limited Liability Company
QA	Quality Assurance
QC	Quality control
RISKESDAS	Riset Kesehatan Dasar (Basic Health Research Survey Ministry of Health)
R&D	Research and Development
RTK	Rapid Test Kit
SES	Social Economic Status
SNI	Indonesian National Standard
Tr	Trillion
UD	Usaha Dagang (Trade Venture)
UNICEF	The United Nations Children's Fund
USD	United States Dollars

1.0 EXECUTIVE SUMMARY

Study Background:

Ensuring that iodized salt is used in processed foods is a key BMGF GAIN-UNICEF Partnership Project goal. According to the 2007 RISKESDAS survey, the Indonesian population has adequate iodine status even though the goal of Universal Salt Iodization (USI) was not met. RISKESDAS concluded that the median urinary iodine concentration (UIC) among 6-12 year olds was well above 100µg/l, the international cut-off for determining adequacy of iodine nutrition among that population group, while household use of adequately iodized salt was well below the 90% target. As such it was hypothesized that Indonesians consume iodine through other sources that could include iodized salt in processed food, or iodine in ground water.

Study Aim and Rationale:

This study aimed to estimate the potential and actual contribution of iodized salt in key processed foods to population iodine intake, with some analysis of differences in contribution according to socio-economic grouping. In addition, the study was conducted to provide information on food industry attitudes and practices with regard to the use of iodized salt. The rationale for conducting this study was to provide additional information on non-table salt sources of edible salt (and potentially iodine) to improve the evidence base for strengthening the USI strategy and program.

Methods:

Six processed foods considered to be centrally-produced and with high market penetration across population groups were identified[1] as: instant noodles, stock, soy sauce, chili sauce, bread and biscuits.

Clarity undertook a preliminary market scan of each food sector, covering the related salt sector, to determine market size, key players and specific industry trends. Clarity approached 45 large and medium sized producers to participate in the survey which took place between May to September 2013. Many of the surveyed companies produce more than one type of surveyed food products. Clarity primarily undertook face-to-face interviews with the food producers' R&D and QA departments. All companies participating in the survey were asked to provide a salt sample for independent testing to assess its iodine content. Clarity also reviewed the regulatory framework for using salt in processed food and interviewed key regulatory stakeholders including representatives from the Ministry of Health, the National Agency of Drug and Food Control (BPOM), and the Ministry of Industry.

Findings:

The food industry consumes approximately 620,000 MT of salt per annum however 73% is estimated to be used by the salted fish segment that consumes only non-iodized salt. Within the processed food industry (which excludes salted fish),food categories found to consume the largest amount of

[1]Communication with AC Nielsen, Indonesia, produced a list of 5 centrally-produced foods with highest market penetration. Bread was also included in order to compare the potential impact of iodized salt in its production compared to other countries.

salt are: instant noodles (22% of all salt used for processed food production), stock[2](24%) and soy sauce (13%). Other processed foods consuming a relatively high percentage of salt, but not covered by this analysis, include cooking oil, margarine, snacks, and canned fish.

Data from the survey and from other Ministry and industry information indicates that, if all salt in these products was iodized, one serving could contribute the following proportion of the recommended adequate daily iodine intake for adults (150µg): instant noodles 36%,stock 20%, soy sauce 14%, biscuits 6% and chili sauce 3% (although some of this s already accounted for in the chili sauce used to season instant noodles), data to calculate this were unavailable for bread. Using average annual per capita intakes, this would mean up to 6.3% of recommended adequate daily iodine intake from instant noodles for adults per day across the population (the per capita intake for other products ranged from 0.2% for chili sauce to 4% for stock). Based on interviews with participating companies, most distribute at least 40% of their product through the general market and target all SES groups, indicating relatively high market penetration, although higher SES groups still tend to be the highest consumers of these processed foods and condiments.

The Government passed a Presidential Decree requiring salt for human or livestock consumption, including salt used in the food industry, to be iodized, once implementing regulations from the responsible supervisory body were issued. However no subsequent legislation appears to exist to ensure the iodization of salt for animal feed, salted fish preservation or food processing.

Only 16 out of 45 food processors agreed to participate in the survey, therefore industry specific results are only valid for the market share for that product and should not be extrapolated to describe the national situation for the product. The companies surveyed accounted for 37-95% market share of their respective food segments. Clarity's survey found that 14 of the 16 food producers (or 88%) used iodized salt primarily because they found there was no barrier to its use. Two food producers, including one very large food manufacturer, understood that in the absence of specific implementing regulations[3], there was no legal requirement to use iodized salt so opted to use non-iodized salt for the reasons that it was cheaper (one company) and that it simplified the supply chain (the second company, that also produced margarine products). These two companies would be willing to switch to iodized salt if they were legally required to do so.

Food processing companies use the Certificate of Analysis (CoA)with salt shipments to check whether the salt they use is iodized or not. Most companies are not concerned with the exact level of iodine as long as it meets the Indonesian National Standard (SNI) requirement, which is 30 ppm KIO_3, equivalent to 18 ppm iodine.

Conclusions:

The use of iodized salt in the production of key processed foods with high market penetration has the potential to at least partially protect the population consuming these products from iodine deficiency, which would be particularly beneficial for population groups who do not have access to adequately iodized table salt.

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[2]The term "stock" as used throughout this report includes both stock and complete food seasoning, it was not possible for producers to differentiate salt used in each product separately.

[3]The situation regarding specific requirement for use of iodized salt by the food industry is currently unclear and is addressed in more detail in later in this report and in a 2014 UNICEF-supported Review of Progress towards the Sustainable Elimination of Iodine Deficiency Disorders in Indonesia

The food industry appears generally reluctant to discuss the type of salt used in their food products, which may be due to the lack of clarity surrounding the regulations on the use of iodized salt within the industry. From the companies that agreed to participate in this study but who did not currently use iodized salt in their products, it was evident that clear regulations for the use of iodized salt would be needed in order for them to change this practice. Two potential options to change the situation, discussed during interviews with the food industry and Government ministries, were that: specific implementing regulations for Presidential Decree 69 / 1994 would need to be issued by the Ministry of Industry, requiring food industries to use iodized salt; and/or key processed food products should be required to have an SNI (Indonesian National Standard) certificate which as a pre-requisite requires the use of adequately iodized salt.

2.0 SALT SUPPLY FOR FOOD INDUSTRIES

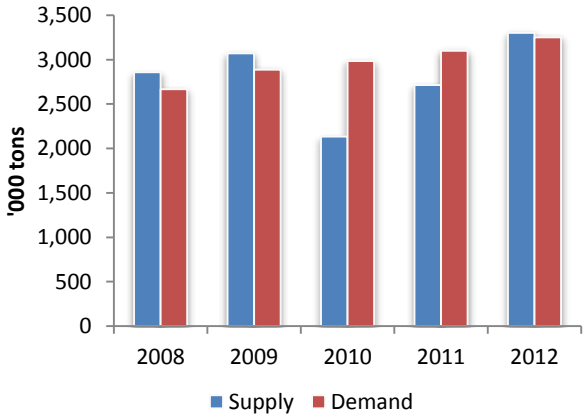
Indonesia salt consumption

Data on salt production and use and on the relative proportion of edible and non-edible salt in Indonesia are difficult to determine accurately, despite the fact that the national salt industry is considered very important.

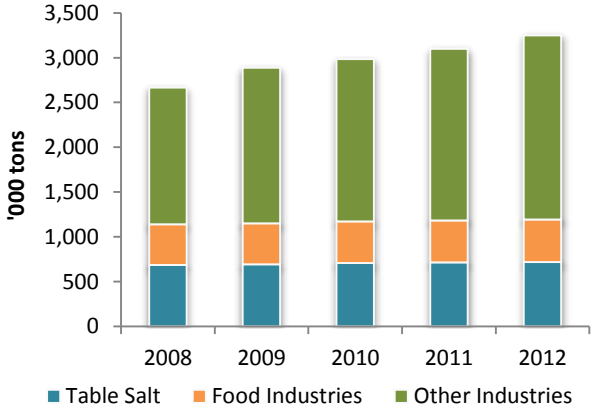
The Ministry of Maritime and Fisheries estimates that total salt demand reached 3.25mn MT in 2012[4], with an annual growth rate of 5.1% per annum (p.a) over the previous four years. Salt production has been very low over the last few years due to adverse weather conditions and resulting poor harvests during 2010-2012; consequently Indonesia has had to rely at least partially on salt imports. However, in the drive to promote salt self-sufficiency[5], the Government restricted table salt[6] imports. Consequently, there have been a number of years where demand for edible salt (for use as both table and food industry salt has far exceeded supply and Indonesia has had to resort to using salt stock piles or importing industrial salt and processing it in Indonesia to meet demand.

Clarity conducted interviews with the Ministry of Maritime and Fisheries, with the Directorate of Manufacturing Base Industry Ministry of Industry, and with BPOM (the National Agency of Drugs and Food Control), from which estimates were obtained for recent trends in total salt supply, demand and some breakdown of this amount by end use, e.g. food industry, table salt, as shown in the following charts.

Salt supply and demand in Indonesia (2008-2012)



Salt demand by category (2008-2012)



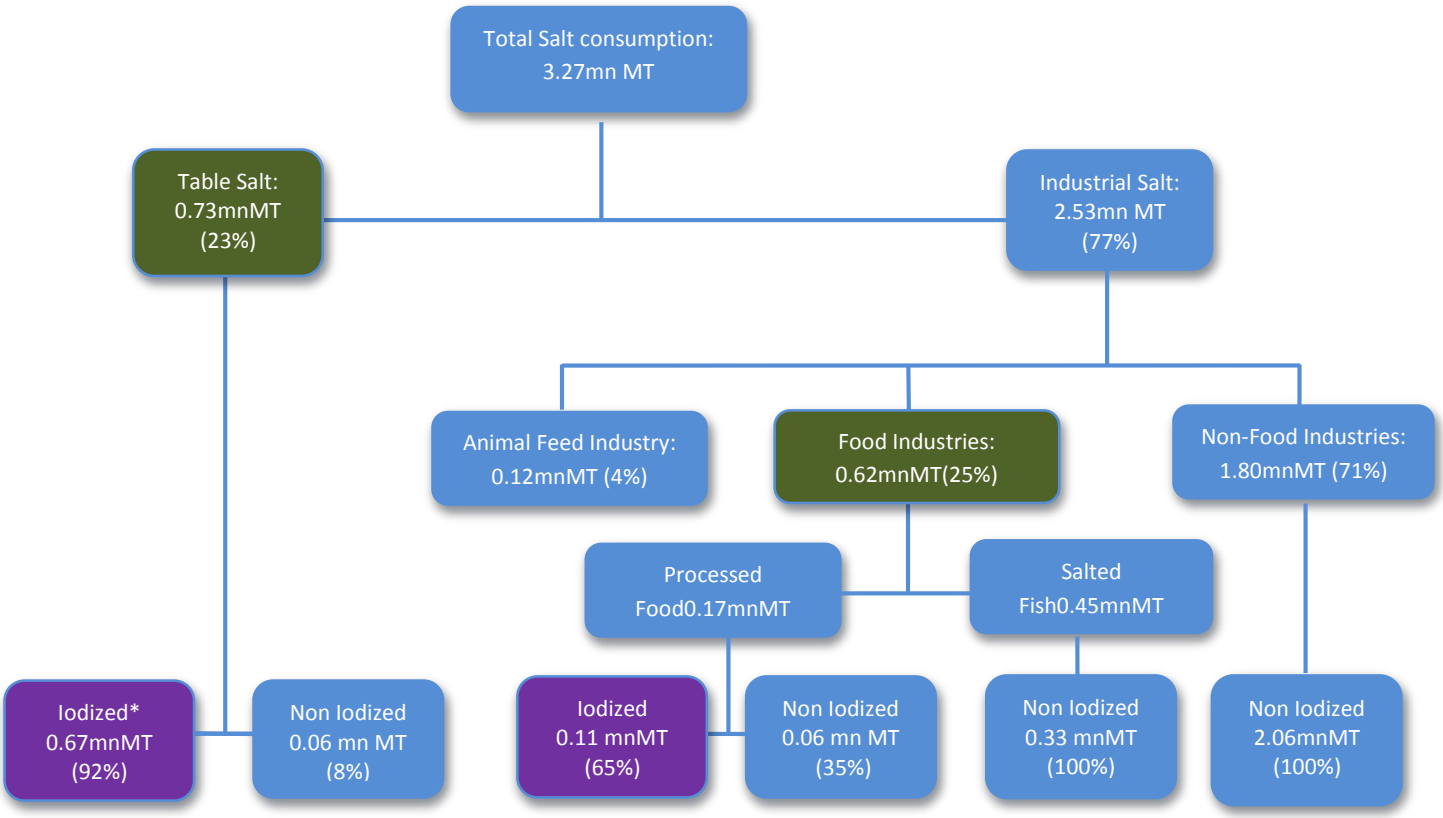
Source: Interview with Directorate of Manufacturing Base Industry Ministry of Industry, Clarity Analysis

However, data from these sources differs lightly with data provided in the ongoing UNICEF-supported USI Programme Review, draft in particular with respect to the amount of salt supplied to the animal feed industry, which was thought to be included in salt for the food industry from

[4]Suara Karya, 6 May 2013 - Indonesia is capable for salt self-sufficiency
[5] The Jakarta Globe, March 22, 2011 – Gov't targets self-sufficiency by 2014
[6]Indonesian regulations refer to table salt as consumption salt. However to avoid confusion as consumption salt could also be interpreted as salt for use in food industries, this report will refer to it as table salt.

Ministry of Industry figures above. Given these limitations in the data provided during the interviews conducted by Clarity, the data in the flow diagram below for best estimates of total salt demand by end use for 2012 is that provided in annex 1 of the draft of USI Programme Review, also incorporating more recent data on iodized salt from the 2013 Riskesdas.

Indonesia's total salt and iodized salt consumption, by category, 2012 (in mn MT)



Source: UNICEF-supported USI Programme Review draft annex 1 for MT data, which referenced the Coordinating Ministry of Economic Affairs,and Iodized salt data extrapolated from Riskesdas survey results 2013.

* Adequately iodized salt = 55.3% of all household salt (can be extrapolated to represent approximately 0.40 mn MT salt).Riskesdas 2013.

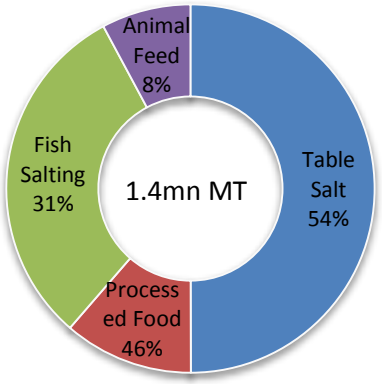
Food industries consumed approximately 0.62mn MT edible salt, however the heaviest use was for salted fish production, which is estimated to account for 73% of food industry salt consumption. It is believed that the salted fish industry uses only non-iodized salt based on the perception that iodine interferes with the drying process. Processed food production[7]accounted for approximately 27% of human food industry salt consumption, however it is unknown what proportion of this salt is iodized, hence the need for this study into food industry in regard to the use of iodized salt.

The breakdown of salt use specifically for edible[8] salt (which could potentially be iodized) is given below:

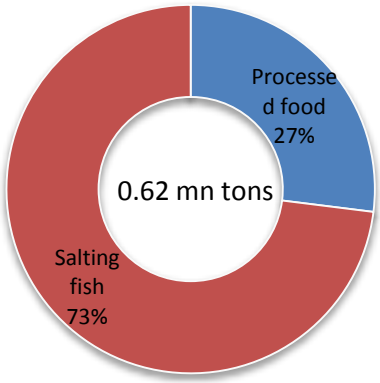
[7] Processed food includes all foods processed in a factory but excludes foods produced by small home industries

[8]There remains a lack of clarity whether these four categories of table salt, processed food industry salt, salted fish salt and animal feed salt; constitute what is termed "consumption" salt. Tables provided by the Ministry of

Edible salt breakdown by main category of use (2012)



Food industry salt consumption by use (2012)



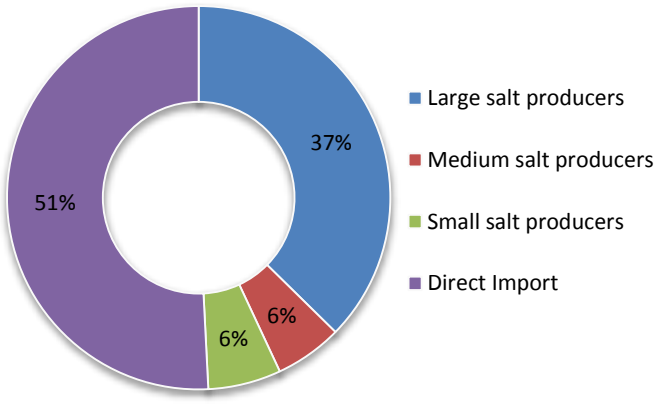
Source: UNICEF-supported USI Programmed Review draft, annex 1, which referenced the source as Coordinating Ministry of Economic Affairs

Salt producers' market share

Salt producers harvest their own salt as well as importing salt and further processing (e.g. iodizing and drying) salt from other countries. Consequently salt producers include a proportion of imported salt within their own production figures.

Based on interviews with leading salt producers about production and imports in the past year, Clarity estimates that the 18 registered salt producers process approximately 1.4mnMTof salt a year that includes domestic salt and imported salt requiring further processing. Small manufacturers and farmers are estimated to produce 0.2mnMT. The remaining approximately 1.6mn MT of salt is imported without further processing, either by end users directly (e.g. non-food and food industries) or by Indonesian salt producers who then sell it on to the end users.

