Instant Noodle Boom in Indonesia : A Commodity Chain Analysis Study

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List of Acronyms

Bulog	Board of Logistic Affairs
CCA	Commodity Chain Analysis
IGA	International Grains
IGGI	Inter-Governmental Group for Indonesia
IMF	International Monetary Fund
LCA	Life Cycle Analysis
WFP	World Food Programme
WINA	World Instant Noodle Association

Abstract

This commodity analysis chain study aiming to understand the trajectory of food transformation particularly instant noodles in Indonesia. Without cultural relation to the country's food tradition instant noodle success to become one of the most consume food after rice in. This study identifies politic, economic and environmental aspects within each node through history and time. The initial creation of instant noodle was highly related with the postwar food regime lead by the US and political view shifting in the country. Post the era, the commodity being politicized and monopolized by certain actors namely the president, government body of logistic affairs and private sector. This monopolized enable by nepotism practices occurred in almost all node of the commodity chain. Instant noodle then success to establish itself in Indonesia food culture even after the loss of its monopolistic nature in the era of market liberalization. The effect of this commodity to the environment, particularly carbon emissions occur within logistic process materialized in the noodle production and distribution and retailer node. Annually this practice contribute at least 0.005 percent of carbon emissions to the total global emissions.

Relevance to Development Studies

The board context of this paper is the issue of political economy and environmental impact of food system in Indonesia. This has relevance to development studies because of the issue of intra-governmental and within governmental power distribution and relation. Instant noodle itself brings the issues of food dependency towards advance capitalist countries. Also issues related to market monopoly and nepotism within the chain that supporting capitalism provisioning. Moreover this study discuss the environmental impact of this commodity chain.

Keyword

Commodity Chain Analysis, Instant Noodles, Indonesia, Food Regimes

CHAPTER I
INTRODUCTION

1.1 Instant noodles boom in Indonesia : Where it all started

Over the past 50 years, transformation on the agrifood industry has taken place within developing country. This transformation as Reardon stated has taken places in two stages, 'pre-liberalization/pre globalization and liberalization/ globalization era. Liberalization/globalization era particularly started a 'supermarket revolution' and the spread of fast food chains. Supported by technological development and trade liberalization, this era introduced structural transformation within agrifood system that occurred at speeds never before observed (Reardon et al, 2008). Consequently, new food cultures are emerging, many food tradition and common eating behaviors are altering rapidly in the face of new products, marketing and life style (Lang and Heasman 2015). Processed, instant and fast food started to emerge and place it domination within globalized society. Study by Stucler et al (2012) showed that the rate of processed foods consumption in low-and middle-income countries is even faster than has occulted historically in high-income countries.

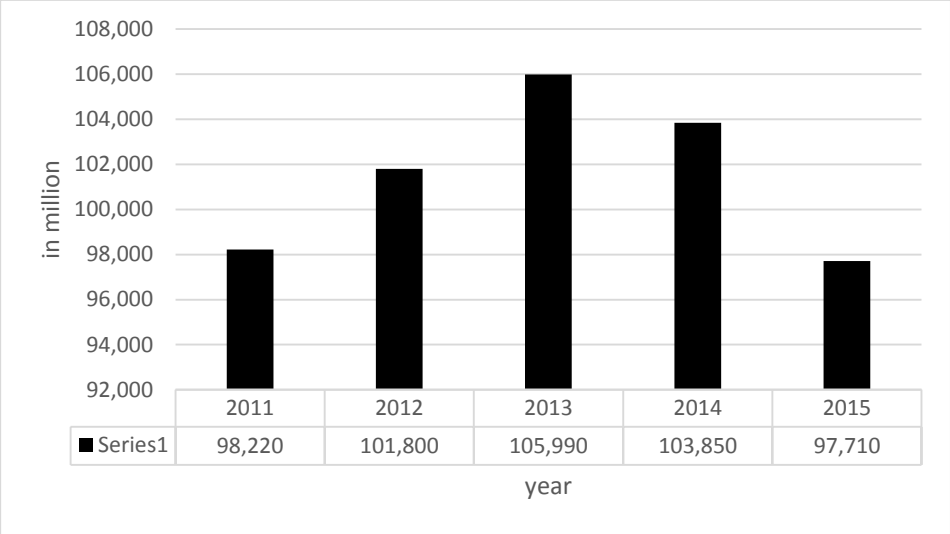
On this current transformation, instant noodles has started to gain its own place in global food system. Chosen as the best invention of the twentieth century in 2000 by Japanese people, instant noodles manage to beat other invention such as karaoke, Walkman, digital camera and even bullet train. The invention of Instant noodles was inspired by hunger pressing Japan as the aftermath of World War II when Japan have to received defeat from the opposite parties A Japanese man Momofuku Ando then started to invest some kind of food that could help Japan feed its entire population. With his believed that "peace will come to the world when all its people have enough to eat" on 1958 instant ramen was born and become a trend in food industry until this day (Leibowitz, 2011). The popularity of instant ramen in Japan sparks the growing of instant noodles consumption around the world. Today, instant noodles is available everywhere, from the fast food cafeterias of United States to the roadside hawkers in India and Saudi Arabia (Foodmag, 2015).

