Processing of Tofu Production to the Community Health

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Abstract: Nuts and tubers are quickly exposed to the fungus (aflatoxin) so easily become withered and rotten. To solve this problem, the material needs to be preserved. Processed products can be foods such as chips, tofu and tempeh, and beverages such as powder and soy milk. Soy contains 35% protein even in the superior varieties of protein content can reach 40-43%. compared with rice, corn, cassava flour, green beans, meat, fresh fish, and chicken eggs, soybeans have a higher protein content, almost equal to the dried milk protein content. Control of soil, water, and air pollution is a part of the process of environmental quality management. One of the air processing is by applying air pollution control technology in the form of air pollution controller, this is an effort to reduce emission to conform to the established quality standard. One way to minimize water and soil pollution is by applying wastewater filtering technology, this is an attempt to separate waste that should not be disposed of in the community. The increased production that occurs in the tofu industry makes the resulting pollution increases, the resulting emissions are a by-product of the tofu manufacturing process. The smell of the tofu production results shows a less than perfect waste treatment system. Therefore, it is necessary to evaluate the tofu factory that is used so that it can be done to the improvement of the waste industrial waste to be safe for the environment.

Keywords: Production, Processing, Waste, Tofu, Health.

1. INTRODUCTION
1.1 Background
Tofu which is rich in protein, has long been consumed by the people of Indonesia as a side dish. Tofu is a food made from fermented soybeans and soured. Unlike the original tempe from Indonesia, tofu comes from China, as do soy sauce, tauco, bakpau, and meatballs. Know is the word absorption of the Hokkien (tauhu) hanyu pinyin: doufu) which literally means "fermented soybeans". Tofu first appeared in China since the Han Dynasty around 2200 years ago. Its founder is Liu An (Hanzi) who is a nobleman, grandson of Emperor Han Gaozu, Liu Bang who founded the Han Dynasty.

In Japan known as tofu. Carried by Chinese immigrants, these foods spread to East Asia and Southeast Asia, and eventually to the rest of the world. In Kediri know yellow into a typical food. There is
also about yellow know history. Like tempeh, tofu is known as folk food. Various types of tofu that exist in Indonesia is generally known for its origin manufacture area, for example Sumedang and Kediri Tofu. Based on data obtained from the Central Bureau of Statistics and National Socioeconomic Survey (2002), the level of tofu and tempeh consumption in Indonesia reached 18.6 kg / capita / year in urban areas and 13.9 kg / capita / year in rural areas. This amount is more than fourfold when compared with the consumption rate of chicken and beef which is a source of animal protein. This is because the price of tofu and tempeh is much more affordable when compared with the price of meat. Tofu is a food made from soybeans, processed with fermentation and taken sari. In other words, tofu is the soybean curd, which is soybean milk made into thick (curd) and then printed and pressed (FG Winarno: 1993)

Problem from the processing of tofu is about the health of the people around the tofu factory. Which we have to cope well with. The Tofu Factory has often not been properly handled so that it has an impact on the environment. One is the impact of waste-odor of solid and liquid waste. Tofu waste contains high protein, the consequences cause the exhaust gas in the form of Ammonia / Nitrogen and Sulfur is not tasty and disrupt health. Until now the risk of this odor is still no way out while on the other hand the tofu product is a favorite food that almost always exist in the consumption of small communities up to the upper class society. the negative impacts that the plant has on display threaten the continuity of the business and further the availability of tofu to the public, as it threatens to close / prohibit operations. Other avenues that can be done are usually through factory relocation which results in increased production costs and price of tofu.

Tofu is one of the staple foods in the country, which is included in a perfect 4 (four) healthy 5 (five) meals. Tofu is also a food that contains many nutrients and is fairly easy to produce. To produce tofu the ingredients needed only in the form of soybeans. It is not surprising that today we can find a lot of tofu-making factories, whether in the form of small businesses and medium-sized businesses that still use conventional methods or efforts that have been quite successful in a more modern way. Based upon above matters, we are interested to make the Tofu Factory as the material of our production process paper.