Salt supply by type of supplier



Source: Clarity Analysis, based on interviews with large salt producers.

Industry with the breakdown of national salt use indicates that they are all considered as consumption salt, however existing implementing regulations for iodization of table salt imply that consumption salt refers only to table salt (sold in sealed packages up to 50Kg). To avoid confusion, the term edible salt is used in this report for these four categories and, as above, table salt is used to define salt for used in the household for cooking or adding to foods.

There are 18 registered salt producers of which seven are considered large players producing more than 50,000 MT(86% of domestic production) per annum[9]. The remaining 11 players are considered medium sized players and produce 10-50,000 MT per annum. In addition to this, there are at least 30,000 small scale salt farmers producing salt in Indonesia.

During the research process, Clarity interviewed 11 salt producers, including all of the large players plus four medium sized players, to determine total salt production, percentage of salt iodized and their main target markets. These 11 producers accounted for 87% of national salt production. Producers unwilling to participate in the survey were all medium and small sized producers. From interviews with the 11 producers, it is estimated that just over 50% of their total salt production is iodized; however the two largest producers primarily produce non-iodized salt, probably for industrial use and for salted fish producers.

Salt producers' production volumes, 2012

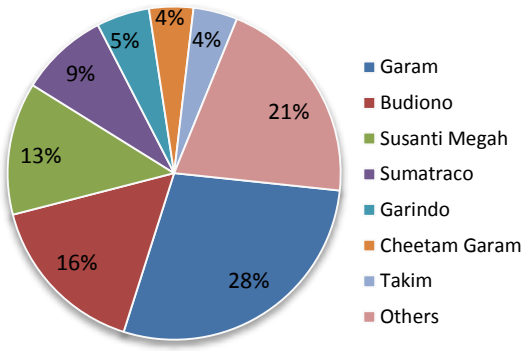
No	Company Name	Salt Production (MT/year)		
		Total	Iodized	Non Iodized
1	PT Garam	395,000	150,000	245,000
2	PT Budiono	225,000	60,000	165,000
3	PT Susanti Megah	180,000	180,000	0
4	PT Sumatraco	120,000	60,000	60,000
5	PT Garindo	72,000	24,000	48,000
6	PT Cheetam Garam Indonesia	60,000	24,000	36,000
7	UD Takim	60,000	48,000	12,000
8	PT Elister Primajaya	36,000	28,800	7,200
9	PT Saltindo Perkasa	35,400	10,200	25,200
10	PT Eka Sari Lestari	18,500	16,650	1,850
11	PT Kalian Maju Bersama	12,000	12,000	0
	Sub Total	1,213,900	613,650	600,250
	Medium sized producers (7 producers)[10]	185,000		
	TOTAL	1,398,900		

Source: Clarity Analysis, based on interviews with large salt producers.

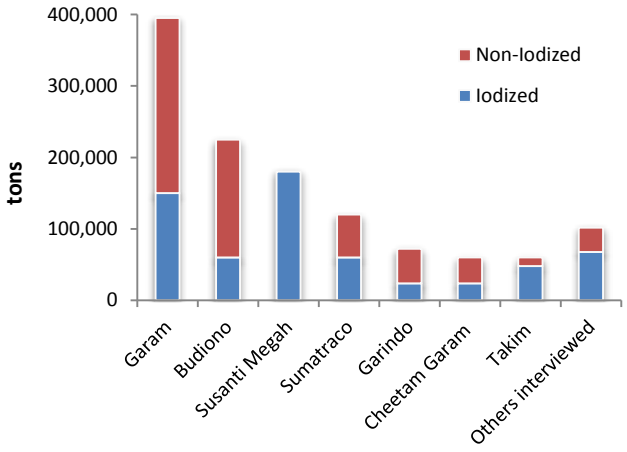
[9]Interviews with large salt producers

[10]These seven producers were not interviewed and production volumes have been estimated by Clarity based on total market size excluding interviewed producers' volumes.

Salt producers' market share (2012)



Salt producers' split iodized vs. non iodized salt (2012)



Source: Clarity Analysis, based on interviews with large salt producers.

PT Garam, the state owned salt company, is the largest salt producer with 28% market share and primarily produces non-iodized salt accounting for 62% of its production. As PT Garam is a state owned company and the only company to have a non-manufacturers import license it is prohibited from selling salt directly to end users and is required to channel salt through distributors; however as a result it does not know the breakdown of salt sales to the food industry.

PT Budiono, the second largest player, holds 16% of the market share and again is mostly producing non-iodized salt, accounting for 73% of production. Budiono targets industrial users and the salted fish segment, which explains the high proportion of non-iodized salt. Budiono only sells a limited quantity of iodized salt to the processed food industry.

PT Susanti Megah holds 13% of the market share and claims to only produce iodized salt as it primarily supplies table salt and processed food industries, which all require iodized salt.

PT Sumatraco holds 9% of the market share and produces 50% iodized salt. Non-iodized salt is used by the food industry for production of cooking oil as well as other industrial users such as the textile industry.

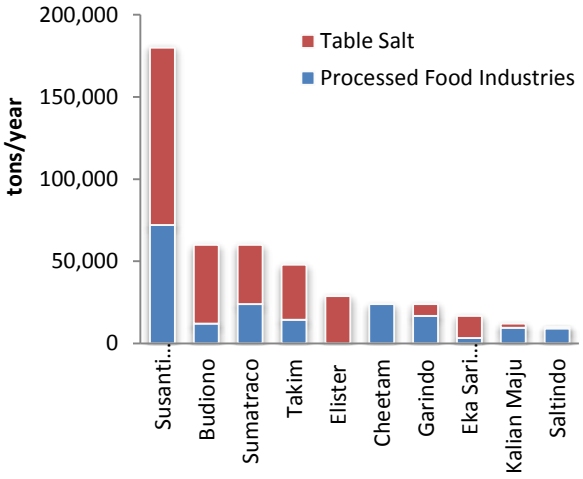
PT Garindo holds 5% of the market share and produces 67% non-iodized salt. Garindo only sells a small quantity of table salt and iodized salt to the processed food industry. Garindo claims all non-iodized salt is sold to non-food industrial customers.

PT Cheetam Garam holds 4% of the market share and produces 40% iodized salt. Cheetam does not sell table salt and claimed that all salt supplied to the processed food industry is iodized, however during the survey process one large processed food producer purchased non-iodized salt from Cheetam.

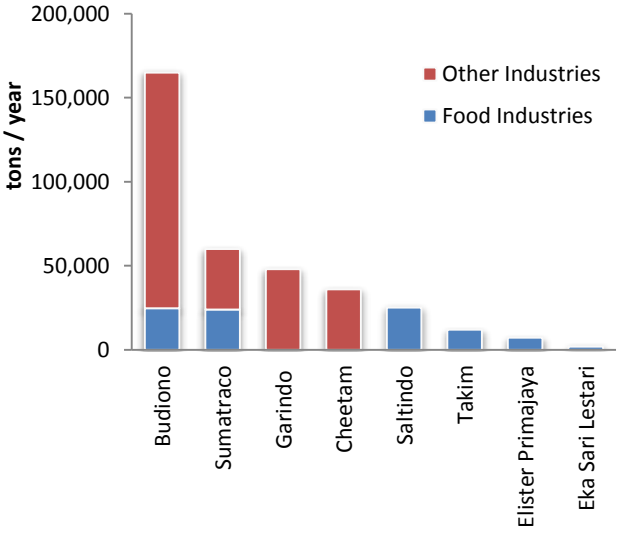
UD Takim holds 4% of the market share and produces 80% iodized salt. Takim primarily supplies table salt.

Most of the smaller producers, with the exception of Saltindo Perkasa, claim that they produce more than 80% iodized salt as they primarily supply table salt.

Iodized salt distribution



Non Iodized salt distribution[11]



Source: Clarity Analysis based on interview producer interviews

[11]Other industries include salted fish

3.0 SALT REGULATORY ENVIRONMENT

Introduction

The following analysis focuses primarily on mapping the regulatory process of food inspections. However, during the research it came very apparent that the food inspection process must be placed within the context of the complete regulatory environment of salt industry.

Regulatory overview

Currently in Indonesia only table salt is legally required to be iodized. The Government issued a Presidential Decree[12] in 1994 that required table salt and industrial salt used by food industries, including for salted fish and animal feed, to use iodized salt. However, in order for the Presidential Decree to be effective it requires the responsible supervisory bodies to issue implementing regulations.

The Ministry of Industry subsequently passed implementing regulations for table salt and, consequentially, all table salt is legally required to be iodized. However no subsequent legislation appears to exist to ensure the iodization of salt for animal feed, salted fish preservation or food processing. In 2009, the MoI issued a Regulation on the "Roadmap for the Development of the Salt Industry.[13] Although the document includes a figure which suggests that all salt for the "food industry" and "fishery industry (salted and canned fish)" should be iodized, there is no specific requirement for use of iodized salt in food processing mentioned in the text, and the Roadmap are not widely known to many people. Therefore, it is understood that food industries are not legally required to use iodized salt.

[12] Presidential Decree No.69 / 1994
[13] Regulation No. 134/M-IND/PER/10/2009

Salt regulatory overview

Type of salt	Use	Law	Presidential Decree	Implementing Regulation	Regulated
Consumption	Table	X	√	√	√
Industry	Food	X	√	X	X
	Non-Food	X	√	X	X
Comment		Indonesia has no specific law on iodized salt	Presidential Decree No 69 / 1994 requires that iodized salt must be used for human consumption, salting fish, animal feed and processed foods. Salt for non-food industries is not required to be iodized Implementing regulations required to be put into effect	Table salt – implementing regulation passed by Ministry of Industry Food salt – no implementing regulation have been passed by Ministry of Industry	Food industry has no implementing regulations for the use of iodized salt, therefore there is no framework for regulation

Source: Clarity Analysis translation and interpretation of The 1994 Presidential Decree (Kepres 69/1994) and the Ministry of Industry regulation No. 42/2005

Salt classification

Presidential Decree No 69/1994 refers to iodization of salt for human or livestockconsumption, fish salting, or salt as an additive for foodprocessing to meet the National Standards of Indonesia (SNI). Differences and similarities in required properties of table salt and food industry salt are provided in the table below along with reference to (non-food) industrial salt also.

Salt classification and criteria

Criteria	Table Salt	Industrial Salt	
		Food	Non Food
Raw materials	NaCl: 94.7% Dry basis: 2% Impurities: 1% Moisture content: max 7%	NaCl: 94.7% Dry basis: 2% Impurities: 1% Moisture content: max 7%	NaCl: 97%
Use	Household consumption	Food industry, industrial cooking oil, industrial fish salting	Non food industrial uses
Required to use Iodized salt	Yes	No The Ministry of Industry has not yet issued implementing regulations for food industry salt.	No
Permitted Iodine content	≥18ppmiodine(≥ 30ppm KIO_3)	≥18ppm iodine (≥ 30ppm KIO_3)	-
Indonesian National Standard (SNI)			
Compulsory SNI	Yes	No - as no implementing regulation passed	No
SNI Requirement	Minimum KIO_3 is 30 mg/kg (equivalent to 18ppm iodine) Water content max 7% b/b Chloride min 94.7 % b/b Metal content: ▪ Lead max 10 mg/kg ▪ Cuprum max 10 mg/kg ▪ Mercury max 0.1 mg/kg ▪ Arsenic max 0.1 mg/kg		NA
Quality checks	Quality testing either internally or through accredited laboratories	NA	NA

Source: Clarity Analysis based on SNI accreditation criteria

See appendix 1 for an explanation and overview of the Indonesian SNI accreditation

Salt labeling

Table salt must be labeled as *iodized salt* and carry an Indonesian National Standard (SNI) logo among other requirements[14]. See appendix 1 for an explanation and overview of the Indonesian SNI accreditation. For non-food industrial salt it should be labeled *industrial salt non- iodized*. For food

[14] Ministry of Industry Decree No 29/M/SK/2/1995

industry salt again there are no implementing regulations that specifically sets out labeling requirements and, as such, it is generally labeled *iodized salt* or *non-iodized salt*.

Salt suppliers normally provide a Certificate of Analysis (CoA) with industrial salt. Again there is no legal requirement to do so however large suppliers typically provide a CoA with every shipment while smaller suppliers may only provide the CoA with every other shipment or once every one to two months.

Salt labeling

Criteria	Table Salt	Industrial Salt	
		Food	Non Food
Type of salt labeled	Iodized Salt	Not clearly defined as no implementing regulation has been passed – but labeled as: • Iodized salt • Non iodized salt	Industrial Salt Non Iodized
Other labeling required	▪ Name / Trademark ▪ ≥30 ppm KIO_3 content (18 PPM iodine) ▪ Product code ▪ Ministry of Health Registration number ▪ Producers' name and address ▪ The composition of food / packaged salt ▪ SNI Logo	Not clearly stated in the regulation but suppliers provide CoA	Not clearly stated in the regulation but suppliers provide CoA
Packaging size	50kg, 25kg, 5kg, 1kg, 500gr, 250gr and 100gr	25 kg or 50kg	25 kg or 50kg

Source: Clarity Analysis based on Ministry of Industry Decree No 29/M/SK/2/1995

Salt importation

Regulations on salt importation are clear as the Ministry of Trade has issued a series of regulations covering salt imports with the latest one issued in 2012[15]. Importation of table salt is strictly controlled and restricted to five table salt producers that also have import licenses. In 2012, the import quota was set at 533,000 MT of which 495,000 MT were realized[16]. The Government has introduced banson table salt imports since July 2012, these bans cover the period during and around the salt harvest. Companies are prohibited from importing table salt for approximately six months of the year, from one month prior to two months after the salt harvest (with the salt harvest lasting around 3 months).

[15] Ministry of Trade Regulation No 58 /M-DAG/PER/9/2012

[16] Detik Finance, 14th September 2013 citing Ministry of Trade Press Release – The year Indonesia still import consumption salt of 495,000 tons

Industrial salt imports are not restricted as long as the salt producer has an importation license or is the one approved salt trader, the state owned company, PT Garam. Importation of industrial salt is permitted throughout the year.

Salt importation regulatory requirements

Criteria	Table Salt	Industrial Salt	
		Food	Non Food
Import permissions	Prohibited for 6 months per year from 1 month before to 2 months after the salt harvest of around 3 months duration	Permitted year round	
Type of importer	Table salt producer with importing license	• Producer with salt importing license (IP) • Approved importer (only PT Garam) (IT)	
Quotas	Yes (however no quota given since July 2012)	No	
Importers	PT Garam PT Garindo PT Sumatraco L.M PT Budiono Madura BangunPersada	PT Garam PT Garindo PT Cheetham Garam Indonesia PT Asahi Mas PT Tjiwi Kimia PT Riau Andalan PT KAO PT Sanbe Farma PT Riau Andalan Pulp and Paper Plus others	

Source: Ministry of Trade Regulation No 58/2012; interviews with Ministry of Trade; Clarity Analysis

In reality, companies import salt under the industrial salt classification to then iodize or further dry the salt in Indonesia and sell it as table salt, to avoid the import quotas imposed on table salt. As a result, in 2012, only five MT of table salt was reported as imported compared to 2.2 million MT of industrial salt[17].

Salt inspections

BPOM and the Ministry of Industry are the supervisory bodies for industry salt, however in the absence of implementing regulations for iodization of this salt, they have no authority to regulate this. BPOM carried out a first, limited, assessment of food industry salt in 2012 by collecting 12 samplesfrom10 companies for information purposes only, no details on the sampling method were provided. BPOM indicated that they intended to undertake annual sampling of food producer salt but as of June 2013 had not yet collected any samples in 2013.

The Ministry of Industry and Ministry of Trade are the supervisory bodies for imported industrial salt. Inspections are undertaken in ports custom area by two appointed assessors, however they are

[17] Central Bureau of Statistics (BPS) import-export data 2012

only tasked with checking documentation including import license, import quotas and quantity imported. The assessors are not responsible for carrying out any inspection of the salt quality including the iodine level.

Additional information obtained on inspections for table and industrial salt is provided in appendix 3.

Final food product labeling

Final food product labeling in Indonesia is somewhat simplistic. Food products with a shelf life of six days or more are required to provide food labels that list the ingredients without giving any specific details. Only products that make claims about fortified ingredients such as vitamins or fortified materials must provide nutritional information including percentages of daily requirements. As iodized salt is not classified as a fortified material, producers only need to list salt as an ingredient (without specifying whether it iodized or not) and do not need to include salt and / or iodine content in the nutritional information.

Some food producers list sodium in the nutritional facts including mg and percentage of Nutritional Adequacy Rate (AKG), however this includes sodium from mono sodium glutamate as well as salt.

Final food products are not required to have an SNI. To date, SNI guidelines have been released for many food products. In the example of the instant noodle SNI it requires producers to use salt and flour that is SNI certified and, in order for these ingredients to be SNI certified, salt must be iodized and flour fortified with iron. At present there is no requirement for oil to be fortified.

Final food product labeling

Criteria	Requirement
Compulsory use of Iodized salt	No
Food labeling	Required to list ingredients only
Nutritional information	Only foods that claim to contain vitamins and fortified materials (which does not include iodized salt)
SNI for final food product	Not compulsory

Source: Clarity Analysis based on various Government regulations

4.0 PROCESSED FOOD INDUSTRY REVIEW

Overview of food industries targeted for inclusion in the review

The following section looks at the market size and iodized salt use for six processed foods proposed for inclusion in the food industry review. These products were proposed based on their production by large scale producers, and their wide-spread distribution and use[18], as well as on their resulting relatively high contribution to salt consumption across the population.