Despite the popularity, instant noodles consumption had been receiving several critical review from scholars. Thought most of the studies are related to health issue, other issues such as social and environmental impact are starting to emerge. In Japan, instant noodles had been blamed for the changing stigma in Japanese table manner toward more western style of eating (Philip Lee, 2015: 118). Instant noodles also often criticized as unhealthy type of junk food. In Nigeria, industrial

production of instant noodles were proven to contaminate Calabar River with heavy microbial load (Akaniwor et al, 2007:1).

Regardless going concern of its impact, consumption for instant noodles had been steadily growing. Based on data from the World Instant noodles Association (2016), in the span of five years from 2011-2015, people around the world consumed 507.570 million servings of instant noodles, or 101.514 million servings per year (see Figure 1.1 below).

Figure1.1
World Instant noodles Consumption



Source: World Instant noodles Association

Perhaps surprisingly, Indonesia has emerged as one of the biggest instant noodles consumers in the world. While in Japan ramen has been a comfort food for decades, and in China the noodle was first invented, noodles have never been a part of Indonesia's culinary tradition. Instead, rice has long been the staple in Indonesian agriculture and food cultures. However, in 2014 the country contributed 14% of total global consumption and placed as the second largest instant noodles consumer after China. Per capita consumption in 2014 was 53.7 serving per year only beaten by South Korea and Vietnam's consumption (WINA, 2016). Indonesia's noodles market growth matches its 6% annual uptrend in gross domestic product, reflecting the way rising disposable income has created a very different food market where a product like instant noodles has captured an unbeatable position (Sosland, 2013). This fact supported by National Socio-Economic Household Survey from 1996-2011 that stated household expenditure for instant noodles was 5.95% from total expenditure (Ruslan 2015).

Generally, people attribute this instant noodles boom to its cheap price, simple preparation, and favorable flavor. Added by the fact of social change where people starting to get busier and have less time to cook (Asia Express 2011). As convincing as it is, the argument remains incomplete in part because it was impossible to locate and isolate single cause for this new consumption (Mintz 1995: 4). In his cultural economy study of the transatlantic sugar trade in the 19th century, Sydney Mintz (1985) explained that changing consumer taste were not only the matter of free will but rather it was the result of more complex interaction between market availability and capitalist firms marketing. Understanding changing taste in population were as meaningful politically as economically (Mintz, 1985).

Explaining the rise of instant noodles, then, requires going beyond consumer preferences to examine the commodity's political, economic and even ecological aspects. One way to do that is to look at instant noodles at a global-local nexus to examine relations between nations and between firms in every stage of the commodity chain. This will help to gain better understanding of political and economic contestation within global-local nexus of the condition where instant noodles continue to gain more recognition as an everyday food. As the popularity of this commodity continues to rise since the middle of 1980s, the environmental impacts of resource use and waste are other important considerations.

This research paper aims to gain a better understanding of the political economic causes and environmental and social consequences of the instant noodles boom in Indonesia. Rather than uncritically accepting that this boom is led by busy lives, cheap price and good taste, this paper endeavors to explore other factors behind the situation. Using commodity chain analysis, the research project will examines political, economic and environmental dimensions of the instant noodles boom. At the same time, this research also aims to contribute to food system debates in order to more fully inform our understanding of the social and developmental dynamics of contemporary capitalism at the global-local nexus (Bair, 2005: 154).

1.2 Research Orientation and Questions

Unraveling the political economy and ecological aspect of the instant noodles boom requires a method that takes into account relationships between production and consumption at global and local levels. One of the most successful accounts of unveiling relationships is Mintz's *Sweetness and Power* (Collins, 2005). Through his study Mintz found out that the rapid rose of sugar consumption from 1650 to 1900 was the center of the growth of powerful capitalist interest in the colonies and industrializing Britain. The sweetness of sugar also not only sustained the capitalist classes in Britain in invested and operated colonial enterprises but also

nurtured the emerging proletarian classes in the mines and factories (Mintz 1985 :61 in Woo 2015). Mintz's careful examination of production-consumption links across time and space in his study continues to influence the creative application of commodity chain analysis (CCA) in making visible a hidden mystery in the commodity (Dunaway 2003 on Collins 2014).

Other study using commodity chain analysis such as Melanie DuPuis' (2002) study about milk make clear of how the rising trend in milk consumption were influenced by several factors. She is able to show how market forces, resources, and cultural meet (Collins 2005:10). These two examples of the rich literature on commodity chain analysis shows how robust this method is for analyzing the social life of commodities, and helping us to understand social dynamics that drive the capitalist agrifood system. Also, as Neimark et al (2016) mentioned, it could help to understand commodity creator, access dynamics and power relations.