The location of our tofu manufacture factory is located in Sumedang area. This factory is a tofu manufacturing plant that is categorized as small and medium enterprises (SMEs). The way of making the tofu is still in a conventional way so that the role of the individual or in this case the workers are very large in the process of making it.

Factory established since 1983 was founded by Mr. H. Lani. The factory was built in the compound of his own house, and still survive to this day. The process of making this tofu takes place in a space measuring 10 m x 7 m. And in this space the process of tofu production takes place constantly. There are 7 workers with the different task. There is a duty to grind, steaming and filtering (2 people). There is a job to print (2 people). There is a duty to organize it in large cans before finally boiled (2 people). And there is also a task to fry the next-come (1 person).

In the room that the equipment used can be practically simple and still very traditional. The first time entering the door of the room we will see a conventional steam engine made of two drums that serve as a steam catcher. The steam or heat collected by drums also comes from burned wood instead of steam engines. So initially the wood will be burned near the drum. Then the steam heat will accumulate in the drum before it will eventually be channeled through the iron pipes to the storage tanks. This technique is a substitute for soybean poaching techniques, this factory does not boil their soybeans but uses evaporative techniques.

There is also a grinding machine. The only one machine that we think keep the continuity of the production process know. In addition there are 4 tubs of stone used as a container for soybean juice steamed and also as a reservoir of water. Then there are 4 plastic tubs used to precipitate the tofu. there are 25 molds from wood to print out the tofu. There are a lot of big tin that will be used as a container when tofu is made. And a big fryer that uses firewood for frying tofu. As well as wooden shelves to accommodate the uninformed ones.

With all these simple equipment this factory stands and lives its employees from 1983 to present. Tofu which produced in Pak H. Lani’s factory is a tofu product known as Tahu Jambi. At a glance we must
be confused to hear the name of Tahu Jambi. Actually this is the usual Tahu Sumedang, but because Pak Haji wanted something different name for his tofu production then named as Tahu Jambi. In accordance with the name of Pak Haji's home village in Jambi.

The factory was built by himself long before he had a family. And it was a business he started since he was young. Today the nett revenue collected per day can reach more than Rp. 2,000,000. It can be said that production of this tofu is a promising business.

In a day Pak Haji needs 3 hundred kilograms of soybeans to meet their production quota. Soybeans are obtained from trusted suppliers because according to Pak Haji, these suppliers provide soybeans with good quality at a reasonable price-not discarded. Furthermore, the soybean processed by the tofu workers. From 3 hundred kgs of soybeans, it will be converted into ± 210 packages of tofu. Each package of tofu usually sold at a price of Rp. 20,000, - up to Rp. 24,000, -

Roughly it can be calculated that Pak Haji's income about Rp. 4,830,000, - with this turnover, tofu business built and maintained. But of course not all tofu will be sold in the market. The biggest market of Tahu Jambi products, according to Pak Haji is the Fritters Vendors (Tukang Gorengan). Each of them usually orders up to 7 boards (mold) tofu every day. That's why Mr. H. Lani's tofu factory continues to stand up to this moment. With a capital not too large he can get a turnover that is more than enough to hire employees, business capital, and of course, to support his own family. It can be concluded that the production of this tofu is a promising business. Absorb the workforce. And rarely suffered losses due to the large market of tofu in Indonesia.

1.2 Formulation of the problem

The formulation of the issues to be discussed in this paper, including: tofu and what kind of ingredient to make tofu, impact of tofu production and processing to the public health, overcome and utilize the tofu and waste dregs.

1.3 Research purposes

The purpose of this paper is: process the tofu and the ingredients, the positive and negative impacts of tofu processing, cope and utilize the waste of tofu produced, the tofu business

1.4 Scope

In this paper discusses several aspects, namely: tofu and what kind of ingredient to make tofu, the process of production and processing of tofu to health, cope and use of tofu waste, business Analysis of tofu

1.5 Benefits of research

The benefits of making this paper are, as follows: in order for readers to know the tofu and its material, in order for readers to know how to produce and processing tofu, readers can tackle and utilize exactly the waste of tofu, readers can analyze the business of tofu, reader has a clear concept of know-how of tofu business, an inspiration to the readers.