The products included were:

- Instant noodles
- Stock and complete food seasoning (referred to as stock)
- Soy sauce
- Chili sauce
- Biscuits
- Bread

Other food products consuming a relatively high percentage of salt, but not covered by this analysis include: fresh noodles, cooking oil, margarine, snacks, and canned fish. They were not included in the study because they are produced by multiple small scale producers and/or else have been reported to use non-iodized salt (e.g. oil and margarine), since producers believe that iodized salt adversely affects the production process[19].

Combined, the six food segments above hada retail value of US$5 bn[20] in 2012, of which instant noodles accounted for 52% followed by biscuits with a 26% share. On average, each of the selected product segments has only 1-4 major players holding more than 10% market share each.

In terms of annual per capita consumption of non-condiment products from the list above, Indonesians consume a significantly higher amount of instant noodles at 5.44kg than bread (1.9kg) and biscuits (1.3kg). Stock, soy sauce and chili sauce are considered condiments and are either added during the cooking process or as a sauce to compliment flavor and expected consumption is below 1kg per capita per annum for each product.

[18] Communication with AC Nielsen, Indonesia, produced a list of 5 centrally-produced foods with highest market penetration: instant noodles, stock, soy sauce, chili sauce and biscuits. Bread was also included in order to compare the potential impact of iodized salt in its production compared to other countries. However only large scale producers were considered, not the many small bakeries.

[19] Perception of margarine producers using non-iodized salt was based on discussions with GAIN Jakarta office and confirmed by oil and margarine producers.

[20] Euromonitor Passport 2013, Clarity Analysis

Selected food segments- key indicators in 2012

Product	Production Volume (MT)	Industry Value (USD Mn)	Annual Growth	Per Capita Consumption (kg/year)	Number of Key Players*
Instant Noodles	1,547,000	2,600.0	10%	5.44 kg**	2
Stock	57,000	219.3	13.9%	0.2 kg	2
Soy Sauce	230,000	370.6	10%	0.94 kg	3
Chili Sauce	83,000	147.3	14%	0.34 kg	2
Biscuits	249,000	1,200.0	8.8%	1.30 kg***	4
Bread	223,000	430.0	12.5%	1.90 kg	1
TOTAL	2,389,000	4,967.20			

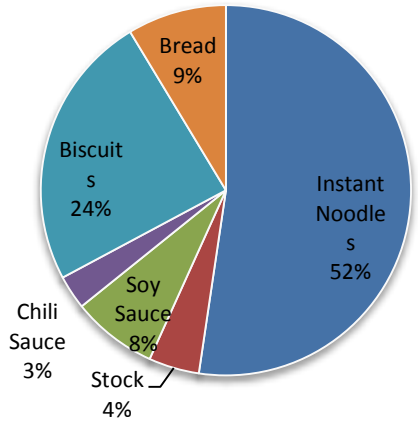
Source: Euromonitor Passport 2013, World Noodle Association, Mintel Global Market Navigator

* Number of players with ≥ 10% market share in their respective segment

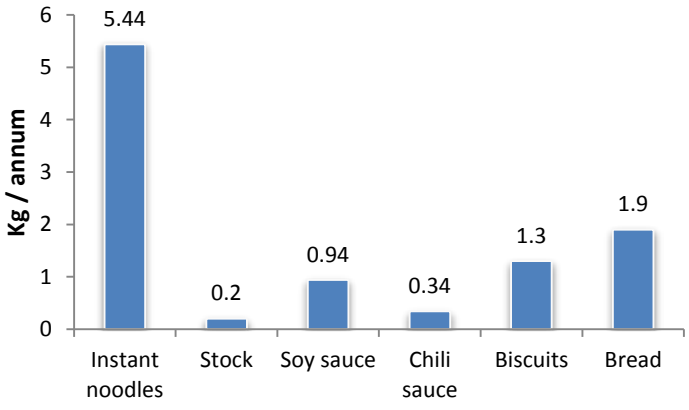
** Per capita consumption based on extrapolation of survey findings and on current data from the World Noodle Association (14,900 million packs per year in 2013, equivalent to 4.9kg/pers if 80 g pack size or 5.5kg/pers if 90g pack size). http://instantnoodles.org/noodles/expanding-market.html (accessed 24.6.14)

**** 1.3Kg per capita biscuit consumption is from Mintel Global Market Navigator data, which conflicts with information from major producers paired with information from Roy Morgan research which gives the highest level of consumption as 0.3kg/year for socio-economic group A (see Findings for bread below). To be consistent, the 1.3kg/pers/year figure will be used throughout this report.*

Market share by retail value of the six selected products (2012 data)



Annual per capita consumption (Kg) of the six selected products (2012 data)



Source: Euromonitor Passport 2013, World Noodle Association, Mintel Global Market Navigator, interpreted and presented by Clarity Analysis.

Review Methodology

Clarity conducted a survey of major producers of the above six processed foods, to determine food producers' usage of iodized salt in the production of these foods, together with their quality control and labeling practices. These companies are listed in the table below.

Many of the surveyed companies produced more than one type of the six food products and were therefore interviewed about each product. Clarity primarily undertook interviews with personnel from the R&D and QA departments.

Companies participating in the survey according to food product of interest

Instant Noodles	Stock	Soy Sauce	Chili Sauce	Biscuit	Bread
Indofood CBP Sukses Makmur	Nestle Indofood Citarasa Indonesia	Heinz ABC Indonesia	Heinz ABC Indonesia	Arnotts Indonesia	Nippon Indosari
Nissin Mas	Unilever Indonesia	Jakarana Tama	Nestle Indofood Citarasa Indonesia	Mayora Indah	Pangan Rahmat Buana
Sentra food Indonusa		Nestle Indofood Citarasa Indonesia	Ikafood Putramas	Orang Tua Group	
Jakarana Tama		Unilever Indonesia	Jakarana Tama		
ABC President Indonesia			Sparindo Food		
Mayora Indah			SekarLaut		

Source: Clarity Analysis

A summary of overall findings related to iodized salt use and related practices is given below, followed by results for each food product.

Key findings

In total 16 out of 45 food producers that Clarity approached, agreed to participate in the survey. These 16 companies accounted for between 37-95% of the market share for their respective food segment(s). It is not known why the other companies declined to take part in the survey, however, it needs to be considered that the findings here relate only to the products and percent market share of the product represented by the companies that took part. It is not possible to give information for the national situation.

From the 16 producers all but two producers used iodized salt in the production of at least some food products. One of the non-users was a major player in the stock and soy sauce segment, hence the relatively low proportion of salt that was iodized shown in the table below. While the other company was a small player in the instant noodle segment.

It should be cautioned that in the stock and biscuit segment, participating producers representing only one third of the national market share, also that only bread companies producing on a large

(industrial) scale were invited to participate, therefore findings cannot be considered representative of the total food segment.

Survey key findings (for companies that participated in the survey)

Product	No of Companies	Production Share of surveyed companies	Annual Production	Total Salt Usage (MT)	Iodized Salt Usage (MT)	% Mkt share using iodized salt*
Instant Noodles	6	67%	11.8Bn packs** Approx. 1 Mn MT	22,000	21,692	66%
Stock	2	36.7%	24,000 MT	13,000	2,990	8.4%
Soy Sauce	4	82%	145,330 MT	11,608	7,197	50.8%
Chili Sauce	6	94%	67,300 MT	2,974	2,974	94%
Biscuits	3	37.5%	38,200 MT	702	702	37.5%
Industrial Bread	2	95%****	326.2 Mn packs***	590	590	95%

* Percentage market share using iodized salt based on surveyed companies market share multiplied by the percentage of iodized salt. Therefore representative for participating companies only.

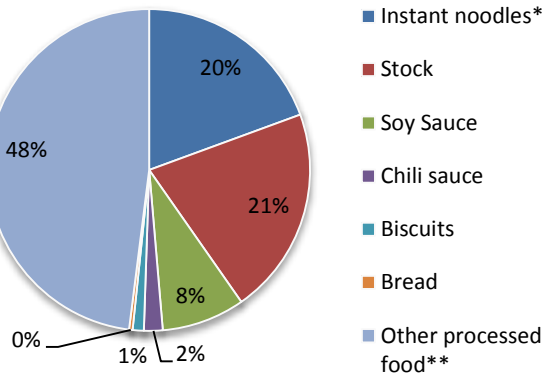
**Typical pack size between 75-90g

*** Pack size varies considerably, from 70-370g

**** Production share based on the industrial bread segment only (about 10% national market)

Source: Clarity Analysis based on Euromonitor Passport 2013, interviews with Directorate of Manufacturing Base Industry Ministry of Industry and with BPOM and survey results and Survey results

Breakdown of salt used by processed food categories (2012). Based on salt use reported by food producers in the survey and extrapolation based on the % market share they represent



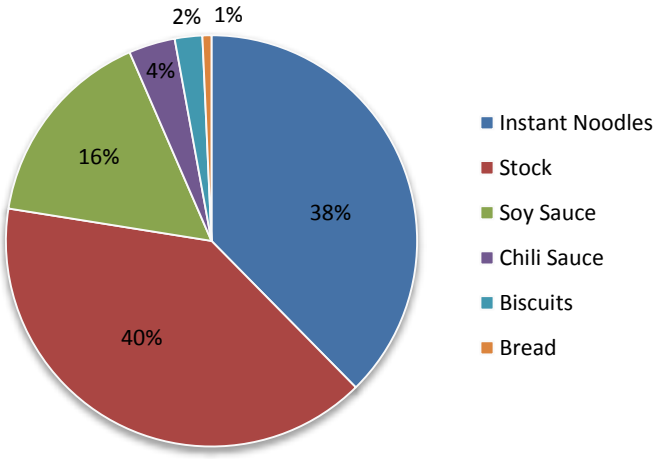
* Salt use for instant noodle production estimated from information provided by food producers in this survey (presented here) is about 70% of the value estimated by the Ministry of Industry in 2010 (50,000 MT).

**Other processed foods include: Cooking oil, margarine, savory snacks and chips, processed meat and ready to eat meals, canned fish

Source: Clarity Analysis based on Euromonitor Passport 2013, interviews with Directorate of Manufacturing Base Industry Ministry of Industry and with BPOM and survey results

Clarity extrapolated total salt usage per food segment for the six segments included in the study, based on surveyed companies' salt usage and their respective market share. Clarity estimates that the six food product segments consumed 88,000 MT of salt in 2012, with instant noodles, stock and soy sauce accounting for 93%. See graph below.

Salt consumption by selected food segments (MT (rounded value), % total salt used for these 6 food segments)

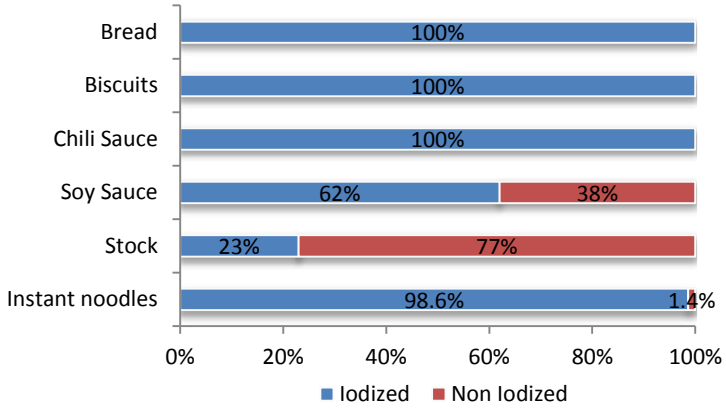


Source: Clarity Analysis based on survey results

Most food producers surveyed used iodized salt, with only 12% of companies (2/16) preferring to use non-iodized salt. However one of the users of non-iodized salt is one of the major salt consumers as it is a major player in its respective food segments with 31.5% market share for stock and 33.8% for soy sauce.

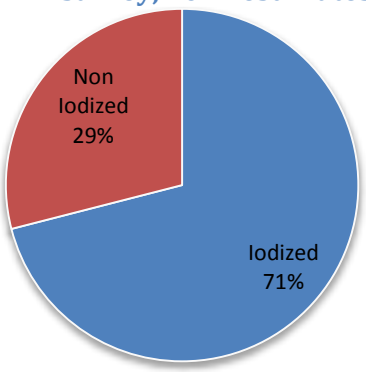
Nationally, the total proportion of non-iodized salt used in these six products may be different, especially for the stock and biscuit food segments as participating producers only represented one third of total market share and there is no information available about whether companies who declined to join the survey use iodized or non-iodized salt.

Types of salt used in the production process for the 16 companies who participated in the survey

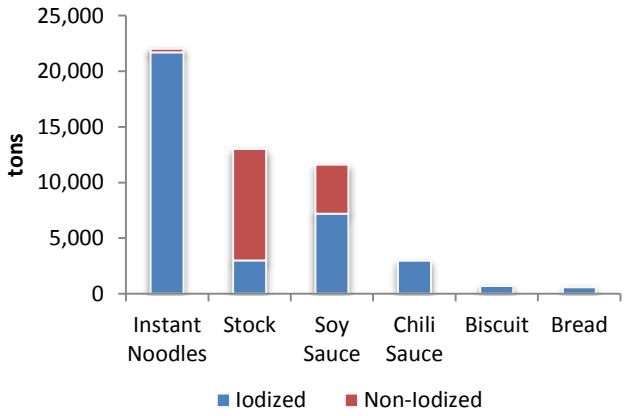


Source: Clarity Analysis based on survey results

Processed food usage of iodized vs non-iodized salt for the 16 companies who participated in the survey, 2012 estimates



Breakdown of volume of iodized vs non-iodized salt by selected food segments for the 16 participating companies, 2012 estimates[21]



Source: Clarity Analysis based on survey results. Without knowing more about the expected iodized salt usage of other companies, it is not valid to extrapolate these findings for the complete national market.

[21]Breakdown for iodized and non-iodized salt is for six food categories only while estimates on page 7 cover all processing industries including margarine and home industry companies that are expected to use non-iodized salt.

Salt and potential iodine content per serving

Based on the above data provided for salt usage in production of for each processed food, additional estimations were done to determine the approximate amount of salt intake per serving. From this, the potential iodine intake, if all salt used was iodized, was calculated. This is shown in the table below. Of the six products, instant noodles and stock have the highest salt content per serving. One serving of instant noodles has the potential to provide approximately 36% of an adult's adequate daily iodine intake (150µg)if produced using iodized salt. While a 3 g serving of stock could provide approximately 20% of adequate daily iodine intake and a 15 g serving of soy sauce could provide approximately 14%. Chili sauce (5g serving) and biscuits (25g serving) could provide approximately 3% and 6% of an adult's adequate daily iodine intake respectively.

The table overleaf also provides an illustration of these amounts in terms average daily per capita consumption.

Barriers to using iodized salt

88% (or 14/16) companies using iodized salt said there was no barrier to using iodized salt, however soy sauce producers mentioned that they perceived that iodized salt could not be used to ferment soy beans but could be used in the soy sauce production process.

Only a minority, 12% (2/16), of food producers were not using iodized salt in the production process and they cited barriers to its use as:

- Complicating the supply chain; this food producer also produced margarine for which they used non-iodized salt and preferred not to handle two types of salt in their supply chain.
- Perception that iodized salt could not be used for certain food processing such as fermenting soy or manufacturing margarine.
- The price difference between iodized and non-iodized salt.

Non-users of iodized salt would be willing to switch to iodized salt if the government passed developed specific implementing regulations for the use of iodized salt in the production of all, or of certain, food products. An alternative solution would be to require all processed food products to have an SNI which in effect would require them to use iodized salt.

Summary of key findings related to potential iodine intake from selected products if all salt used in production is iodized

Food product	Salt by product unit	Unit	Est. average serving size (g)	Equivalent salt intake from one serving size of product (g)	Potential iodine intake from one serving size of product (µg)*	% of Recommended adequate daily iodine intake for an adult (150µg)	Est. per capita daily iodine intake (µg)*	% Recommended adequate daily iodine intake for an adult(150µg)
Instant noodles**	3	Pack	85	3	54	36%	9.5	6.3%
Stock	54.2%	% / by weight	3	1.6	29	20%	5.3	3.6%
Soy sauce	8.0%	% / by weight	15	1.2	22	14%	3.7	2.5%
Chili sauce	4.4%	% / by weight	5	0.2	4	3%	0.7	0.5%
Biscuits	1.8%	% / by weight	25	0.5	8	6%	1.2	0.8%
							0.3***	0.2%
Bread	1.5%	% by serving size	*Cannot be calculated from available data*					

* Based on average per capita consumption of each product (from Euromonitor Passport 2013, World Noodle Association, Mintel Global Market Navigator and survey findings as above) and using a minimum salt iodine content of 18ppm (18µg iodine/g salt) if the salt is iodized. In reality,

** Data for instant noodles is based on estimates of g salt per pack taken from a variety of sources. Information provided to Clarity during the interviews was incomplete due to missing data (producers did not have the data available or did not want to share it) and data that implied either only salt used in noodles (not spice packs) was provided or only salt for the spice pack was provided (not accounting for the weight of the noodles). Therefore data for salt used in instant noodle production (Min of Industry) compared with number packets consumed per year (World Noodle Association and Clarity interviews) and a personal communication with a noodle manufacturer were used to propose an average figure of 3g salt per product unit (usually 80-90g pack).

***Two different options presented for biscuits based on the per capita consumption figures of 1.3kg/pers/year and an average from interviews with biscuit producers of 0.3kg/pers/year.

Source: Interview findings and as above for instant noodles.

Companies perception of iodized salt regulations

Fourteen of the food producers interviewed (88%) saw no barriers to using iodized salt in their production process and abided by the regulations outlined in the 1994 Presidential Decree, although some did not use iodized salt for soy fermenting but used it for soy sauce processing.