As useful as it is, some 'realist' commodity chain analyst have not put much attention o several aspects. For example, most researchers who apply this approach have excluded the gendered aspects of commodity chains. Integration of gender aspects on study about commodity chain as studied by several scholars such as Wilma A Dunaway, Jane Collins and Priti Ramamurthy (2014) could enrich studies about commodity chain analysis. Feminist commodity chain researcher can unveiling the relationship that usually hidden in 'realist' study of commodity chain. (Collins, 2014).

This new perspective of feminist commodity chain research showing another possibility of using commodity chain to unveiling other relation in commodity namely benefit and risk distribution in environmental implications. Understanding environmental impact will give new insight to understand commodity chain studies because up until this time, commodity chain approach traditionally operates without locating itself in its environmental context. It regards environment as a source of input and recipient waste as an output. Nonetheless, the fact that this chain operate within global ecosystem, makes environmental aspect need to be incorporated into commodity chain analysis (K*ütting* 2014). Part of the task in measuring environment impact within the chain is actually fulfilled in a life cycle analysis (LCA) approach. LCA measure the environmental impacts of products over their entire life cycle from cradle to grave (Berkhout 1997 in *Kütting* 2014). Also LCA enable global assessment of product impact while product move through different hands which is particularly appropriate to a study of the environmental impacts of commodity chains. However LCA is not free from challenge, as Jason Potts mentioned:

> "…LCA's lack of attention to market structure, market power and the underlying policy framework means that an LCA on its own, provides only limited

information on what the appropriate market or policy tools for improving environmental performance might be (Potts 2006:2)."

This challenge faced by the use of LCA could be tackled by the use of CCA. Thus the environmental impact of a commodity could be reveal without overlooking its political and social issue unexamined.

In the regards of environmental impact, in the US, carbon emission came out from food transportation is estimated by Heller and Keoleian to account for 25 percent of total energy consumed (Cholette and Venkat, 2009). With Indonesia being a large country with high instant noodles consumption, a transportation system might potentially contribute higher number of carbon emission.

Focusing on this condition hopefully will be able to capture broader discourse on 'new' emerging commodity studies particularly in Indonesia context by asking these form of research question below :

- How is political and economic power distributed along Indonesia's instant noodles commodity chain?
  a. Where does monopoly occur within instant noodles commodity chain?
  b. What is the role each actors have in the establishment of instant noodles in Indonesia's food system?
- What are the environmental implications of the instant noodles boom, and how are environmental risks distributed along the commodity chain?
  a. Where does environmental impact (carbon emissions) occur in the instant noodles commodity chain?
  b. How much damage carbon emissions may cause?

1.3 Analytical Framework

Commodity Chain Analysis

In this paper I will use the concept of commodity chain analysis to trace politic, economic and environment trajectories of instant noodles establishment in Indonesia's food system within the chain of production until consumption. The nature of this study was first introduced by Terrence Hopkins and Immanuel Wallerstein on 1977 mainly for economic studies. Commodity chain define as a network of labor and production process whose end result is a finish commodity (Hopkins and Wallerstein 1986, p 159 as cited in Bair 2005: 155). Additionally Hopkins and Wallterstein also established world system theory to make use commodity chain in explaining core-periphery relationship as unequal distribution of different activities that create division of labor in the world economy (Bair, 2005: 155). Commodity chain studies later being used to criticize development as a practice and as an ideology. By using this method, social and economic change that

not implicated in economism and determinism and the inevitable western hegemony were able to analyzed (Collins, 2005:4).

To examine the role of actors in the commodity chain and understanding how this actors were able to dominate and drive the entire industry Gray Gereffi under the influence of Hopkins and Wallterstein work, developed framework for commodity studies on what he called global commodity chain (GCC). GCC analysis principally concern with identifying the full set of actors that are involved in certain commodity production and distribution and mapping the kind of relationship that exist among them (Collins, 2004, Blain, 2005: 157). With mapping the actors within the chain, GCC aiming to create best strategies for firms and countries to improving their position within chain (Blair, 2005).

Researcher believes that commodity chain analysis is not just a method that was 'innocent of theories'. Many of the believes that with using this data-gathering strategies complexity of transaction in globalization era would be able to be captured. (Collins, 2004). Bair (2005) also indicate that GCC analysis could provide not only methodological aspect but also it gives contribution on theory and policy area. The GCC method permits one to analyze globalization on specific location where particular process occur while at the same time revealing how this location and activities are connected to each other in commodity chain. Theoretically, study of GCC contribute to our understanding on how global economy works and in particular how power is exercised in global industries. Blair also mentioning policy implication of GCC by saying that this approach aim to enable local firms to improve their position in particular value chain. Also this approach enable one to analyze how commodity chains shape a country's development prospects.

More recent commodity chain analysis (CCA) come from the understanding that from the beginning the concept of commodity chains was about connecting the 'global' and 'the local'. Today's CCA approach developed from critiques to previous commodity chain study by saying that those previous study moving towards narrowing focus on competitiveness and industrial upgrading. In fact, Dunaway (2003b:185 as cited in Collins 2014) has suggested that they "have done the work of mainstream economist better than they do it themselves" (Collins 2014).