2. METHOD

2.1 Understanding The Process

"Processing is a process of working or doing something to be more perfect." Based on those understanding, concluded that the purpose is process of supervision on a policy of goals on implementation and achievement.

2.2 Understanding The Tofu

Tofu is a food made from the deposition of the soybean juice that coagulated. Tofu comes from China, as do soy sauce, tauco, bakpau, and meatballs. The name "Tahu" is an uptake of the Hokkian
language (tauhu, which literally means "fermented soybeans."). Tahu has been known in China since the Han dynasty around 2200 years ago. The inventor is Liu An (Hanzi: 路安, who is a nobleman, grandson of Emperor Han Gaozu, Liu Bang who founded the Han dynasty. The known version Tofu in Japan is also tofu. Tofu is more soft and less resistant to processing. Tofu and tofu brought Chinese immigrants to all corners of the world spreading to East Asia and Southeast Asia, and finally to the whole world. Tofu in Indonesia, Tofu has experienced indigenization in Indonesia so that there are various variants of tofu and snacks made from tofu. The outer appearance of tofu is white or yellow. Due to its popularity, it has become an indispensable part of the eating places of various social levels in Indonesia, together with tempe.

2.3 The History of Sumedang Tofu

"Sumedang Tandang", is Sumedang District motto. The motto means Sumedang Regency looking forward to welcome a better future. It is not strange to the people of West Java that the regency is famous for its special food, Tahu Sumedang.

It seems incomplete when we stop in the town of Sumedang, not to bring souvenirs typical of Sumedang. But now it is not only in the city of Sumedang, Tahu Sumedang already selling in almost all of West Java, especially in big cities such as Bandung, Purwakarta, Bogor, Bekasi, Tasikmalaya, and Cirebon (and even outside West Java such as Jakarta and Tangerang).

From the creativity possessed by Ongkino's wife, who was from the beginning as the person who first had the idea of producing Chinese tofu which gradually changed its name to "Tahu". Year after years, Ongkino and his wife continue their business, approximately on 1917 their only child Ong Bung Keng following his parents to Sumedang. Bung Keng then continued the business of his parents who until both of them choose to return to their homeland in Hokian, China. Through Ong Bung Keng's generation, the only child of Ongkino’s, continues the business hereditary of his parents until the end of his life at the age of 92. As told by grandson of Ongkino, Suryadi. It is said that in 1928, one day the business of his great-grandfather, Ong Bung Keng, was visited by the Regent of Sumedang, Prince Soeria Atmadja who passing by using a gig on the way to Situradja.

After the Sumedang Regent went down and tasted tofu being fried by Ong Bung Keng, the Regent said that if Ong Bung Keng produces Tahu Sumedang and sells it, a lot of peoples will be buy it. Hearing this statement, Ong Bung Keng tried to explain as much as he could that he was frying a known food in his native land called tou fu China. Apparently, the explanation, more intriguing Prince Soeria Atmadja, who tasted the first new food he met.

From that day, slowly but surely the prestige of Chinese tou fu which inadvertently changed its name to Tahu Sumedang, as Sumedang Regent said, Ong Bung Keng continued to run his business as a pioneer Tahu Sumedang which in the end his production keep increasing. Moreover, the story of the prince's visit quickly spread throughout the city of Sumedang.

2.4 Production and Processing Tofu

The basis for making tofu is to dissolve the protein contained in soybeans by using water as its solvent. After the protein is dissolved, it is attempted to be precipitated by the addition of a precipitating material to form the agglomerates of proteins that will become tofu.