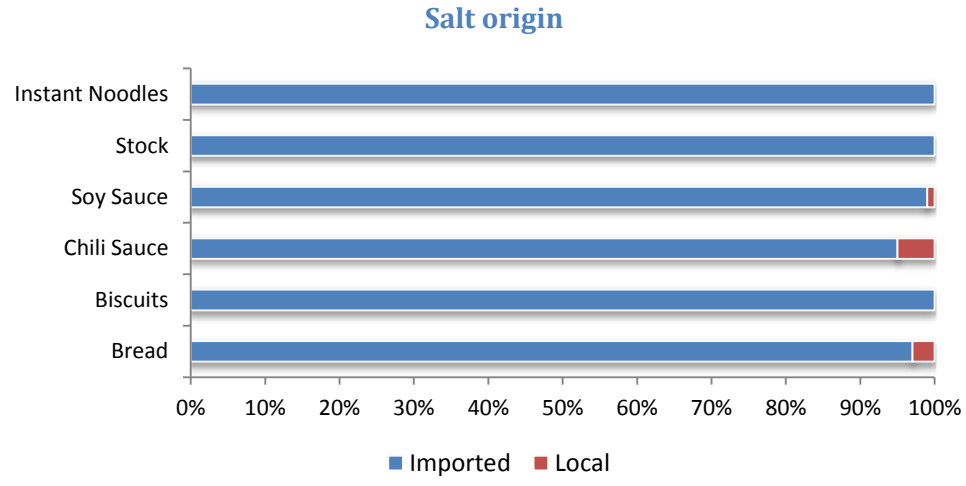
Two of the companies interviewed (12%) fully understood that according to the current regulatory framework, there is no requirement for food producers to use iodized salt because no implementing regulation has been issued by the Ministry of Industry. These companies primarily use non-iodized salt for cost/supply chain reasons and would only switch to iodized salt if they were legally required to do so.

Several companies mentioned that if the food industry was required to use iodized salt that this should not be inclusive of all products, since food producers perceived that iodized salt interfered with the production process of certain products including:

- Salted fish
- Margarine
- Cooking oil
- Soy bean fermentation.

Origin of salt supplies

Salt suppliers typically give food producers the option of purchasing imported or domestically produced salt, with imported salt sold at a higher price than domestically produced salt. Most food producers opt for imported salt as it has higher purity and lower moisture content. Only soy sauce, chili sauce and bread production uses some domestically produced salt. Food producers are not aware of salt's country of origin but claim that they can tell whether it's imported from visually inspecting the salt.

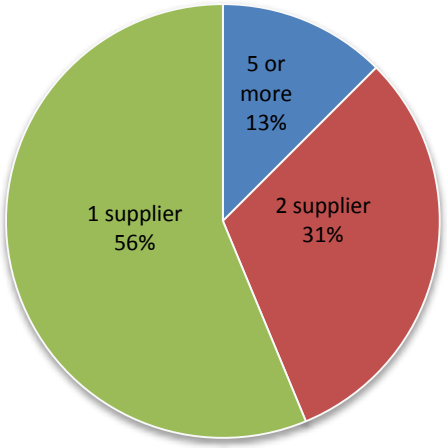


Source: Clarity Analysis based on survey results

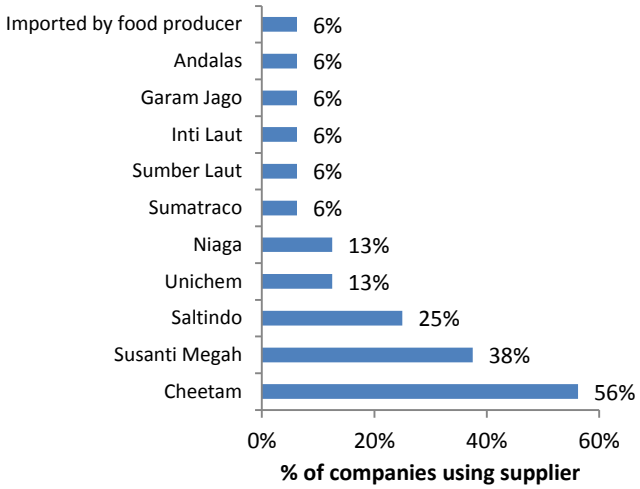
Key salt suppliers

Typically food producers' source salt from one or two salt producers, however very large food producers with very high salt usage source salt from five or more producers to ensure continuous supply.

Number of salt suppliers used by a single processed food company



Preferred suppliers



Source: Clarity Analysis based on survey results

Food producers interviewed reported that they sourced salt from 10 salt producers, however the two main suppliers are Cheetam and Garam Indonesia supplying 56% (9/16) of the food producers and Susanti Megah supplying 38%(6/16) of the food producers. Many of the other salt producers only supplied one or two of the food producers interviewed.

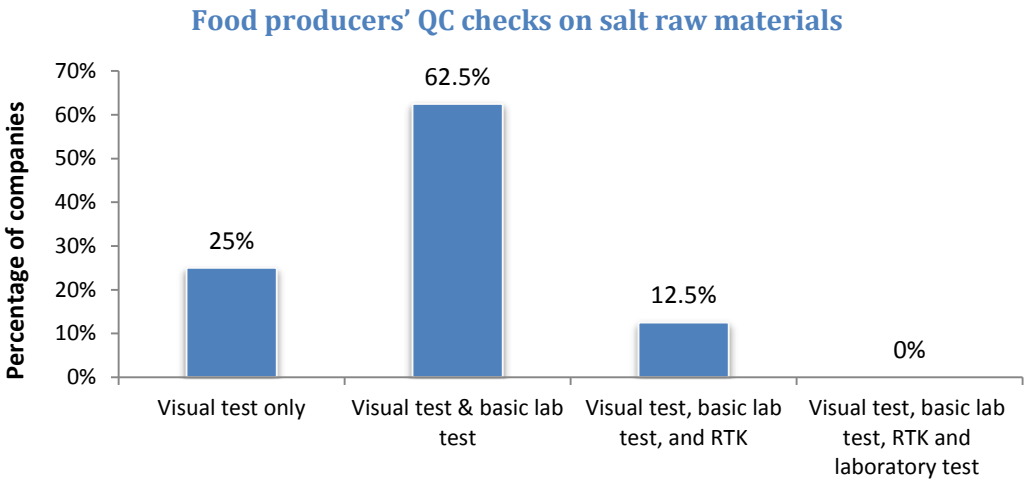
Quality Control procedures

Food producers interviewed for the most part only undertake rudimentary quality control checks on salt as a raw material and are mostly reliant on salt suppliers providing them with salt that meets the technical specifications set out in the Certificate of Analysis (CoA).

The majority of companies, 62.5% (10/16), undertake visual checks plus basic laboratory tests on moisture content and NaCl content and a further 25% (4/16) only undertake visual tests.

Iodized salt QC

Only the very large food producers also undertake a rapid test kit (RTK) to check that the salt is iodized. However, no food producer tests the iodine content (ppm) or undertakes full analysis to check that the iodine level conforms to the CoA.



Type of Test	Key criteria checked	% of companies conducting this test
Visual test	Cleanliness	100%
Basic lab test	Moisture and NaCl content	75%
Rapid test kit (RTK)	Iodine content (Yes/No)	12.5%
Laboratory test	Iodine content (ppm)	0%

Source: Clarity Analysis based on survey results

Food producers informed Clarity that the iodine ppm test on salt was not easy to carry out and that companies were not concerned with the iodine level providing that it exceeds the minimum requirement for iodized salt (30 ppm KIO_3 equivalent to 18ppm iodine). Some 62.5% (10/16) food producers informed Clarity of the ppm level provided in one or two of their CoA[22]. From companies that provided the ppm, all results were above the minimum 18ppm iodine with 60% (6/10) between 18-23 ppm iodine and the other 40% higher than 23ppm iodine.

All of the large salt suppliers provide a Certificate of Analysis (CoA) for each delivery, while small salt suppliers generally only provide a CoA every month.

Labeling of iodized salt and nutritional information on the packaging

All food producers list ingredients on the food package but provide no additional details. Only instant noodles, bread and biscuits provide nutritional values. Stock, soy sauce and chili sauce are considered condiments that are not consumed in large quantities making them exempt from this requirement. Only instant noodles provide facts about additional for tificants and the related percent of daily values for these.

[22]Some food producers provided CoA that were several month's old as an example of the CoA results.

Food labels of the selected food products surveyed

Instant noodles	Stock	Soy/Chili Sauce	Bread	Biscuits
Total energy (kcal) Total fat - Saturated fat (g) - Cholesterol (mg) Protein (g) Total Carbohydrate - Dietary Fiber (g) - Sugar (g) Natrium (mg)	No nutrition fact information	No nutrition fact information	Total energy (kcal) Total fat - Saturated fat (g) - Cholesterol (mg) Protein (g) Total Carbohydrate - Dietary fiber (g) - Sugar (g) Natrium (mg) Calcium (mg)	Total energy (kcal) Total fat - Saturated fat (g) - Cholesterol (mg) Protein (g) Total Carbohydrate - Dietary fiber (g) - Sugar (g) Natrium (mg) Calcium (mg)
Additional fortificants including supplement facts Vitamin A Vitamin B1 Vitamin B6 Vitamin B12 Niacin Folic Acid Pantothenic Acid Calcium Iron	No fortificant listed	No fortificant listed	No fortificant listed	No fortificant listed

Source: Clarity Analysis based on surveyed companies' food packaging

None of the food producers surveyed currently list iodized salt on their food label as they are not legally required to do so. Most of the food producers sampled (10/ 16) perceived that listing iodized salt would not provide any added value as consumers are generally not health conscience or concerned about iodized salt, nor do they read food labels. Most of the food producers that do perceive labeling iodized salt will bring value added are instant noodle producers.

All companies stated that if the Government passed a new regulation that required more comprehensive food labeling including listing iodized salt and salt and / or iodine content they would all be happy to comply with the regulation.

Results by Food Industry Segment

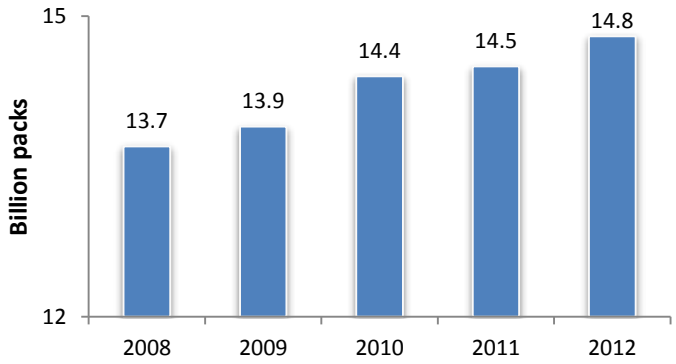
Instant Noodles – market overview and iodized salt usage

Market size

In 2012, some estimated 14.8bn packs of instant noodles were sold in Indonesia, valued at US$2.6 bn. The sector grew by 10% in 2012 primarily driven by Indofood launching new flavors of Indomie.

Instant noodle consumption in Indonesia

(Billion Packs)



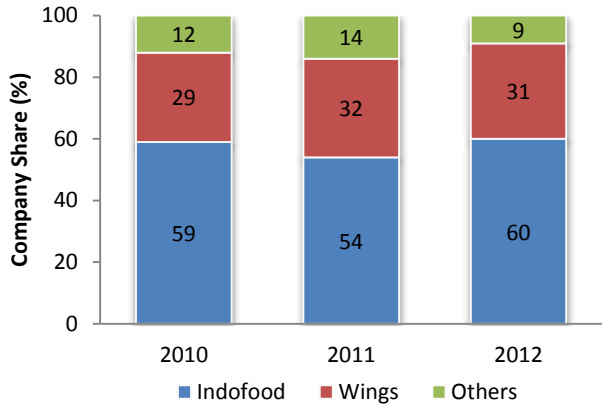
Source: World Instant Noodle Association website http://instantnoodles.org/noodles/expanding-market.html (Accessed June 2014)

Number of players and market share

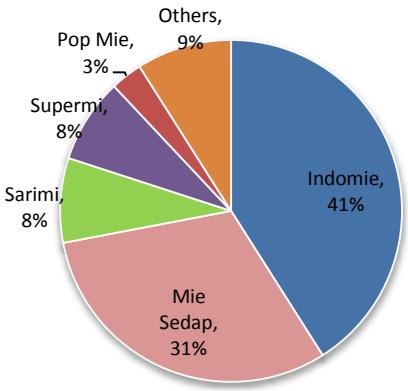
There are five major instant noodle producers with 25-30 factories located across Indonesia. Indofood CBP Sukses Makmur (Indofood CBP) is by far the largest player with 60% market share and 14 factories across Indonesia. In comparison the second largest player Prakarsa Alam Segar (Wings Group) has 31% market share and only one brand, produced at two factories. Other producers individually hold less than three percent share.

In terms of brand share, Indomie (Indofood CBP) is the brand leader with 41% share followed by Mie Sedaap (Wings Group). Indofood's other brands, Supermi, Sarimi and Pop Mie, hold 3rd to 5th position in terms brand share.

Instant noodle producer - market share (2010-2012)



Instant noodle brand – market share (2012)



Source: Credit Suisse' Indonesia Consumer Survey

Most instant noodle facilities are located in the Greater Jakarta area or scattered across Sumatra. Only Indofood has production facilities in Eastern Indonesia.

Instant noodle factory location

Source: Clarity Analysis based on survey results and company websites

Industry trends

The current players are expected to dominate the industry for the foreseeable future as no new entrant is expected, with annual projected growth at 8-10% p.a over the next five years.

Producers will focus on increasing market share primarily through launching new variants and expanding their distribution reach. Producers are not expected to build new factories until they are operating at close to full capacity.

Instant noodles come in two types of packaging – plastic packaging or cups. Plastic packaging remains the more popular form, accounting for 95% market share, as they are more affordable than the cups.

Consumer market segments

Virtually all Indonesians eat instant noodles regardless of consumer segment. Consumers of lower and middle income group typically eat instant noodles as a complete meal while upper middle and higher income groups typically consume instant noodles as a quick snack.

In terms of brands, middle and upper income consumers tend to flavor Indomie while lower income consumers have fairly equal preference for Indomie and Mie Sedaap.

Instant noodle brand preference by income group

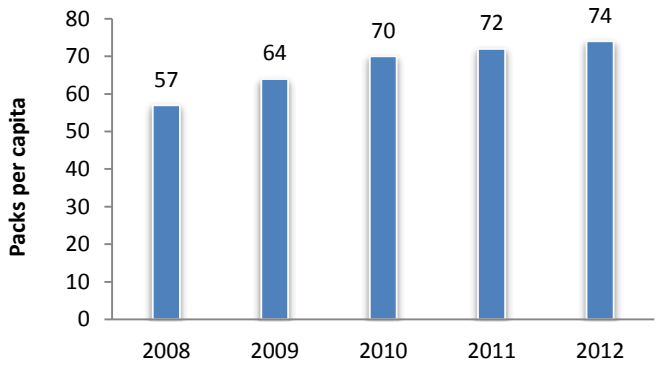
Income Group (SES class)	Indomie (Indofood)	Mie Sedaap (Wings Group)
Upper Income (A&B)	33%	24%
Middle Income (C1 & C2)	41%	30%
Lower income (D & E)	39%	35%

Source: Credit Suisse' Indonesia Consumer Survey

Per capita consumption

Indonesian's annual per capita consumption reached 74 packs in 2012 up from 64 packs in 2009.

Instant noodle per capita consumption (2008-2012)



Source: World Instant Noodles Association, Clarity Analysis (based on pack size of approx. 80g)

According to the World Noodle Association Indonesia had the second highest per capita consumption of instant noodles after South Korea. Indonesia's per capita consumption is 1.3-2.5 times higher than in neighbouring Asian countries.

Population reach

Instant noodles have the highest population reach of all basic consumer staples. According to the Indonesian Consumer Survey 2013 conducted by Credit Suisse, 95% of adults surveyed (aged between 18-65) had consumed instant noodles in the past three months. The survey found similar penetration rates across urban and rural consumers as well as by geographical location i.e Java and non-Java residents. The survey found that 41% of respondents intended to consume more instant noodles in the next three month period.

The two major brands, Indomie and Mie Sedaap, are primarily retailed through general trade channels in order to reach the low to medium class consumers. Some smaller niche brands such as

ABC President and Nissan target medium to high end consumers and primarily sell through modern trade channels.

Iodized salt usage interview results

Clarity interviewed six instant noodle manufacturers that accounted for approximately 67% of market share.

Iodized salt usage

Six companies were interviewed representing 67% market share of noodles. Five of the six companies interviewed use iodized salt. Total annual salt used by these companies was 22,020 tons of which 98.6% was iodized.

One small producer does not use iodized salt and gave their reasons as iodized salt is more expensive than non-iodized salt and there is no legal requirement to use iodized salt.

Source of salt

All producers purchased salt from salt producers however they all ordered imported salt as it was better quality than domestically produced salt. The companies informed us that their suppliers provided them with the option of domestically produced or imported salt and all chose imported salt.