With this critique being said, today commodity chain analysis provide more room for contingency and agency as well as for discourse and culture. Many argued that it was well suited to capturing the complex transaction of an era of globalization and corporate domination and also provided a way to encompass the array of actors and institutions involved in trade and economic policy (Collins, 2005:2). It also addressed social and economic change but did not seek simple

model of causation, did not define everything in terms of its economic value, and did not make Western hegemony seem inevitable (Collins, 2014). By using this approach, studies of commodity chain started to appear from scholars like Lourdes Goveia (1977), Jane Dixon (2002), Melanie Du Puis (2002), Laura Raynolds (2001), Harriet Friedman (1988), Priti Ramamurthy (2004), Deborah Barndt (2002), Jane Will and Angela Hale (2005), Branda Chalfin (2007), Nicola Yeats (2009), Collins (2000, 2003). In additional, all of this work also historically situated, emphasizes social relations and power, actively interrogates relationship between local and global and incorporates economic, political, sociological and cultural aspects of life (Collins 2014).

Wilma Dunmay (2003 as cited in Collins 2014) argues that creative application of commodity chain analysis can make visible hidden aspects in the commodity chain. She also draw attention to the fact that right way of using CCA could help probe the subsidy drawn from nature when capitalists and consumers destroy and depleted resources. Dunway (2003b:196 as cited in Collins 2014) put forward that commodity chain analysis can help make visible and begin to account for these "transfer of value that are embodied in commodities but do not shown in prices" (Collins 2014). After went through revision and critics, using commodity chain analysis might provide interesting point of view in the regards of the rise of instant noodles in Indonesia's food system.

Food Regime Analysis

Food regime analysis provide historical lens on the political and ecological relations of modern capitalism. (McMichael 2009: 142). This analysis is based on the notion of a 'rule-governed structure of production and consumption of food on a world scale (Friedmann 1993a, 30-31 in McMichael 2009: 142). Food regime analysis situate food world system within a broader historical understanding of geo-political and ecological condition (Mc Michael 2009: 139) which give a framework to help in understanding the nature of instant noodles commodity chain in through Indonesia historical events. Food regime takes capitalist world economy as an integrated historical social system as its unit of analysis (McMichael 1990 in Woo 2015: 10) in an attempt to perceive dynamics of capital accumulation and how its relation to the development dynamic and relationship between core and periphery (Woo 2015: 10). What makes food regime analysis special is that it accentuate how through circulation of food, forms of capital accumulation in agriculture that constitute global power arrangements could be unveil (McMichael 2009).

The first food regime, 'colonial-diasporic' food regime situate around British hegemony in the world economy. This regime centered on European transformation toward large scale industrialization with the support of tropical commodity and expand to temperate food (Woo 2005, McMichael 2009: 145). The

second food regime, the 'mercantile-industrial' food regime is the US-centered food regime in which the country make use of food surplus to build development states in the Third World (McMichael 2009: 145). The third food regime established by Philip McMichael, 'the corporate environmental' food regime situated among the hegemony of agrifood corporation (McMichael 2005 in Woo 2015:11).

The second food regime particularly providing an analytical framework in the development of instant noodles in Indonesia specially the historical and political background of the commodity. The most important commodity of this post war regime can be traced to wheat complex, durable food complex and livestock complex surged after the World War II. The wheat complex facilitated food import dependency for the Third World mainly to the US. In this regime, domination of the US did not came from trade but mostly through other agreement. Price support programs in advance capitalist countries generated surplus which became the food aid under Public Law 480 for large number of Third World country (Friedmann 1992). Food regime analysis is clearly offer historical understanding of the evolution of models of development that expressed and legitimized power relations in world hegemony (McMichael 2009).

1.4 Research Method

By focusing the research question on the dynamic of commodity chain across time and node in Indonesian context, the most possible methods to help me answer the question is secondary data analysis. I will use secondary data from various organization such as Indonesia government, FAO, WINA and other organization and previous study that have relevant information. Secondary data analysis techniques may allow for the prompt examination of current policy, economic. The environmental impacts, particularly carbon emissions within this commodity chain will be calculated by using carbon calculator provide by sustainabletravel.org. Other significant data needed to calculate the impact will be collected from other relevant sources. However, one of the disadvantage of using secondary data is lack of control over the framing and wording of survey items. This may mean that the data needed are not included in the data set. (Vartanian, 2011)

1.5 Scope and Limitation

This study will mainly focus on the Indonesian context, particularly the commodity chain of instant noodles from production until consumption node. Therefore, the outcome could not be generalized into global practices. Additionally due to data limitation the depth of analysis might vary in some node. However, by

using commodity chain analysis as a framework this study potentially able to give new insight about the broader discussion on food system dynamic.

1.6 Systematic

Having said the brief explanation about the research design in this first chapter, the following chapter will elaborate more about the topic discussion. In this chapter, I will also elaborate the analytical framework more specify on commodity chain analysis as a main framework of this study and Food Regime Analysis to support the discussions. In the second chapter, I will describe an overview to instant noodles boom in Indonesia. The explanation provides a critical insight for particular case by providing historical point of view to the theme. Third Chapter will describe how commodity chain of instant noodles in Indonesia operate and how power and environmental impact particularly carbon emissions distribute among the chain. Last chapter will be concluded all the findings.