Washing and soybean is a process of washing the soybeans clean, and soaking the soy for about 3-4 hours, or until the soybean expands. The process of soybean milling is the process of grinding soybeans that have expanded to become porridge and ready to be boiled. The process of cooking soybeans is the process of cooking (boil) soybeans that have been milled until smooth mixed with boiling water by stirring constantly until the color of soy porridge turns into a rather yellow pale. This process takes approximately one hour. The process of filtering the essence of tofu is the process of filtering soy yellow porridge is pale yellow to be separated from the dregs soy porridge that has been separated from the dregs and then added vinegar (solvent solution) and stirred to form precipitate or coagulate, and let stand for 15 minutes, then filtered.
The tofu printing stage is the process of separating the residual clumping water in the thickened soybean juice, then molded and placed on a mold made of boards of 40 x 70 cm. On the gauze pad printed in the soybean, this aims to know neat and not scattered. Then the press board is placed over the mold with a ballast stone for 5 - 10 minutes. The process of cutting tofu is the process of removing the essence of tofu from the mold when the essence of tofu has formed solid, then behind the essence of tofu from the molding board to the ancak made of bamboo, grab the cloth and cut into pieces according to the desired size. White tofu does not need to be boiled again, while to yellow tofu boiled again with turmeric and turmeric water to make yellow color.

The tofu dregs will remain in the fabric while the juice from the soybean will fall into the tub prepared under it, the tofu retained on the cloth and then discarded, while the juice of tofu in the tub will be further processed to become tofu, the essence of tofu in the tub then will be added biang / seed (water tofu) continuously while continuously stirring to separate the soybean juice from regular water. Addition of seedlings / seedlings (water tofu) aims to soybeans in the tub can settle well, this process takes ± 20 minutes until the water will be separated from the juice after that the ordinary water will be sucked up apart from the soy essence. This water is not subsequently discarded, but used to be the culprit / water (tofu water) in the above process, the only remaining in the tub is the soybean essence, the saris will be removed by filtration for the tofu mold, after the process completed then the mold closed. This process serves to give shape to the tofu product that will be produced at once to drain the water still attached to the soybean sari, duration of storage in mold about ± 15 minutes. If we want to get tofu harder we increase the time of embedding in the mold, then tofu already printed will be on boil ± 1 hour, to reduce the tofu looseness. At once to make the tofu more durable.

3. RESULT AND DISCUSSION
3.1 The Influence of Treatment To Health Positive and Negative Impacts

In the period of several years the community, especially in the area around the tofu industry respond to the production tofu activities, both positive and negative responses. The positive impacts of waste generated by tofu factories in the form of soybean, tofu and tofu skin can still be utilized into useful products. The utilization of liquid tofu wasted as nata de soya and abon, one of diversification of food made from raw dregs of tofu. In addition, tapioca liquid waste can also be processed into nata de cassava and waste coconut water can be processed into nata de coco. Waste in the form of vegetables and unpasteable materials, can be processed into pellets. Some can be processed into compost by fermentation process and organic fertilizer mixing.

The negative impact of small food waste can cause problems because contains large amounts of carbohydrates, proteins, fats, salts, minerals, and chemical residues used in processing and cleaning. Effluent or effluent from food processing with Biological Oxygen Demand (BOD) is high and contains pollutants such as soil, alcohol, heat and insecticides. If the effluent is discharged directly into a waters it consequently disturbs all ecological balance and may lead to the death of fish and other aquatic biota.

3.2 Neighborhood Health

Tofu processing will affect the health of the local people due to pollution, such as water pollution. The consequences of pollution around the plant include : The water river becomes dirty and turbid, causing unpleasant odor that disturbs the breathing of people around it. Residents who use water, many affected by itching and diarrhea. Smoke from tofu processing, smoke from rice husk often used as fuel, smoke from
firewood, aroma from raw materials of tofu containing ammonia, resulting in disruption of breathing and causes shortness of breath, nausea, and others.

3.3 Health of Workers

The potential danger of workers healthy and the consequences can be generated are: Parts of work: Materials (Soybean) that have been selected. Potential hazards: work attitude, way of working, as a result: fatigue, back pain, sprain on the hands, disruption of activity and concentration, parts of work: Cleaning done potential hazards: work mode, work attitude, the consequences arise: back pain, and quickly tired, stiff.