Salt and potential iodine content per serving

Each company has their own recipe and the salt content per portion and that reported ranged from 4% to 40% suggesting that some were reporting salt per unit weight of the noodle and some per unit weight of the spice pack only. Based on data from the Ministry of Industry for the total amount of salt used in instant noodle production, compared with the number packets consumed per year (World Noodle Association and Clarity interviews) and access to a personal communication with a noodle manufacturer, it is proposed to use an average figure of 3g salt per pack (usually 80-90g pack).If salt used in the production of instant noodles was all adequately iodized, one serving (packet) would be expected to contain at least 54µg iodine (or 36% of the recommended daily iodine intake of 150µg for an adult). From the consumption data below, estimated daily per capita consumption over a year ranges from <0.01 packs (SES class D& E) to 0.5 packs (SES class A). Therefore instant noodles have the potential to contribute an average of 18% of the daily requirement for consumers in SES class A.

SNI

Two of the six companies have SNI for their instant noodles, however neither company labels iodized salt on the package. Refer to Appendix 1 for SNI information.

Food labeling

None of the companies list iodized salt in their ingredient list. Several brands used fortified products, such as fortified wheat flour, and label these on the front of the pack and include information including the percent recommended daily intake of the micronutrients provided.

Value added of listing iodized salt

Instant noodle producers were split on their view of whether labeling iodized salt would provide any perceived added value to the consumer:

- 67% (4/6) consider labeling iodized salt would be perceived by the consumer as the product having added value
- 33% (2/6)consider labeling iodized salt would not provide any added value as consumers are not concerned about the ingredients

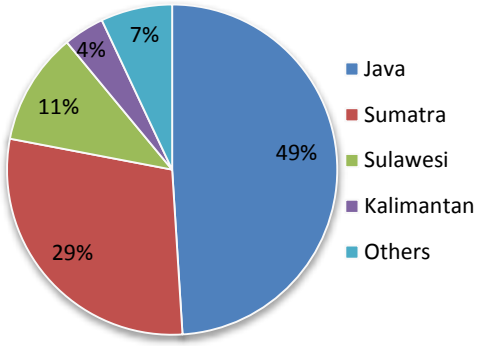
All companies are willing to list iodized salt if they are legally required to do so.

Distribution channel

Instant noodle producers channel 58% of their sales through general trade outlets (primarily mom and pop shops) with the remaining 42% channeled through modern trade outlets (hypermarkets and super markets). The market leaders typically have a greater emphasis on general trade distribution channels as they want to reach the majority of the population, while the smaller niche players typically focus on the modern trade distribution route as it is costly to build up a good general trade distribution network.

As most producers are located in Java, there is a geographical bias towards Java which absorbs 49% of the total market share, followed by Sumatra with 29%. This is fairly in line with the population distribution between islands.

Instant noodle sales by region (%)

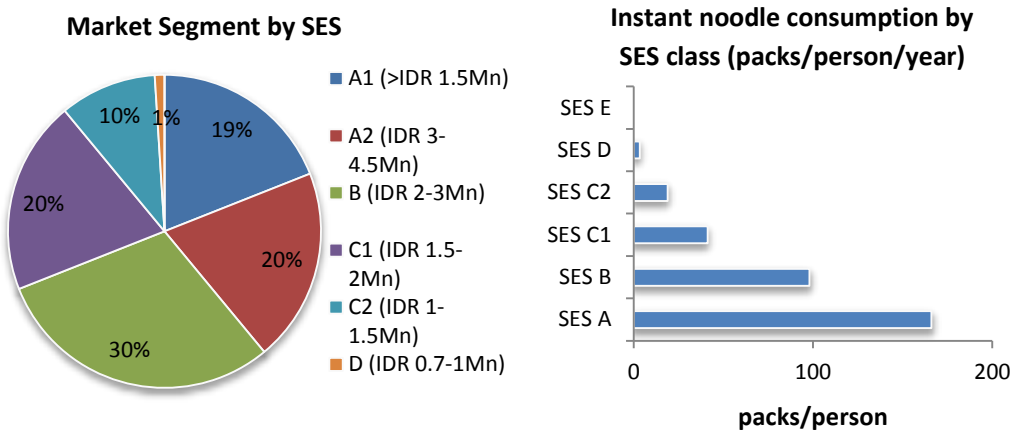


Source: Clarity Analysis based on survey results

Market segment

Instant noodle producers claim that 69% of instant noodles are consumed by SES A and B class (i.e consumers that spend more than IDR2mn a month on non-capital goods(see Appendix 3 for a breakdown of the population by SES class).

Consumer by SES market segment



Source: Interviews and Roy Morgan Research

Stock– market overview and iodized salt usage

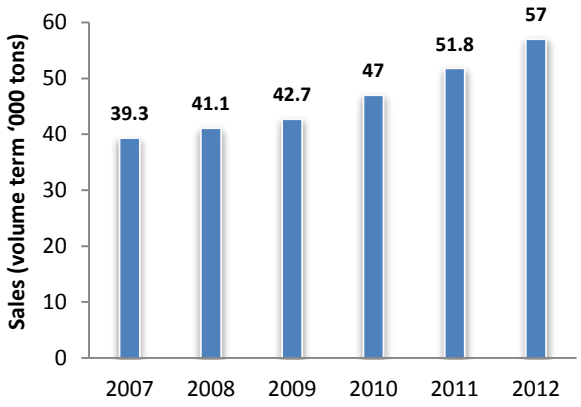
Introduction

Stock refers to stock and complete food seasoning as large producers typically produce both types of seasoning and it is not possible to differentiate between the two products in terms of salt usage.

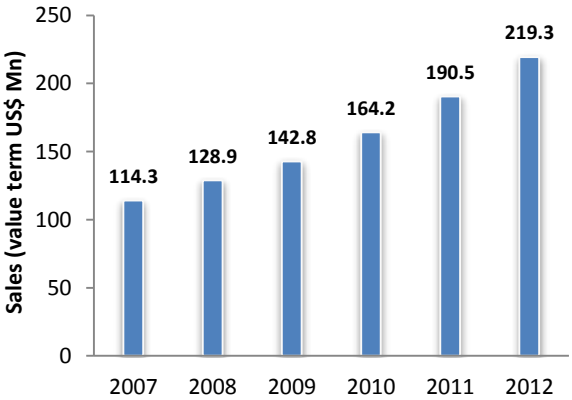
Market size

Approximately 57,000 MT of stock valued at US$219.3 mn were produced in 2012. The segment grew at 13.9% p.a over the past five years in value terms.

Stock(volume '000 MT)



Stock (value term US$ Mn)



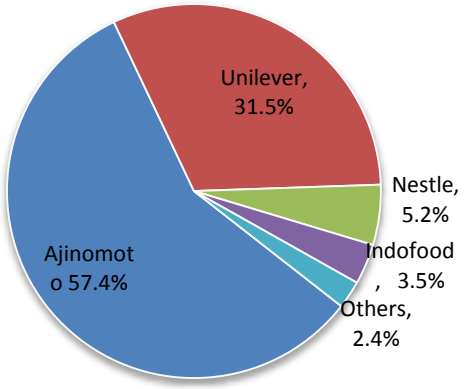
Source: Euromonitor Passport 2013

Number of players and market share

There are a limited number of stock producers in Indonesia. In total there are only five producers of which the top two players hold 89% market share: Ajinomoto 57.4% share with its brand Masako; Unilever 31.5% market share with its brand Royco. Both companies produce stocks and complete

food seasonings. Other producers are far smaller and mostly produce only complete food seasonings.

Stock market share by value (2012)



Source: Euromonitor Passport 2013

All stock producers are located in the Greater Jakarta area and only one company has a factory in the Greater Surabaya area.

Stock factory location

Source: Clarity Analysis based on survey results and websites

Industry trends

Current players are expected to dominate the market over the medium term but are not expected to add additional factories.

Large producers typically produce a range of stocks and complete food seasoning. Complete food seasoning is more popular that stock. The most popular package sizes are 8 g powder sachets.

Types of packaging for stock

Form	Packaging	Size	Customers / Users
Cube	PET Bottle	4g x 25 or 4gr x 50	Household
Powder	Sachet	8g, 50gr, 100gr	Household
Liquid /Gel	Stick Sachet	128 g	Household

Source: Clarity Analysis based on interviews with producers

Consumer market segments

Stock and complete food seasonings are consumed by most Indonesian households. Typically the middle to low income households will use stocks and complete food seasoning in powder form while the upper middle income households favor seasonings in gels and cubes.

Per capita consumption

Average per capita consumption is 0.2kg per annum of stock and complete food seasoning.

Population reach

Stocks and food seasonings are primarily sold in single serving powder sachets and are readily available in all types of retail outlets from small kiosks through to the large hypermarkets.

Unilever and to a lesser extent Ajinomoto have very broad distribution networks and do penetrate most of Indonesia.

Iodized salt usage interview results

Clarity interviewed two stock manufacturers including one of the major players. Combined, both players held 36.7% market share of the stock segment and consumed 13,000 MT of salt in 2012. One of the largest producers declined to participate in the survey. Results for the surveyed companies may not be representative of the whole stock segment as only 36.7% of segment participated in the survey.

Iodized salt usage

One producer used iodized salt while the other producer used non-iodized salt.

The producer using non-iodized salt stated that this was because 1) it simplifies the supply chain management to purchase only one type of salt for a number of different products and 2) it is possible for them to do this because there is no legal requirement to use iodized salt. The company stated that they needed to use non-iodized salt in margarine production since they believed iodized salt affected the product quality. The company believes that the Government should focus on law enforcement of table salt as most households use salt in the cooking preparation, rather than requiring food processors to use iodized salt. However, if the regulations are changed, they would comply with using iodized salt in stock production.

Source of salt

Both producers use imported salt. Both companies purchase from domestic suppliers, in addition one producer imports a small quantity of salt directly from China.

Salt and potential iodine content per serving

Stock has a much higher salt content compared to other products with 1.6 g per serving size,[23] equivalent to 54.2% of the product weight. If stock is produced using only adequately iodized salt, the potential iodine from one serving would be at least 29µg or 20% of daily iodine intake requirement. In terms of potential average daily iodine intake over the year from stock, this would vary from less than 1µg (SES class C consumers) iodine to 13µg iodine (SES class A consumers), based on per capita consumption per SES class, listed below.

SNI

The producer that uses iodized salt has an SNI for its stock but does not list iodized salt on the food label.

Food labeling

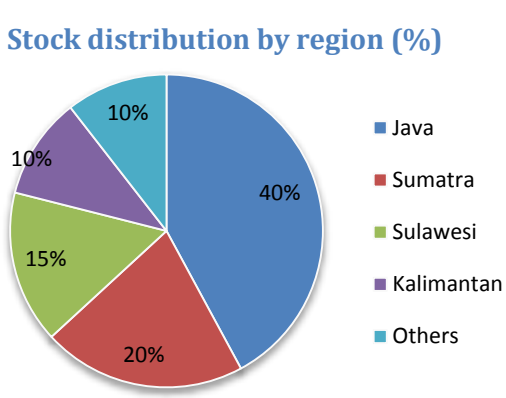
Neither producer lists iodized salt or fortified materials in their ingredients list. If required by law both companies stated they would label iodized salt.

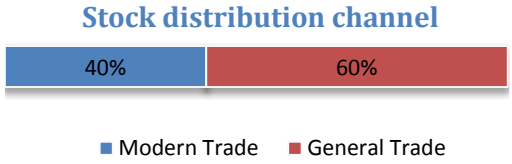
Value added of listing iodized salt

Both companies considered that labeling iodized salt would not result in consumer perception of added value as consumers do not read the ingredient list.

Distribution channel

Only one producer gave details on their distribution channel with 40% of their stock sold through modern trade outlets (minimarkets, hypermarkets and supermarkets); with 40% of this sold in Java, 20% in Sumatra and 15% in Sulawesi.





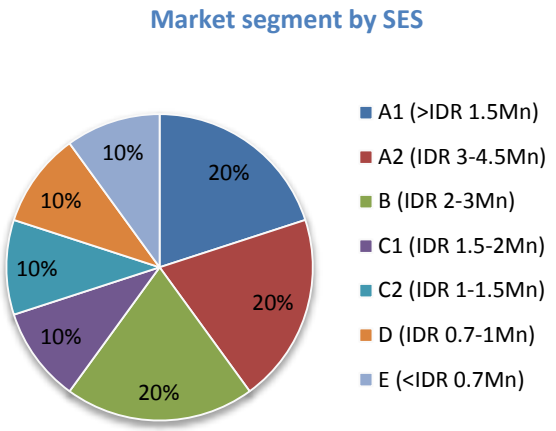
Based on results with one producer only which has nationwide coverage

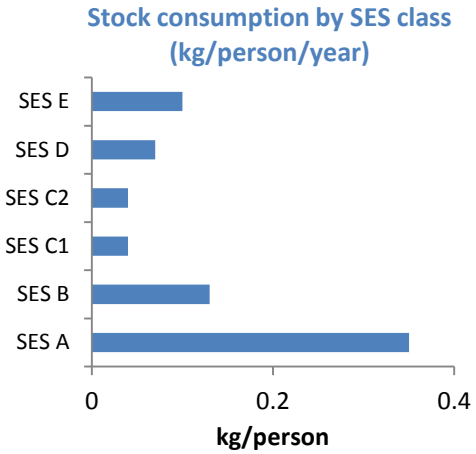
Source: Clarity Analysis based on survey results

Market segment

Stock producers that participated in the survey claimed that 60% of stock are consumed by SES A and B.

[23]Estimated average serving size is 3g





Source: Survey interviews and Roy Morgan Research

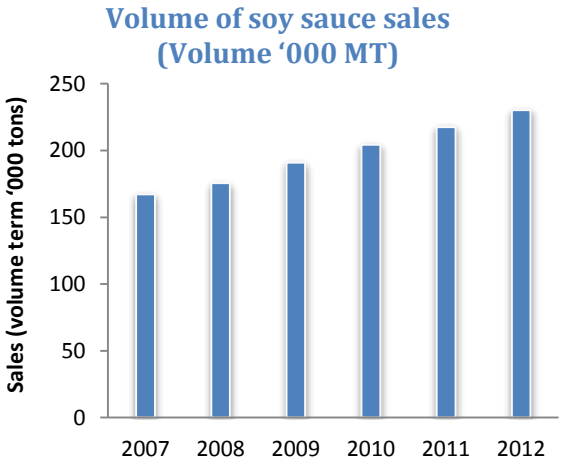
Soy sauce – market overview and iodized salt usage

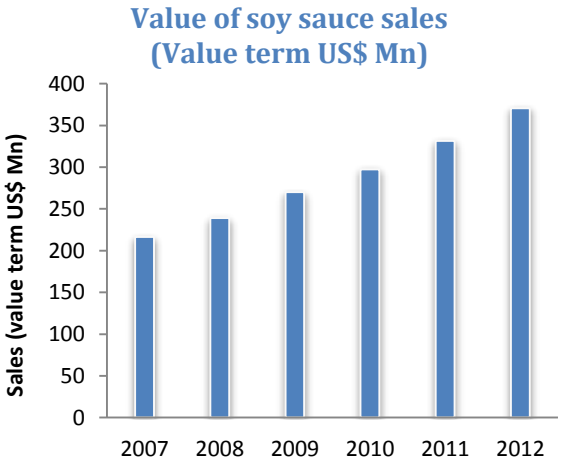
Introduction

Soy sauce includes sweet and savory soy sauce. It is estimated that sweet soy sauce accounts for 80% of production. Sweet soy sauce is Indonesian's favorite condiment used by most Indonesian households as a cooking ingredient as well as a condiment to add flavor and color to dishes.

Market size

The total soy sauce market size in Indonesia is 230,000 MT, valued at US$370.6 Mn in 2012. The soy sauce segment has grown by 10% p.a from 2007 to 2012 in value terms.





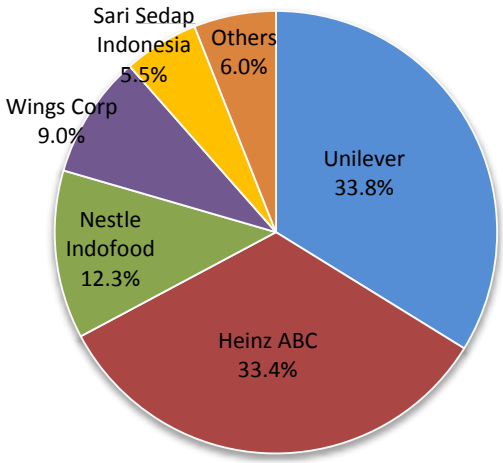
Source: Euromonitor Passport 2013

Number of players and market share

There are more than 400 soy sauce producers in Indonesia, of which more than 60% are home industries producing small quantities for their local market, with only a few large national sized players. Excluding the home industry producers, the top five national producers hold 94% market share.

The two largest players are Unilever and Heinz ABC who compete head to head, with both holding approximately one third of the market. The next three players have a combined share of 27%, these major players have dominated the retail segment for the past decade.

Factory produced soy sauce market share in value terms (2012)



Source: Euromonitor Passport 2013

Most of the national players have their primary production hub in the Greater Jakarta area with a second production facility located around Surabaya. The one exception is the Wings Group that is head quartered in Surabaya and has its main production facility located there.

Soy sauce factory location

Source: Clarity Analysis based on survey results and websites

Industry trend

It is estimated that 90-93% of soy sauce is sold directly to end consumers with the remaining 7-10% packaged in small sachets and included in the dry fried-style instant noodle packages. All major soy sauce producers, with the exception of Unilever, produce their own brand of instant noodles.

In order to gain market share, producers are trying to differentiate themselves by opening up new niche segments by launching premium products that are richer in taste.

Consumer market segments

Indonesians typically consume sweet soy sauce either as a condiment or in instant noodles.

Soy sauce reaches most Indonesians since it is distributed through both the general trade channel (60%) and the modern trade channel (40%) in various sized packages. To reach the upper income groups some companies have launched premium products that are sold only in modern trade outlets.