CHAPTER 2

AN OVERVIEW OF INSTANT NOODLES IN INDONESIA : DEVELOPMENT OF THREE ERA

2.1 Instant Noodles: an Overview

Instant noodles in Indonesia evolve through time and specific condition in which this commodity born, develop and anchoring its existence in the country's food system. Its birth was a part of a global-local nexus played in the global food system resulting from the US hegemony in the after war food regime. The invention of instant noodles was not solely the result of brilliance invention. Developed from the well-established Japan's noodle tradition, the commodity was able to flourish with the support of inexpensive and myriad supply of wheat from the US's aid program to Japan (Errington, et al 2013). This cheap basic element of instant noodles gave Ando the opportunity to produce the product for mass market that he always envisions. He himself said in his autobiography, *The Story of the Invention of Instant Ramen:*

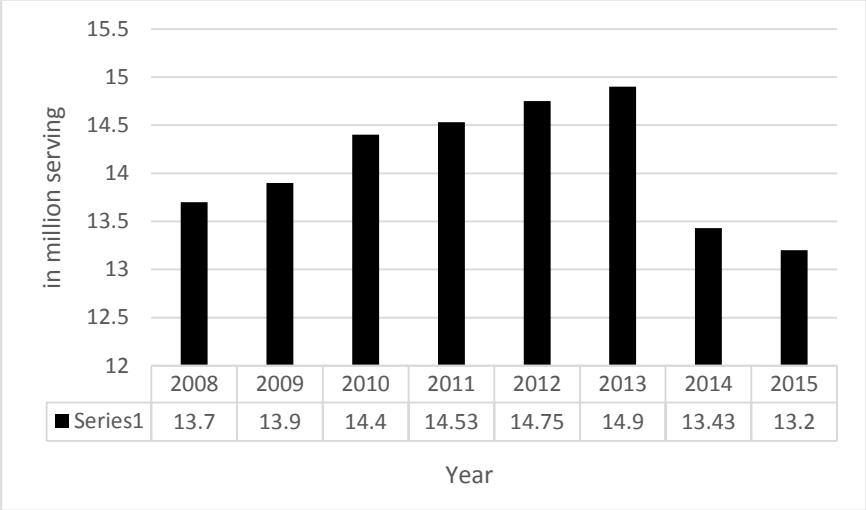
> "I set myself five objectives, first, the noodle should tasty and palatable. Second, they should keep for a long period of time and be easy to store in the kitchen. Third, they should be easy to prepare. Fourth, the product should be inexpensive. Fifth, the noodles should be safe and sanitary since they were for human consumption" [2002: 49 50 on Errington et al 2012: 22]

With those five characteristic, on its early year instant noodles was perceive as part of development process and technology advancement, not only in Japan, but also in several other places the product came into. The US then become Ando's next target for instant noodles advancement after the fruitful result in his own country. With some adjustment, this 'modern' food from the east was able to penetrate the US market. From then on, the commodity started to spread rapidly (Errington et al 2012: 22).

A decade later, instant noodles appeared in Indonesia's market. However it was not the result of Japanese instant noodles market invention but the outcome of local initiative though with the help of foreign investor. The growth of instant noodles market in Indonesia had even able to surpass the market in Japan where the commodity come from. Today Indonesia is a house of the biggest instant noodles producer in the world. The figure 2.1 below showed how instant noodles consumption had been continuously growing albeit in the last two years from 2014-2015 the consumption was decreasing. This phenomenon had also happened in global consumption as could see before. The real reason beyond this phenomenon is yet to be determined, however China's market predict the change of number was due to new food substitute, rising awareness of healthy life style and rising income (Global Times 2016, Wenqian Zhun 2015). Aside from those

reason this phenomenon could be interesting to look into in relation with global dynamic at those time.

Figure 2.1
Instant Noodle Consumption In Indonesia



Source : World Instant noodles Association

Within this growing number of instant noodles consumption came also the rising level of wheat import as it is the basic formula for the product. In Indonesia, this inseparable nature of wheat and instant noodles had directly provide a room for capitalist agency to accumulate capital and gaining power both politically and economically. Having this two sectors under the belt means that whomever the actors are will be able to gain enormous benefit from the upstream to the downstream node of the commodity chain and in turn dominating the whole chain of the commodity chain. This phenomenon was mentioned by Gereffi, as he stated that certain firms could became 'lead firms' that drive entire industry by taking control certain node (Collins 2005). In this case, the wheat milling node holding the key for domination. The dynamics of wheat sector in the country as Byerlee mention is the aftereffect of domestic and international actor's influences:

> "On the domestic side, the main actors are (a) producers; (b) consumers; and (c) local grain-transport, storage, and processing industries, The main international actors are private and public agencies involved in the world wheat trade" (Byerlee 1987 : 309).