Parts of work: Milling, potential hazards: smell, work attitude, way of working, and dust, as a result: aches, back pain, and quickly tired, noisy. Parts of work: Cooking material (in boiled), potential hazards: work mode, work attitude, and odor, the consequences arise: fatigue, aches, back pain. Parts of work: Filtering is done, potential hazards: work attitude, way of working, the consequences arise: tired, back pain. Parts of work: Printed, potential hazards: work mode, work attitude, consequences that arise: concentration, fatique quickly, back pain. Working part: In chill, potential hazards: work attitude, way of working, the result: tired, back pain

3.4 Waste Management From Processing Tofu

Most tofu industries dispose waste into waters like pollutants that produce organic pollutants (smelling decay), inorganic pollutants (smelly and colorful). The government sets the rules for controlling water pollution for industrial waste, because the waste from the tofu industry contains organic and inorganic pollutants, the wastewater can not be directly discharged into the river, but must be processed first before being discharged into the river in order to avoid pollution.

To overcome water pollution can be preventive business, for example by not dumping industrial waste into the river. the habit of disposing of waste into rivers and disembarang places should be eradicated by enacting the rules - the rules applied in each environment - consequently. Industrial waste should be disposed of in containers already provided, people around the river need to pay attention to the cleanliness of the environment and need to understand about the utilization of the river, so that the river is no longer used as a waste disposal. Industrial waste disposal regulations should be monitored for implementation and offenders are punished. Industrial waste should be processed first with waste processing techniques, and after fulfilling the quality standard requirements of new waste water can be streamed into the river. Thus will create a clean river and have ecological functions.

3.5 Waste Utilization From Tofu Processing

Tofu’s Potassium as animal feed, been described that tofu is a food that contains lots of vegetable protein that many consumers demand. another effect of the increased production of tofu is the surplus of tofu or leftover waste from the manufacture of tofu that has not been widely utilized and considered to have less economic value.

If we examine further in the waste residue it can still be used as animal feed that many of its proteins. at this time not many breeders who utilize the dregs know as an additional feed for livestock in addition to concentrate. The growth of livestock in the feed of dregs knows faster than those not given (2000). One way to reduce the crude fiber content is processed by fermentation.

3.6 Business Analysis of Tahu Sumedang

3.6.1 Investment costs

Rent a place, Rp.4.000.000, - / year, Equipment, Rp. 150.000.000, - (10 years economic life)
Operational Cost = per day (7 x rollers)
Purchase of Soybean, 7 x 7 x Rp. 4,300, - = Rp. 210.700, - Purchase of Kerosene 20 x Rp. 2.500, - = Rp. 50.000, - Purchase of Cooking Oil 10 x Rp. 8.000, - = Rp. 80.000, - Purchase of Bamboo basket, plastic, salt, paper Rp. 50.000, -
Labor Fee: 3 x Rp. 50.000, - = Rp.150.000, -
Rent Place per day: Rp. 4.000.000, - / 365 = Rp. 10.959, - Depreciation of tools Rp. 150.000.000, - / (10 x 365) = Rp. 41.096, -
Other = Rp. 60.000, -
Amount = Rp. 652.755, -

Sales Results per 1 day
From soybeans per 1 milled (7 kg of soybeans), yield 500 pieces of tofu @ Rp. 350, - Results of sales know per 1 day: 7 x 500 x Rp. 350 Rp.1.225.000, -

Profits per day
Benefits per day = Proceeds per day x cost of manufacture per day
(Rp 1.225.000, -) x (Rp 652.755, -) = Rp. 572,245, -

3.6.2 Marketing of Sumedang Tofu
At this time, Tahu Sumedang had spread to all parts of Java Island, including Jakarta and Banten, some parts of Sumatra, and some areas in Nusa Tenggara and Bali. (Source from Coordinator of Indonesia Tourism Ambassador Association at Munas of Adwindo in West Sumatra 2015), tahu Sumedang has been marketed widely in these areas of Indonesia, by entrepreneur Tahu Sumedang which establishing a tofu factory in those area, but of course tofu that marketed there have a different taste from tofu marketed in Sumedang.