Per capita consumption

Per capita consumption of soy sauce is 0.94kg per annum.

Population reach

Almost all Indonesians across Indonesia consume soy sauce, either choosing nationally-produced brands or a local brand that is well known in the area. Several well-known local brands include Maja (West Java), Benteng (Banten), Sukasari (Central Java), and Sate (East Java), Zebra (West Java).

Iodized salt usage interview results

Clarity interviewed four soy sauce manufacturers including the market leaders that produce both sweet and savory soy sauce with sweet soy sauce estimated at 80% of production.

Iodized salt usage

Some soy food producers are reluctant to use iodized salt for fermenting soy as they believe that iodine affects the fermentation process. However, once the soy is fermented iodized salt can be used in the production of soy sauce.

Two producers (2/4) claim they only use iodized salt while one producer (1/4) does not use iodized salt and one producer (1/4) uses non-iodized salt for soy fermentation and iodized salt for soy sauce production.

Interviewed companies accounted for 82% of soy sauce market share and consumed11,608 tons of salt in 2012.

Source of salt

75% (3/4) of producers only use imported salt purchased from domestic salt producers. One producer also imports directly from China. One company uses both domestic and imported salt however domestically produced salt accounts for less than one percent of salt consumption.

Salt content per serving

Soy sauce has 1.2 gram of salt per serving size,[24] equivalent to 8% of product weight. If all soy sauce was produced using adequately iodized salt then it could provide at least 22µg iodine, equivalent to 14% of an adult's daily intake requirement. In terms of potential average daily iodine intake over the year, this would vary from around 1.5µg iodine (SES class E consumers) to at least 3µg iodine (SES class A consumers), based on per capita consumption per SES class, listed below).

SNI

All companies using iodized salt have an SNI but none list iodized salt on the label.

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[24]Average serving size is 15g

Food labeling

None of the companies list iodized salt or fortified materials in their ingredient list.

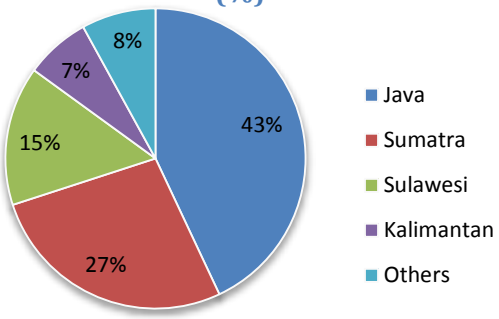
Value added of listing iodized salt

None of producers perceive that labeling for iodized salt would affect consumers' perception of the product value, since they do not believe that consumers read the ingredient list.

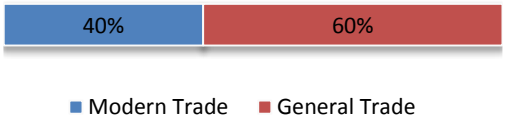
Distribution channel

Soy sauce producers' channel 60% of total production through general trade and 40% through modern trade.43% of all soy sauce is distributed in Java and another 27% is distributed in Sumatra.

Soy sauce distribution by region (%)



Soy sauce distribution channel

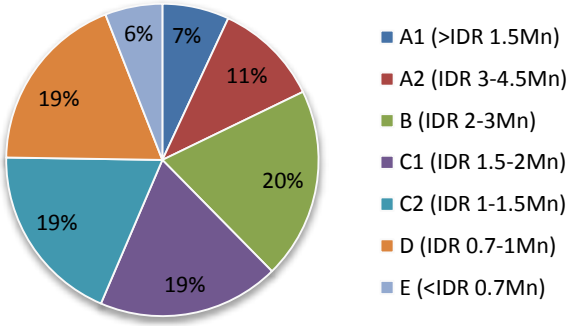


Source: Clarity Analysis based on survey results

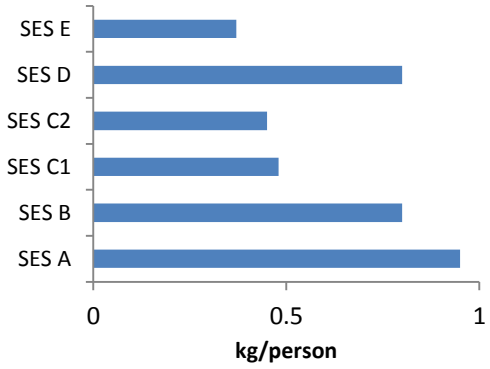
Market segment

38% is consumed by SES C, a further 38% is consumed by SES A and B combined.

Market segment by SES



Soy sauce consumption by SES class (kg/person/year)



Source: Interviews and Roy Morgan

Chili sauce – market overview and iodized salt usage

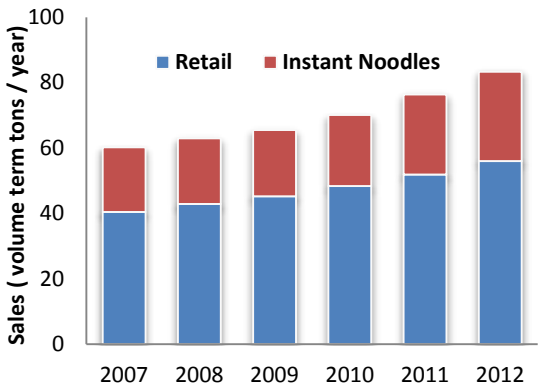
Introduction

Indonesians' second most popular condiment is chili sauce. Traditionally Indonesian housewives would make homemade chili sauce but due to changing lifestyles most Indonesians now rely on factory produced chili sauce.

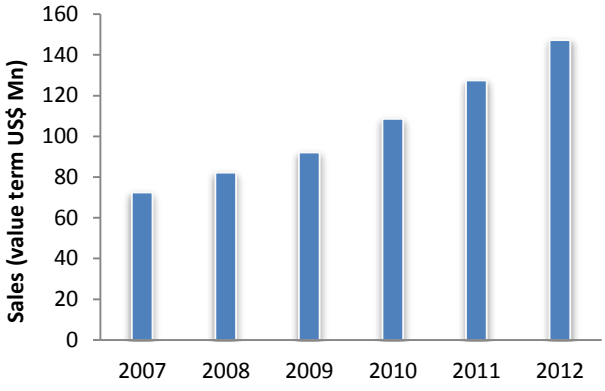
Market size

The total chili sauce market size for Indonesia was approximately 83,000 MT in 2012 with 67% sold to end consumers and 33% included as small sachets in instant noodle packages. The retail value of chili sauce sold direct to consumers is US$147.3mn with the segment growing by 14% p.a in value terms.

Volume sales of chili sauce (Volume '000 MT)



Value sales of chili sauce (Value term US$ Mn)[25]



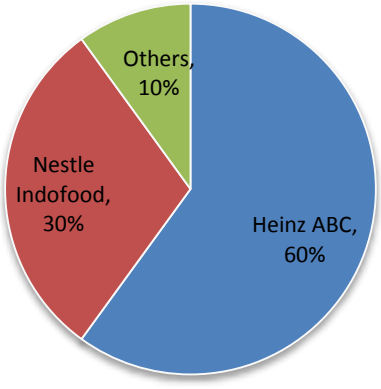
Source: Euromonitor Passport 2013 and Clarity Analysis

Number of players and market share

Indonesia has more than 20 companies producing chili sauce however most produce unbranded or private label brands. Nationally there are only 3-5 large sized companies.

The top two producers, Heinz ABC and Nestle Indofood control more than 90% share of the chili market. Heinz ABC is the market leader with 60% share followed by Nestle Indofood with 30%. There are several other national players including La Salle Foods, Sari Sedap Indonesia, Sekar Laut, and others.

Factory produced chili sauce market share in value terms (2012)



Source: Euromonitor Passport 2013

Chili sauce factories are mostly located in the Greater Jakarta and Greater Surabaya areas.

[25]Excludes soy sauce packed in instant noodles.

Chili sauce factory location

Source: Clarity Analysis based on survey results and industry websites

Industry trend

Most producers are currently operating below full capacity but indicated that they will expand once their facilities are running close to full capacity.

Consumer market segment

Virtually all Indonesians eat chili as a condiment either as a homemade ground chili paste (sambal) or factory produced chili sauce. Typically, the urban middle class prefer chili sauce as it is more convenient than making their own sambal, while the urban lower and upper class and rural consumers will prefer to make their own sambal.

Traditional restaurants typically offer customers a choice of sambal and factory produced chili sauce while fast food restaurants will only offer factory produced chili sauce.

Per capita consumption

Per capita consumption of chili sauce is 0.34kg per annum.

Population reach

Factory-produced chili sauce is primarily sold in urban and semi-urban areas and can easily be found in modern trade and general trade establishments. Chili sauce sachets packed in instant noodle packages will have a wider distribution reach due to the distribution networks of major instant noodle producers.

Iodized salt usage interview results

Clarity interviewed six chili sauce manufacturers accounting for 94% of production. Combined, the six producers consume 2,974 tons of salt.

Iodized salt usage

All companies interviewed use iodized salt.

Source of salt

The two market leaders and one small player use imported salt. Other small players use locally produced salt as it is cheaper than imported salt.

Salt content per serving

Similar to soy sauce, the salt content of chili sauce averages 1.2 g per serving size[26] equivalent to 4.4% of product weight. Similarly to soy sauce, if the salt used in production of chili sauce was all adequately iodized it would contribute 4 µg or 3% of an adult's adequate daily iodine intake. Across the income levels this would range from 0.5µg iodine (SES class E and C consumers) to at least 1.2µg iodine (SES class A consumers), based on per capita consumption per SES class, listed below.

When considering the additional salt and iodine from all these products together, there will be some overlap between salt (and potential iodine from iodized salt) in chili sauce and in instant noodles, since instant noodle data already accounts for the salt in chili sauce used in the final product.

SNI

Five out of six producers have an SNI but again none list iodized salt.

Food labeling

None of the companies list iodized salt or fortified materials in their ingredient list.

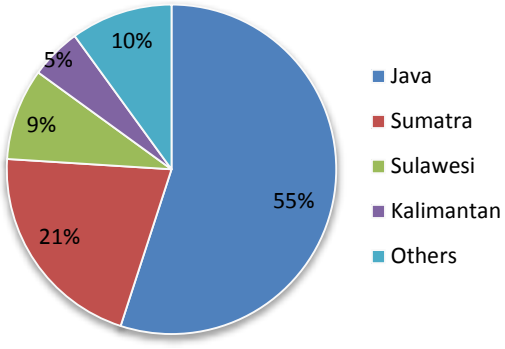
Value added of listing iodized salt

Only one company (a small player), considers that including iodized salt on the label would increase consumers' perception of the product value. Other producers perceive that it would not change consumers' perception of the product value since they believe that consumers do not read the ingredient lists.

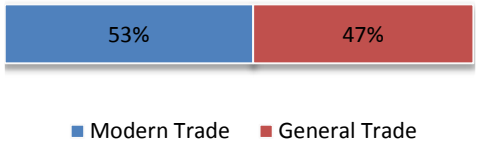
Distribution channel

Chili sauce producers channel 53% of total production through modern trade and 47% through general trade. 55% of chili sauce is distributed in Java and another 21% is distributed in Sumatra.

Chili sauce distribution by region (%)



Chili sauce distribution channel

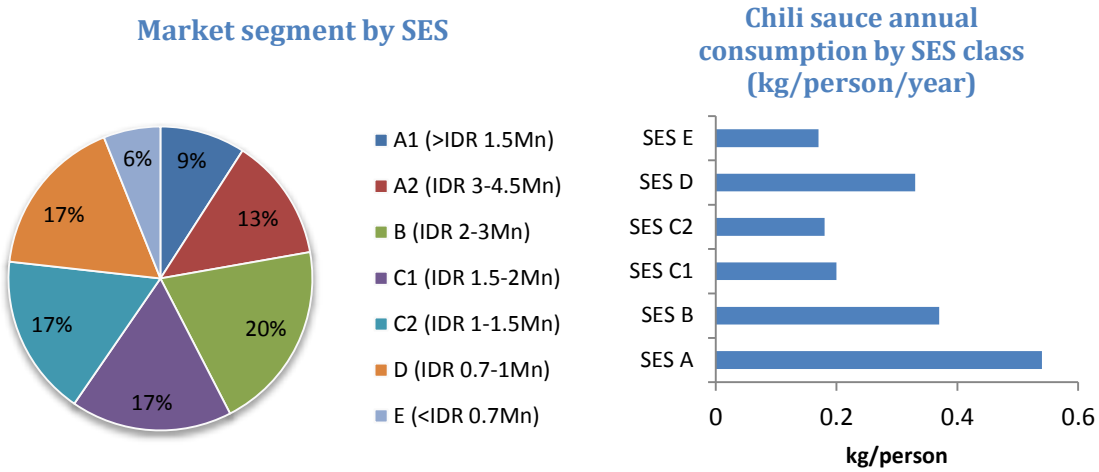


Source: Clarity Analysis based on results of interviews with producers

[26]Estimated average serving size of 5g

Market segment

34% of chili sauce is consumed by SES C, 22% is consumed by SES A and another 20%is consumed by SES B.

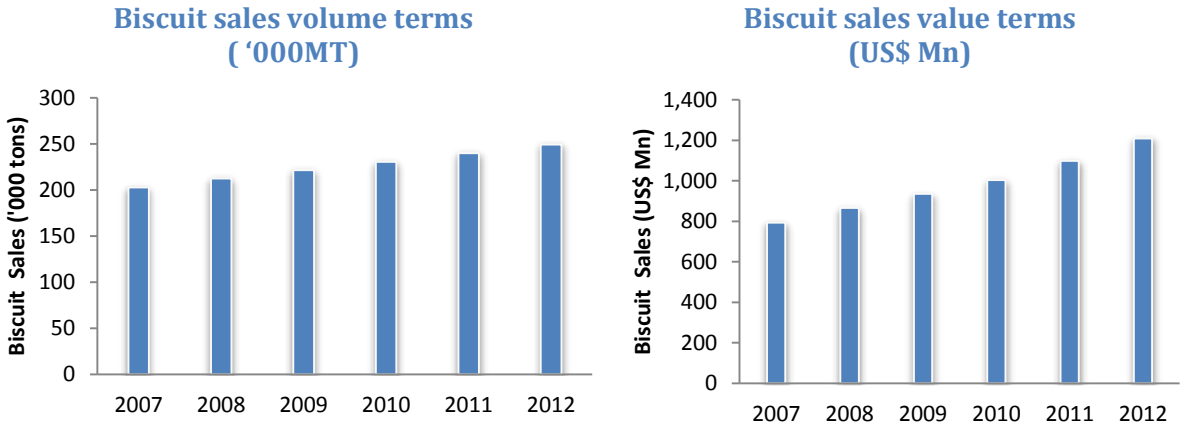


Source: Interviews and Roy Morgan Research

Biscuit – market overview and iodized salt usage

Market Size

The total biscuit market size in Indonesia in 2012 was 249,000 MT valued at US$1.2bn. In value terms the biscuit industry has been growing 8.8% in value term.



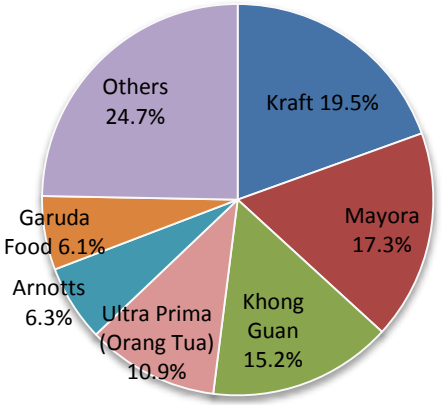
Source: Euromonitor Passport 2013

Number of players and market share

There are more than 100 biscuit manufacturers with four major players including Khong Guan, Mayora, Kraft and Orang Tua Group.

Kraft has the biggest market share of biscuits in Indonesia with 19%, followed by Mayora with 17%.

Biscuit market share in value terms (2012)



Source: Euromonitor Passport 2013

Most of the biscuit producers are located in the Greater Jakarta and West Java area with only Khong Guan having a third factory in East Java.

Biscuit factory location

Source: Clarity Analysis based on survey results and websites

Industry trends

Biscuit production is expected to increase 3-5% p.a over the next five years with the large mass producers gaining more market share. Home industry producers increasingly struggle to compete in the sector and are increasingly being replaced by small mass produced biscuit brands that more effectively develop brands and distribution networks. Large mass produced brands are expected to dominate the business segment for the foreseeable future and several are expected to expand production facilities within the next few years to keep up with growing demand.

Biscuit producers are increasingly packaging biscuits in single portion sizes that are both more convenient and affordable.

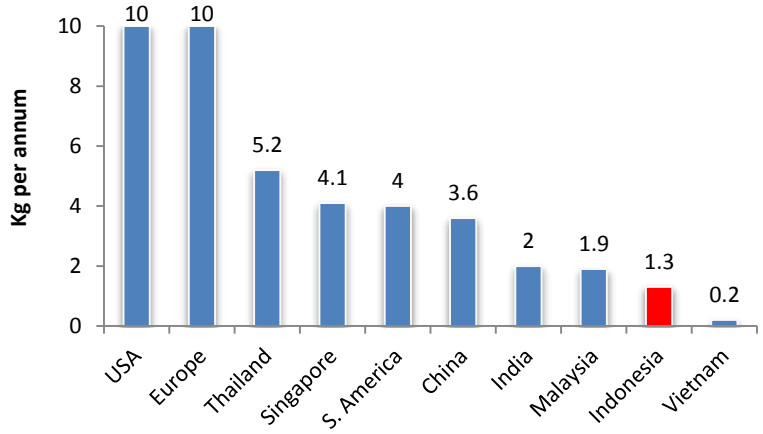
Consumer market segments and population reach

Virtually all Indonesians, regardless of age, income or location consume biscuits. Lower income groups and those located in semi-rural areas typically favor home industry made biscuits while upper income groups from urban areas prefer branded biscuits.