Using commodity chain as a unit of analysis, full set of actors involved in this commodity and what kind of relationship that exist among them (Blain 2005 : 157) will be unveiled in this paper. For nearly five decade the node for both instant

noodles production and wheat milling had been monopolized by small number of actors. Government bodies and particularly president Suharto had collaborated with private sector namely Salim group to rule this commodity by helping each other. With their large influence to the market, this actors might held hostage to varying degrees to the country. These corporations perceive food as a commodity to be bought and sold. Yet food implies the stewardship of productive resources; it is culture, farming, health-food is life itself (Rosset P 2003). They also might have influence power in shifting benefit and risk whether economically, politically and/or environmentally. Domination of this particulars actors is palpable in almost every node of the commodity chain.

This actors present in every node had their own share of benefit from the value adding process in this commodity. Aside for value adding process, this actors also have power in related policy making, for example trade, subsidy and distribution policy especially related to wheat. Wheat production and consumption node in particular have a connection with international market and were taking place outside the country particularly in Australia, Canada and the US. This three advance capitalist country also were the main actors in this node. Other node after the wheat production operate within the country but not free from global intervention.

2.2 Three Era of Instant Noodles Development

The role of the actors in this commodity lead to the establishment of several era of instant noodles development in Indonesia. The establishment of this era were based on the special events that brought instant noodles to its boom. Each era also determined by distinctive features directly arise from how the actors behave within the chain. The trajectory of this commodity chain change alongside the dynamic of each era presented. The attempt to separate the boom into several era not only will make easier to see the dynamic of instant noodle's actor and history, but also in analyzing global-nexus dynamic within the chain. The establishment of this three era in this chapter will also make easier understanding for the next chapter discussions.

The era were divided into three different sections. The first era was **'the initial era'**, this era started with the time of political shifting in Indonesia in the middle of 1960s and ended around the instant noodles first introduction to the market. This era also marked by the start of foreign program particularly aid program by The US and Australia. The second era was **'Bulog era'** (The National Food Logistics Agency or Badan Urusan Logistic in Bahasa) in which instant noodles started to became important part of Indonesian food culture. The most prominent character of this era is monopoly in wheat and instant noodles market. The particular actors of this era is the government body working in food regulation namely Bulog and particular private sector namely Salim group the owner of PT

Bogasari and PT Indofood. The seeds of this actor's intention had started in the first era, however it was executed in this second era. In this era, the practice of power abused by the government was running rampant, not only in whet and instant noodles chain but also in the other sectors as well. Subsidy and loan at those time were politicized and used to support milling wheat industry and instant noodles production to achieve their capitalistic objective. The last era was **'the liberalization era'** in which instant noodles already have crucial place in the country's food culture and continue to strengthen its place with releasing more variation of instant noodles. The distinguishing feature of this era were market liberalization influenced by IMF and the involvement of more actors. The opening opportunity of more actors in both wheat and instant noodles production nodes enabling the market to move from monopolistic market towards more versatile market. However, due to long time of market monopoly, currently the market still operate under oligopoly system with bias towards the older player. The detail and reason why I separate the development of instant noodles into three era and how this era distributed among nodes of commodity chain will be able to see in the later chapter. Below is the summary of each era in instant noodles boom in Indonesia with each distinguish feature and particular policy influencing each era.

Table 2.1

Three Era of Instant noodles Boom in Indonesia

Era	Description	Distinguish feature	Particular Policy
Initial era (1965-1971)	- Establishment of the first wheat milling in Indonesia - The first introduction of instant noodles	Political shift Installment of aid	Agreement to take part in the US PL 480 aid program
Bulog era (1971-1998)	Starting the popularity of instant noodles in Indonesia	Monopoly of wheat and instant noodles market	Bulog rights to control market Wheat subsidy President program of food diversification

Liberalizatio n era (1998-now)	- Anchoring the popularity of instant noodles - The start of more liberalize market	Market liberalizatio n for wheat	Presidential degree no. 45 year 1999 Anti-monopoly decree no. 5 year 1999

As mentioned before, specific events were what lead to establishment of every era of instant noodles development. This timeline below might help to summarize some main events of instant noodles development and how it distribute within the timeline of the three eras. However this events listed below were not the only events determined the boom of instant noodles, the detail of others event will unveil in the next chapter.