3.6.3 Promotion
Promotion is very important relation with an event, without the promotion of the event will be less attractive, the purpose of the promotion is to invite the public to come at the event, Event "Promotion Tahu Sumedang Through Culinary Events in Gasibbu Bandung" the authors create a media campaign print support, the meaning of the campaign itself has been discussed in the previous chapter.

Media print campaign will be divided in two parts of the distribution of print media which are spread outside and inside the venue took place, the goal of the event can attract the attention of the public to come, the message which delivered in the print media campaign not only to attract but also expected to be understood by the wider community. Distribution for outside event will be made of promotional media support such as Poster, Flyer, Banners, Baligo, Newspaper Ads, instead promotional media will be made Banner, Hanging Mobile, Header at the even took place. Every visitors who come at the event are given.

3.6.4 Event
Event will be held themed culinary event, which there is a special food from Sumedang, Tahu Sumedang, the aim is to promote Tahu Sumedang for Bandung society and surrounding, where in that event will be shiow to process Tahu Sumedang until to be packed. But not only show the way of processing until packaging, in this event visitors also can try and enjoy this special food of Sumedang, visitors also can try to fried by themself he Tahu Sumedang instead of other visitors also can buy Tahu Sumedang as a souvenir that aims for Bandung and surrounding communities can distinguish the taste of original Tahu Sumedang more tasteful than Tahu Sumedang sold in other areas.

This culinary event is also to promote special food of West Java, in which began to eliminated, especially Tahu Sumedang, due to the many snack widespread in the area and also in aims to compete with other snacks.

3.6.5 Target Audience
In general, the target audience to promote Tahu Sumedang is general public in the area of Bandung or the wider community who visiting Bandung. Bandung people now can be called the Metropolist community because many people from outside Bandung (from allover archipelago) until foreigners who come to Bandung for various purposes for work, school until such to travel.
Bandung society is one of society which in consumptive category, who always want to try something new, this consumptive behaviour of Bandung citizen also can be used as consideration to promote this Tahu Sumedang.

4. CONCLUSION AND SUGGESTIONS

4.1 Conclusion

From the above description can be concluded that nuts and seeds such as soybeans, peanuts, seeds of winged, koro, coconut and others are food sources of protein and vegetable fat are very important role in life. The amino acids contained in the protein are not as complete as animal protein, but the addition of other ingredients such as sesame, corn or groats is excellent for maintaining the amino acid balance. The making of tofu does not require a large capital. And the basic ingredients are very simple and easy to obtain, making the tofu provides a fairly large turnover. And it does not take long time to break even, this conventional tofu process requires a considerable amount of manpower, thus opening up employment.

Waste generated by tofu factories in the form of soybean husk, pulp and tofu water can still be utilized into useful products. The utilization of liquid waste know to be nata de soya and abon is one of diversification of food made from raw dregs of tofu. In addition, tapioca liquid waste can also be processed into nata de cassava and waste coconut water can be processed into nata de coco. Waste in the form of vegetables and unpasteable materials, can be processed into pellets.some of which can be processed into compost by fermentation process and organic fertilizer mixing. Besides beneficial to overcome environmental pollution, the waste treatment effort has provided many benefits economically.

4.2 Suggestions

The cleanliness of the factory and business premises should be more get attention, the government is more concerned about this typical of SMEs because of its revenues and also absorb quite a lot of employees, the number of modern tofu factories can be slightly suppressed by the government to protect conventional factories to continue and growing properly. To solve water pollution can be preventive action, for example, by not to disposed industrial waste into the river. The habit of disposing of waste into rivers and some other places, should be eradicated by the rules. The rules applied in each environment, consequently. Industrial waste should be disposed in provided containers.

Communities around the river need to pay attention to the cleanliness of the environment and need to understand about the utilization of the river, so the river is no longer used as a waste disposal site. Industrial waste disposal regulations should be monitored for implementation and the offenders are punished. Industrial waste should be processed first with waste processing techniques, and after fulfilling the quality standard requirements of new waste water can be streamed into the river. Thus will create a clean river and have ecological functions.

5. REFERENCES


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