Per capita consumption

Although the biscuit market is large in Indonesia, per capita consumption remains low at just over 1.3 kilogram per capita per annum. Indonesia per capita biscuit consumption is similar to India but still below most of ASEAN countries (with per capita consumption 1.9-5.2kg / per annum) and Western countries such as Western Europe, North America and Australia where per capita consumption can reach 6.5-7.5kg / per annum. Data on consumption by SES[27] indicates even lower per capita consumption.

Biscuit per capita consumption (kg)



Source: Mintel Global Market Navigator

Iodized salt usage interview results

Clarity interviewed three biscuits producers accounting for 37.5% share of the biscuit segment. Combined, the companies used only 702 tons of salt in 2012.It should be cautioned that the results may not be representative of the whole biscuit segment as the sample size was less than 40%.

Iodized salt usage

All companies surveyed used iodized salt.

Source of salt

All biscuits producers purchased imported salt from domestic suppliers as it has better quality than local salt.

Salt content per serving

Salt content of biscuits averages 0.5 g per serving size equivalent to 1.8% of product weight. If the salt used in production of biscuits was all adequately iodized it would potentially contribute at least 8 µg of iodine per serving,[28]or 6% of an adult's adequate daily iodine intake.

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[27] Roy Morgan research

[28]Estimated average serving size of 25g

SNI

None of the biscuits producers have SNI for their products.

Food labeling

None of the companies list iodized salt or fortified materials in their ingredient list.

Value added of listing iodized salt

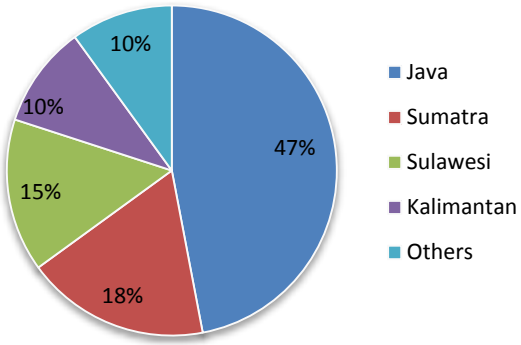
Two large producers companies perceive that it would bring added value to include iodized salt on the label as urban dwellers are health conscience. One mid-sized producer does not consider labeling iodized salt will provide any added value as consumers do not look at the ingredients.

All companies would willingly label if legally required to do so.

Distribution channel

Biscuits producers channel 57% through modern trade and 43% through general trade. Some 47% of biscuits are distributed in Java and 18% in Sumatra.

Biscuits distribution by region (%)



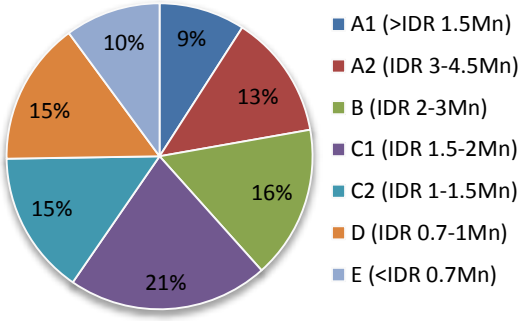
Biscuits distribution channel

Source: Clarity Analysis based on survey results

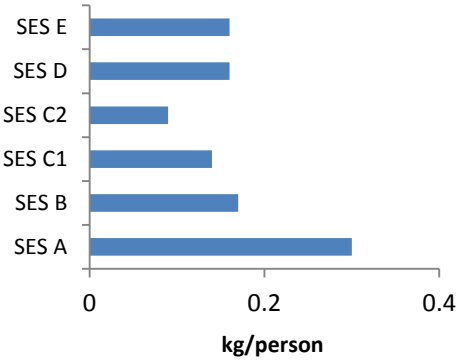
Market segment

59% of biscuits nationally are consumed by SES A, B and C according to these data below. However, the overall quantities are not in line with other data from Mintel Global Market Navigator that estimates consumption to be 1.3kg/pers/year.

Market segment by SES



Biscuit consumption by SES class (kg/person/year)



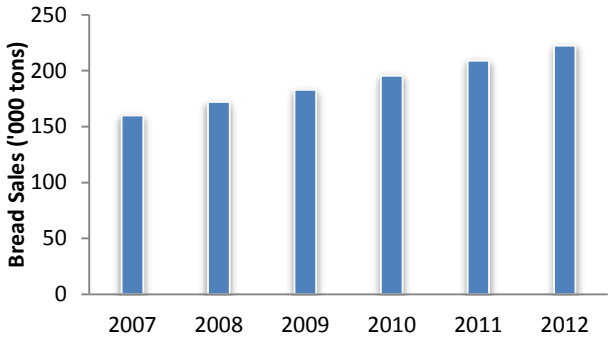
Source: Interviews and Roy Morgan Research

Bread – market overview and iodized salt usage

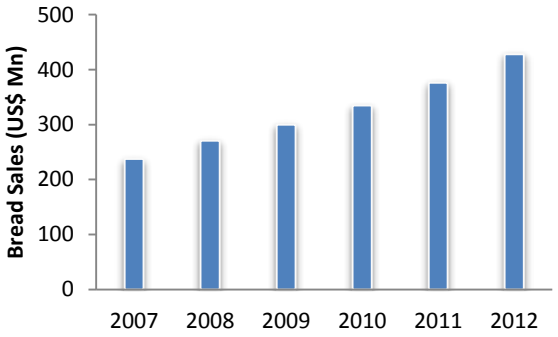
Market size

The size of the bread segment in Indonesia is 223,000 MT valued at US$430 million in 2012 with a volume growth of 12.5% per annum over 2007-2012 in value term.

Bread sales in volume terms ('000 MT)



Bread sales in value terms (US$ Mn)



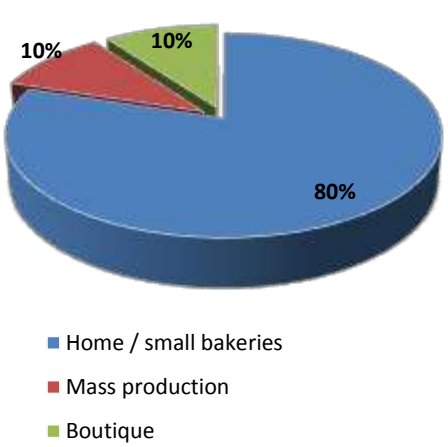
Source: Euromonitor Passport 2013

In Indonesia there are three types of bread producers:

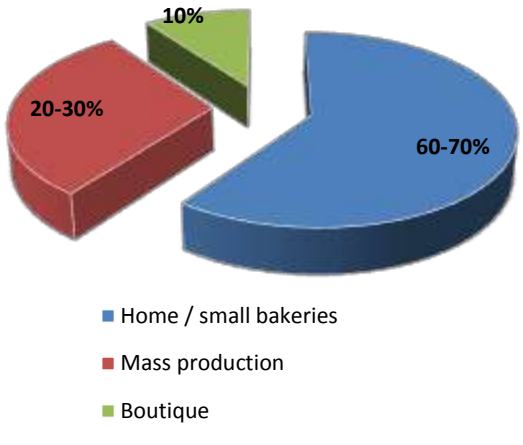
i) Home/small bakeries;
ii) Mass produced / industrial
iii) Boutique bakeries.

Home / small bakeries still dominate and account for 80% of the market share, with industrial and boutique bakeries accounting for the remaining 20%. The balance of market share is expected to change over the next five years to an increasing contribution from the industrial bread sector.

Current bread share by category 2012



Forecasted bread share by category 2017



Source: Nippon Indosari

Number of players and market share

It is estimated that there are about 5,000 home bakeries supplying unpackaged bread within local areas (catchment area of less than 10km). In contrast, industrial bakeries have only been present in Indonesia for less than 20 years and account for only 10% market share. Industrially-produced bread has a longer shelf life, of four days, that permits distribution up to 200-300km from the factory. Boutique bakeries also account for 10% market share, these are popular in urban areas and usually have franchise outlets located in malls with small catchment area.

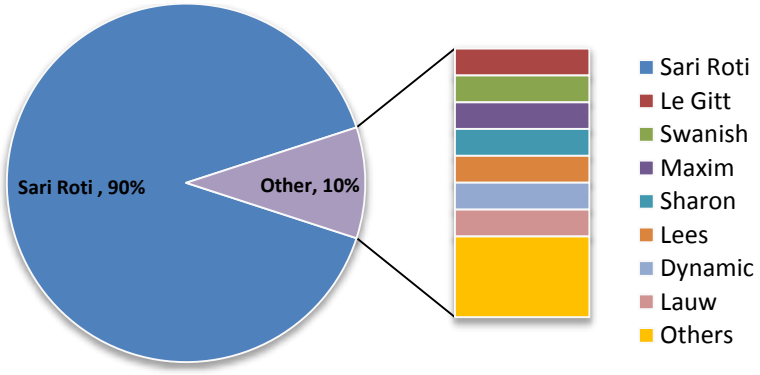
Type of bread producers and their distribution reach

Home / Small Industries 80%	Mass Production 10%	Boutique Bakery (10%)
Many Players (5,000)	10-15 players	Franchise Format
Distribution coverage: **5-20km**	Distribution coverage: 200-300 km	Permanent Shop
No branding	Branding	Franchising / Branding

Source: Nippon Indosari

Currently the major player is Nippon Indosari (brand: Sari Roti) which has approximately 90% market share. The remaining 10% share is distributed between other brands such as Le Gitt, Sharon, Swanish, Maxim, Lees, Holland Bakery, Dynamic etc.

Bread market share in value terms (2012)



Source: Nippon Indosari, Clarity Analysis

Most of the bread factories are located in the Greater Jakarta area with only Nippon Indosari opening factories across Indonesia.

Bread factory location

Source: Clarity Analysis based on survey results and websites

Types of bread produced by industrial bakeries

Industrial bakeries focus on two types of bread – sliced bread and sweet bread. Sliced bread remains the most popular, accounting for 68% of industrial bakery production; however Nippon Indosari noted there was a regional difference with consumers in East Java preferring sweet bread to sliced bread.

Types of bread produced

Type of Bread	Variants	Share
Sliced Bread	Milk, Regular, Wheat, Flavored, without crust etc.	68%
Sweet Bread	Filled-in bread, Tear-off bread, sandwich, etc.	31%

Source: Clarity Analysis

Industrial bakeries produce primarily white bread with only a few premium bakeries producing whole meal bread that is primarily sold to upper-income consumers.

Industry trends

The bread segment is expected to grow by 5.5%p.a over the next five years to reach 285,400 MT. Convenience of bread as an instant meal / snack is the key driver behind growth. By 2017, industrial bakeries are expected to more than double their market share to 20-30% at the expense of small / home bakeries as consumers switch to branded bread with a longer shelf life.

Nippon Indosari is expected to remain the market leader in the industrial bread segment as it is the only bakery with nationwide distribution with seven factories serving all of Indonesia's major cities ,as well as being the only bakery that covers both the modern and traditional trade segments. Other industrial bakeries will either have to focus on niche markets or compete with Nippon Indosari by expanding their distribution network by adding new factories as well as broadening their distribution reach to cover traditional as well as modern trade outlets.

In terms of taste, Indonesians are expected to continue to favor white sliced bread.

Consumer market segments

Home/small bakeries typically target lower to middle income consumers who want to purchase fresh bread from their neighborhood. Industrial bakeries and boutique bakeries target middle and upper income consumers.

- Nippon Indosari targets the middle class with its products widely available through modern trade outlets (mini-markets, supermarkets and hypermarkets), cycle vendors and small general trade outlets.
- Le Gitt targets the premium segment with its bread only available in premium supermarkets.

Bread preference by consumer group

Categories	Lower	Middle	Upper
Home/small bakeries	√	√	
Mass production		√	√
Boutique bread		√	√

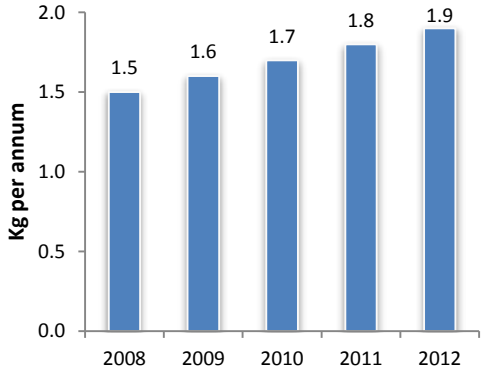
Source: Clarity Analysis based on survey results

Per capita consumption

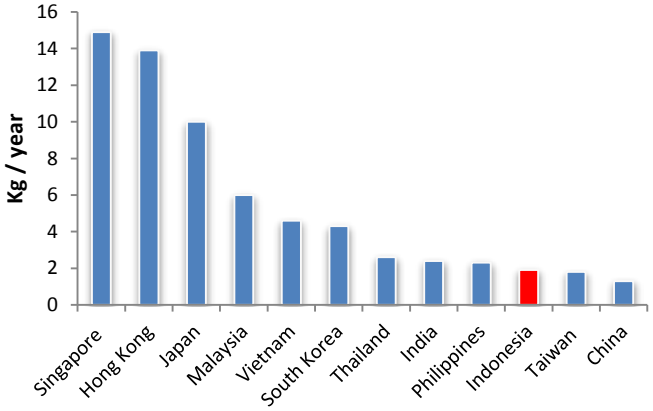
Indonesians per capita consumption of bread has risen from 1.5kg in 2008 to 1.9kg in 2012 and is expected to continue rising at a similar pace.

Indonesia's bread consumption (1.9kg / capita) is one of the lowest in the region and is similar to Taiwan and far lower than in Singapore (14.9kg / capita) and Malaysia (6kg / capita).

Bread consumption per capita (kg / year)



Country comparison on bread per capita consumption (kg / year)



Source: Nippon Indosari, Pefindo

There is a noticeable drop in demand for bread products during the month of Ramadan as Indonesian prefer to eat rice based meals to sustain them through the fasting hours.

Population reach

Small bakeries and boutique bakeries have small catchment areas of typically less than 5km, whereas the catchment area of an industrial bakery can extend up to 200-300km as the bread has longer shelf life.

Currently, all industrial bakeries with the exception of Nippon Indosari only have one production facility located within the Greater Jakarta area and primarily target the city. Nippon Indosari has seven factories and can cover all of Indonesia's major cities.

Most industrial bakeries primarily target the modern retail segment, again Nippon Indosari is the main exception as it retails its products through bicycle bread sellers and small general trade outlets as well as through modern trade outlets.

Iodized salt usage interview results

Clarity interviewed two bread manufactures accounting for 90-92% share of the industrial bread segment or 9% of the total bread market. Combined the companies used only 590 tons of salt in 2012.

Both bread producers use iodized salt.

Source of salt

The market leader in the bread segment uses a combination of local and imported salt while the smaller player uses only imported salt.

Salt content per serving

Similar to biscuits, salt content in bread is approximately 1.5% per portion on average. Based on available data the iodine levels per serving cannot be calculated.

SNI

None of the bread producers have SNI for their products.

Food labeling

None of the companies list iodized salt or fortified materials in their ingredient list.

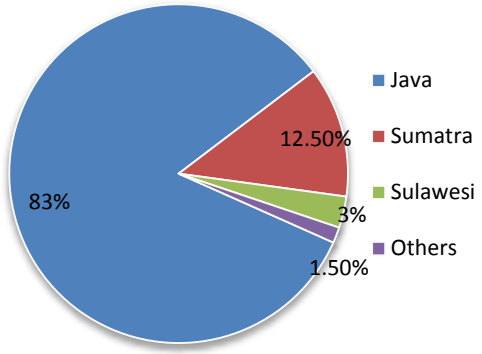
Value added of listing iodized salt

None of producers consider labeling iodized salt will provide any perceived additional value to the consumer, since it is believed that consumers do not look at the ingredients. All companies would willingly include iodized salt on their label if legally required to do so.

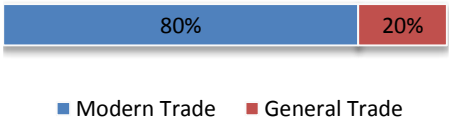
Distribution channel

Bread producers interviewed channel 80% of total production through modern trade channels and 20% through general trade. 83% of bread is distributed in Java and another 12.5% is distributed in Sumatra.

Bread distribution by region (%)



Bread distribution channel

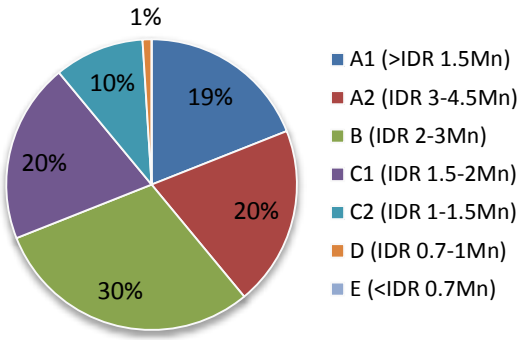


Source: Clarity Analysis based on survey results

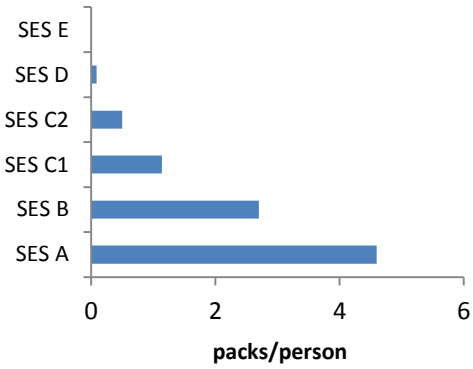
Market segment

39% of bread packs are consumed by SES A, 30% are consumed by SES B and other 30% are consumed by SES C. These data currently have limited meaning given that the size of a pack has not been well-defined within the industry.