Figure 2.2
Instant noodles Boom Timeline in Indonesia

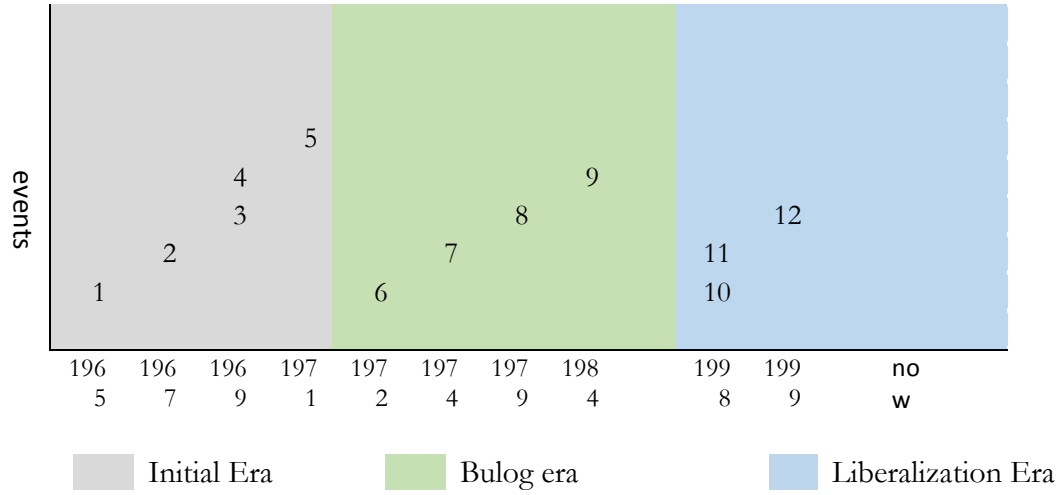


Table 2.2
Events in Figure 2.2

No	Year	Event	No	Year	Event
1	1965	Political Shifting	7	1974	Diversification program
2	1967	Aid Agreement	8	1979	PT Indofood's first instant noodles
3	1969	PT Bogasari Establishment	9	1984	PT Indofood monopoly
4	1969	First Instant noodles : Sarimie	10	1998	Political Shifting
5	1971	PT Bogasari operated	11	1998	LOI agreement with IMF
6	1972	BULOG Monopoly right	12	1999	Anti-Monopoly Policy

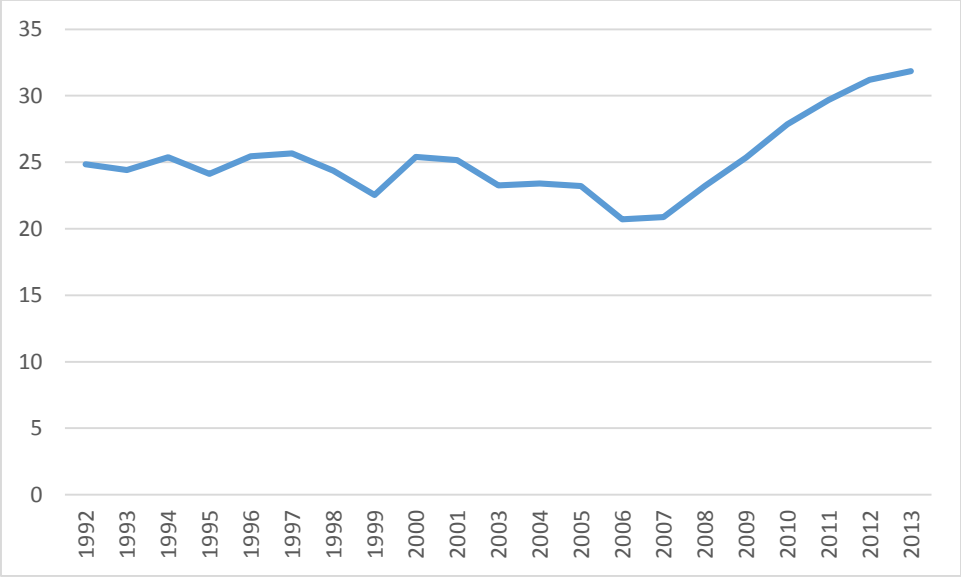
From the figure and table above we could see that the quantities of events happened in every era were unequal. Most events happened in the first era when instant noodles first established. Even though the other era might not bear as much events as the first era it does not mean that those other era were less important. Each era also does not based on particular period of time, thus we could witnessing variety of time period in each era operate without losing its meaning. Some happened so fast others need longer time to develop.

Within the development of this mega industry across, there had always been an aspect that being neglected and being hidden under the radar. With massive food industry like instant noodles, enormous impacts especially for environment is bound to happen. Unfortunately the impacts of the industry had always been externalized by the company and seems like it would not change in the near future.

Naturally like in any other industry, production node contributes to the most emissions and weighting the most in foot print calculation. Several articles had been written on this particular production topic, the most prominent issue in this node was the use of palm oil in the production process of instant noodles. However, only few directly consider energy and emissions impact of supply chain (Cholette and Venkat 2009: 1401) especially in the focus of transportation. In Asia, carbon dioxide (CO_2) emission related from the consumption of fossil fuel growth annually of 5.3 percent. The number increase from 2136 million ton in 1980 to

7692 million ton in 2005. The three main sector that account for the biggest CO_2 emission in most countries in Asia are power, industry and transportation. While the emission intensities of the power and industry sector had been well analyzed in many countries, transport sector emissions and emission intensities have not examined to the same extent, especially in developing countries. Economic growth and population growth alongside consumer clout are the factors that significantly influence carbon emission. This chart below shows the carbon emissions from transport in Indonesia from time to time, roughly transportation sector contributed 22 percent of the county's total emission and from thus number 90.7 percent came from road transportation (Timilsina and Shrestha 2008).