Market segment by SES



Bread consumption by SES class (packs/person)



Source: Interviews and Roy Morgan Research

5.0 CONCLUSIONS

The use of iodized salt in the production of these six key processed foods which have high market penetration has the potential to at least partially protect the population consuming these products from iodine deficiency, which would be particularly beneficial for population groups who do not have access to adequately iodized table salt.

Above findings indicate that, if all salt in these products was iodized, one serving of instant noodles could contribute 36% of the recommended adequate daily iodine intake for adults (150µg), this would be higher if the iodine content of salt used is above the minimum of 18ppm. Similarly, one serving of stock could contribute to 20% of recommended adequate iodine intake, soy sauce 14%, biscuits 6% and chili sauce 3%. Using average annual per capita intakes, this would mean up to 6.3% of recommended adequate daily iodine intake from instant noodles for adults per day across the population (the average per capita intake for other products ranged from 0.2% for chili sauce to 4% for stock).

Information from companies participating in the survey indicate that 71% of salt used by these companies for production of the six selected food types is already iodized. Extrapolating from the results based on reported market share for these industries would suggest that at least 65% of salt used by these key processed food industry segments is iodized (possibly higher is any of the non-participating companies use iodized salt in their product).

There is currently no legal requirement for processed food industries to use iodized salt in their production process. Although the Government passed Presidential Decree 69 / 1994, the Ministry of Industry has not issued implementing regulations for industrial salt for food industries which would make it mandatory for food industries to use iodized salt.

Most food producers that participated in the survey willingly use iodized salt. This may be because these producers are under the impression that they are required by law to use iodized salt, or may do so because they recognize that there are significant health benefits to consumers in the use of iodized salt. The inclusion of information on product labels about iodized salt as a product ingredient may help both producers and consumers recognize this added value, although the majority of producers who participated in the survey did not think consumers give much attention to product labeling. A minority of companies gave reasons (cost and supply chain) for their decision not to use iodized salt and understood that the regulatory environment allowed them to make this choice.

Non-users of iodized salt participating in the survey, indicated that they would only switch to using iodized salt if the Ministry of Industry issues implementing regulations for Presidential Decree 69 / 1994 making it mandatory for processed food industries to use iodized salt. They suggested that, prior to issuing an implementing regulation an assessment should be made on whether any food categories should be exempted from using iodized salt if there is evidence that it interferes with the production process.

An alternative could be that the Government could require that key processed food products are required to have an SNI (Indonesian National Standard) certificate, which as a pre-requisite requires the producers to use iodized salt.

APPENDIX 1: SNI

Indonesian National Standard (SNI) is an accreditation given by the Indonesian National Standardization Agency (BSN). SNI has three objectives:

- Increase protection for consumers, business players, workers and the general public in terms of safety, security, healthy and environmental sustainability
- Support trade
- Create healthy competition between players

Currently 264[29] products, services and institutions must have a mandatory SNI in order to be sold in Indonesia. In addition, a further 7,958[30] products, services and institutions have SNI guidelines and companies can undergo SNI accreditation on a voluntary basis.

Within the food category, table salt was first product to require a mandatory SNI in 1995 with the key requirement that the table salt be iodized. In 2009, the Ministry of Industry expanded mandatory SNI to a further five food and beverage products including:

1. Flour for food product ingredients
2. Refined sugar
3. Cacao powder
4. Packaged water
5. Natural mineral water

The Ministry of Industry is currently discussing further expanding mandatory SNI to an additional six food and beverage products including:

1. Instant noodles
2. Biscuits
3. Palm oil
4. Milk powder
5. Sweet condensed milk
6. Dew drinking water

The Ministry of Industry aims to have the regulation passed prior to the start of the ASEAN Economic Community in 2015[31].

BSN has issued SNI guidelines for all six food products[32] covered by this survey and as such food producers can opt to undertake SNI accreditation for these product on a voluntary basis.

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[29] www.bsn.go.id
[30]www.bsn.go.id
[31]Kontan article, 25 November 2013
[32]SNI 3551-2012: Instant noodles
SNI 01-4218-1996: Broth and consommé (stock)
SNI 01-3543-1999: Soybean sauce
SNI 01-2976-2006: Chili sauce
SNI 2973:2011: Biscuit
SNI 01-3840-1995: Bread

The SNI guidelines are very detailed but the key requirement for products to meet SNI standard are that:

- Food ingredients must be fortified
    - Salt must be iodized
    - Flour must be fortified with iron
- Final products must use SNI certified ingredients
    - Instant noodles must use SNI certified ingredients including salt and flour which by definition must be fortified

Food producers that have achieved SNI accreditation can use the SNI logo on the food packaging which gives customers assurance that the products are high standard and use only good quality ingredients.

APPENDIX 2: DISCUSION GUIDE

Iodized salt in processed food

Discussion Guide (Food Manufacturer)

Company : **Address :** **Phone Number :** **Email :** **Respondent Name :** **Division :**	**Interview Date :** **Interviewer Name:**

Opening

Thank you for taking time off to participate in our study. As per the email / fax we sent, we are currently conducting a study on "Iodized Salt in Processed Food" for the Ministry of Health, Direktorat Bina Gizi Masyarakat. This study is to help us to get an overview of iodized salt in processed food consumption in Indonesia and how to develop strategies in order to improve the public nutrition in Indonesia. All information will be kept strictly confidential.

GENERAL INFORMATION

1. Which products do you produce (from selected categories)?
2. How much (ask for units) do you produce (per annum or per month)?
3. What are you key brands?
4. Do you know your market share (for company or brands)?
5. Do you have an SNI for your products?

Please indicate for each product category

Tons Packs Pieces

Annually Monthly Daily

	Instant Noodles	Soy Sauce	Chili Sauce	Stock Soup	Biscuit	Bread
Production Volume						
Key brands						
Market share						
SNI						
Amount of salt per serving (in gms or %)						

Production

We would like to understand a little bit about production of your company

1. What production facilities do you have?
2. What products do they produce?
3. What is your production capacity and actual production?
4. Do you have any plans to expand production?

Please indicate for each product category

Tons Packs Pieces

Annually Monthly Daily

Factory Name &Location	Products Produced (one product per line)	Production Capacity	Production Volume	Expansion Plans

Use of iodized salt and fortified ingredients

Do you use iodized or non-iodized salt in your product?

a) Is there a difference between factories?
b) Does it vary according to product?
c) Does it vary according to brand?

Do you use fortified products? If yes, which products are fortified and with what?

Do you add micro-nutrients? If yes, what?

Factory Name &Location	Products Produced (one product per line)	Brand (If difference in Iodized usage state on different lines)	Iodized salt used in production ? (Y all, Y partial, No)	If non-iodized salt used, give 1-2 reasons why?	If iodized salt is used Do you list "iodized salt" in package ingredients	If iodized salt is used Do you include any information about iodine on the label?	Other fortified ingredients		Additional micronutrient fortification
							Ingredient	Fortificants	Fortificants
							e.g. flour/oil	e.g. iron, retinol (type and amount/g product)	e.g. iron, retinol (type and amount/g product)

If Iodized salt is not used or only partially used, what are the barriers to using iodized salt? (I.e. product colour change, cost, taste, other) and how do you cope with it?

Barrier	Why?	Ways to cope with it?
1		
2		
3		

Product labeling

Would you mind explain us about labeling practices for salt / fortified products? i.e.

a. If iodized salt is used in production process it is listed in product ingredients as "iodized salt"?
b. And/or is iodine mentioned on the packaging as being value-added?
c. Do you refer to other fortified ingredients in the ingredients list or on the packaging?

Salt supplier

Who is your current salt supplier(s)?

a. Do you have different suppliers for different products? (i.e noodles, bread, biscuit, soy sauce, chili sauce and stock soups)
b. Do you have different suppliers for different factories?

What kind of salt are they supplying (Iodized or non-iodized)?

How much do you purchase per annum from each supplier?

What is the PPM iodine of salt?

Is the salt domestically produced or imported?

Salt Supplier	Factory (All factories, if not listed)	Products (Is it used for each product, if not list)	Type of salt (iodized/non-iodized)	Quantities purchased per annum (metric tons)	PPM iodine	Domestically sourced (D) or imported (I)

QA / QC procedures

Do you have any QA /QC procedures of fortified raw materials?

Do you receive Certificate of Analysis from your supplier – what criteria is included?

What procedures does your company employ to ensure that fortified raw material meets your expectation?

Average iodine content of salt for the last quarter?

Is it possible to have copies of the last three CoA certificates?

	Iodized Salt	Fortified ingredients
Use a QA/QC procedure		
Certificate of analysis criteria		
Procedures undertaken by your company to ensure the raw materials are in-line with expectations?		
Average iodine content for last quarter		
Copies of Real CoA		

Does the government any inspections of your companies' production process?

How frequently are these inspections made?

Who makes the inspections?

What is checked in the process?

Is Iodized salt checked?

Do you know how the Government stores the data?

	Government Inspections of Production Process
Any inspections made?	
If so how frequently?	
Which Gov't body makes the inspection?	
What is checked in the process?	
Is iodized salt checked?	
If yes, how is it checked?	
If yes, if feedback provided to the salt supplier?	
How is the data stored by the inspection body?	

Distribution and target segments

Where do you distribute your products?

Products	Distribution Area Share					
	Island name	Island name	Island name	Island name	Island name	Island name
1. Instant Noodles	____%	____%	____%	____%	____%	____%
2. Soy Sauce	____%	____%	____%	____%	____%	____%
3. Chili Sauce	____%	____%	____%	____%	____%	____%
4. Stock	____%	____%	____%	____%	____%	____%
5. Biscuit	____%	____%	____%	____%	____%	____%
6. Bread	____%	____%	____%	____%	____%	____%

Do you have a maximum distribution area from your factory- if so how many km radius (_____Km)

What channels are you using to distribute your products?

Products	Channel Market	
	Modern Trade	General Trade
Instant Noodles	____%	____%
Soy Sauce	____%	____%
Chili Sauce	____%	____%
Stock	____%	____%
Biscuit	____%	____%
Bread	____%	____%

For modern trade – do you mostly distribute to mini-market or supermarket / hypermarkets?

Are you targeting a particular segment? If so, can you kindly describe what segment are you targeting for each product?

SES (Social Economic Status) – based on income level	Instant Noodles	Soy Sauce	Chili Sauce	Stock	Biscuit	Bread
A1(> IDR4.5Mn)	____%	____%	____%	____%	____%	____%
A2(IDR3,000,001- 4,500,000)	____%	____%	____%	____%	____%	____%
B (IDR2,000,001-3,000,000)	____%	____%	____%	____%	____%	____%
C1 (IDR1,500,001-2,000,000)	____%	____%	____%	____%	____%	____%
C2 (IDR1,000,001-1,500,000)	____%	____%	____%	____%	____%	____%
D (IDR700,001- 1,000,000)	____%	____%	____%	____%	____%	____%
E (<IDR 700,000)	____%	____%	____%	____%	____%	____%

Salt sample

We would like to collect a 100 gr sample of salt – would that be possible?

(if using Iodized and non iodized to collect both samples)

100gr of salt sample:

	Sample received	CoA information on ppm Iodine
Iodized Salt		
Non Iodized Salt		

Interviewer to give brief description of salt sample was collected?

I believe we have come to the end of our questions. Thank you very much for spending time to participate in our study. It has been a pleasure speaking with you. If we require any clarifications or additional questions, could we give you a call or drop you an email?

Thank you very much once again.

APPENDIX 3: SALT INSPECTIONS

Traditionally the Government only monitors table salt (not salt for the food industry) to ensure that it meets the minimum iodine standard. The National Agency of Drugs and Food Control (BPOM) together with the local government collect approximately 1,720 table salt samples per annum from the table salt distributors that are then tested by BPOM to ensure the iodine content exceeds the minimum requirement of 18 ppm (≥30 ppm KIO_3). For samples failing to meet the minimum standard BPOM will either issue a written warning to the responsible salt produce and/or provide technical assistance to improve the quality. BPOM's authority is somewhat limited as it is unable to issue any sanctions against violators. Although the Ministry of Industry is one of the supervisory bodies it does not participate in monitoring table salt.

Many of the salt producers interviewed by Clarity complained about sampling undertaken at the distributors, rather than at the point of production, since there is a major problem of counterfeit salt entering the distribution chain under the large producers' brand names, which means that legitimate producers receive the blame for failed samples which are potentially counterfeit.

For industry salt again BPOM and the Ministry of Industry are the supervisory bodies. BPOM carried out its first limited assessment of food industry salt in 2012 by collecting 12 samplesfrom10 companies. Again, as there is no implementing regulation for food salt, BPOM undertook the data collection for information purposes only. BPOM provided no details on the salt sampling method from surveyed food producers. BPOM indicated that they intended to undertake annual sampling of food producer salt but as of June 2013 had not yet collected any samples in 2013.

The Ministry of Industry and Ministry of Trade are the supervisory bodies for imported industrial salt. Inspections are undertaken in ports custom area by two appointed assessors, however they are only tasked with checking documentation including import license, import quotas and quantity imported. The assessors are not responsible for carrying out any inspection of the salt quality including the iodine level.

Iodine-related salt inspections implemented in 2012

Criteria	Table Salt	Industrial Salt	
		Food	Imported
Supervisory body	BPOM, Ministry of Industry	BPOM, Ministry of Industry	Ministry of Industry Ministry of Trade
Inspector	BPOM & Local Government	BPOM & Local Government	Sucofindo Surveyor Indonesia
Sample size	Yes, 1,720 samples in 2012	Started in 2012 12 samples	NA
Sampling location	Table Salt Distributor	Food producer' production plant	Port (at time of import)
Qualitative / quantitative Checks	KIO_3exceeds 30 ppm (equivalent to 18 ppm iodine)	KIO_3 exceeds 30 ppm (equivalent to 18 ppm iodine)	Documentation, quota allowance, import license. Do not check quality or iodine levels
Sanctions (for iodization)	Written warning	None Data on iodine content for information only	Not relevant

Source: interview with Government departments including BPOM, Ministry of Industry and Ministry of Trade; BPOM table salt survey results 2012; Clarity Analysis

Government Inspection Results

Table salt

Of the 1,722 samples of table salt collected from salt distributors in 2012, some 66% of samples met the minimum iodine requirement of 18 ppm (using quantitative testing methodology). From the 33% failed samples, the majority (60.7%) had iodine in the range of 9-18 ppm; 34.4% had 1-9 ppm and 4.9% had no iodine (0 ppm). From the failed samples there has been a noticeable improvement in iodine levels with 60.7% of sample in the range of 9-18ppm compared to only 38.5% in 2011. The number of salt samples with no iodine content (0 ppm) has remained fairly constant at just under five percent.

Industrial salt for food industries

BPOM took 12 salt samples from 10 food processing companies in seven food segments and found that 83% of companies' samples had iodine levels above 18 ppm. Details of the food companies surveyed including food category, size and salt supplier are found in the following table. Data were not provided on the results of these tests so it is not known which tests were positive and which were negative. It is also not known whether the 17% samples with < 18ppm iodine, were non-iodized or iodized with iodine content below 18 ppm.

BPOM food processors' salt sample descriptions (2012)

Food Manufacturer	Segment	Size	Salt Supplier
Indofood CBP Sukses Makmur	Noodles	Large	Cheetam Garam
Mikie Oleo Nabati Industri	Palm Oil	Medium	Susanti Megah
Mitratama Kencana Sejati	Food Seasoning	Medium	Cheetam Garam
-			Susanti Megah
Seasonal Supplies	Snacks	Small – Medium	Sumber Laut
Netani Kasih	Milk & Beverage powder	Small	Merck
ABC President	Noodles	Medium – Large	Cheetam Garam
Astaguna Wisesa	Fruit Jam	Medium	Menjangan Sakti
Kobe & Lina	Food Seasoning	Medium	Cheetam Garam
Kobe & Lina	Food Seasoning	Medium	Cheetam Garam
Anugerah Setia Lestari	Food Seasoning	Medium	Saltindo Perkasa
Perfetti Van Melle	Candy	Medium – Large	-

Source: Interview with BPOM

APPENDIX 4: PERCENTAGE OF POPULATION BY SES

SES Class	Percentage
A	11.5%
B	15%
C1	23.8%
C2	25.8%
D	14.3%
E	9.7%

Source: Roy Morgan Research

APPENDIX 5: FORTIFIED PRODUCTS

Of the six food products surveyed only instant noodles and bread use fortified materials (which doesn't include salt/other seasoning). The fortified materials are typically fortified flour or else fortified vegetable oil and/or micronutrient premixes.

Only some brands of instant noodles claim to include fortified products and as such are required to list nutritional information including details on fortified products and the percentage of daily values.

Fortified raw materials added to food products

Product	Fortified raw materials	Method of adding fortified raw materials
Instant Noodles	Vitamin, Mineral, Folic Acid	Fortified flour, fortified vegetable oil and micronutrient premix
Bread	Vitamin, Mineral	Fortified flour

Source: Clarity Analysis

QC Checks

No food producer undertook any QC checks on fortified raw materials. Food producers only want to list the fortified products on the food packaging and not concerned if the raw materials do not meet the standard providing they are provided a CoA that lists the technical specification of the raw materials. No supervisory body (i.e BPOM) samples the raw materials to ensure that they meet the standard set out in the CoA.