Figure 2.3
Carbon Emissions From Transport (% of total fuel combustion) in Indonesia



Source : World Bank Data 2016

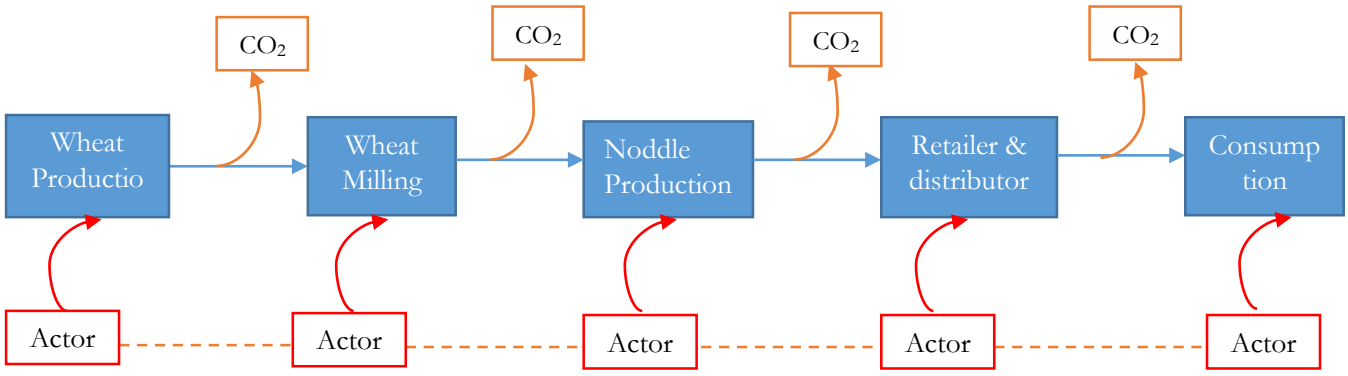
With billions of packs sells every years and thousands of distribution point across the country the impact of transportation sector in instant noodles chain could not be ignore. Latter in the next chapter we could see where the emission appear and how much damage it contribute.

CHAPTER 3

COMMODITY CHAIN ANALYSIS OF INSTANT NOODLES

In this chapter, five node of instant noodles commodity chain will be analyze. The aspects being analyzed will focused in historical background, actor's role and environmental aspects of each node. However the weight of discussion in every node might come out vary from each other. The reason being were the availability of data and lack of prior study to be guidance from research community especially in the environmental aspects. This lack of prior study may potentially made the research simplisistics and resulting misleading calculation (Cholette and Venkat 2009: 1401).Thus, the environmental aspect in this paper might left a lot to desire. Five node that will be analyze in this chapter are wheat production node, wheat milling node, noodle production node, retail and distribution node and consumption node. The simple model below showed how generally commodity chain of instant noodles operated in Indonesia in which the actors involvement appear in every node, we could also witnessing where the carbon emitted. Though appear separately, each node is interrelated and hold influence towards each other, and so does the actors and the emissions emitted.

Figure 3.1
Commodity Chain of Instan Noodle in Indonesia



In the first node, historical background and role of actors will be given more focus with the additional of global power influence, environmental aspect in this node will not be analyzed because of the research limitation. The second node will be deeply related with the historical event that happened in the first node with emphasizing in the introduction of the actors. The production node will mostly develop around instant noodles market development lead by certain actor with also

historical background behind it and also environmental aspect that started to become more apparent. Node of retailer and distribution will mostly emphasizing in the environmental impacts with lack of historical context since the data is less available. The last node of consumption will be discussing how the actors influencing consumer's preference and not much about environmental effect since the impact from logistic sector was considered to end in the retailer and distribution node.

The carbon emissions omitted in the supply chain by logistic sector were a raw calculation. In order to estimate the emission omitted, a software have to be use. In the study conducted by Susan Cholette and Kumar Venkat, a software developed by CargoScope was used to estimate the energy and carbon emissions intensity of the supply chain of wine (2009: 1401). However, the same software could not be used in this research since the software is based on the US supply chain. Unlike other countries it is quite challenging to gather the data to estimate carbon emission in Indonesia. Therefore in this paper I decided to use a carbon calculator from 'sustainable travel international' (sustainabletravel.org). This calculator provide the calculation based on distance, the type of fuel and fuel efficiency. This calculator also provided the estimate price of carbon emission for the user. However given the fact that the site provide the price for later donation to their organization program, the price calculation's objectivity is still not clear. Despite that I decided to mention the price to become part of consideration in materialize the environmental impact of logistic sector in this commodity chain.

In the use of this calculator, we also have to acknowledge that there are several factors that might contribute to the accuracy of the result. For one this calculator is US based carbon calculation. The difference in geographical contour within two country might give different estimation. Moreover, other important aspects that might contribute to the number of emissions such as the age and condition of cars, road condition, how the driver drive the cars and how much time the vehicles spend idle in the traffic are not being considered. Nevertheless given the fact that the data is not easy to obtain and the lack of study about this theme in Indonesia using this calculator is the best option for the moment.

3.1 Wheat Production Node

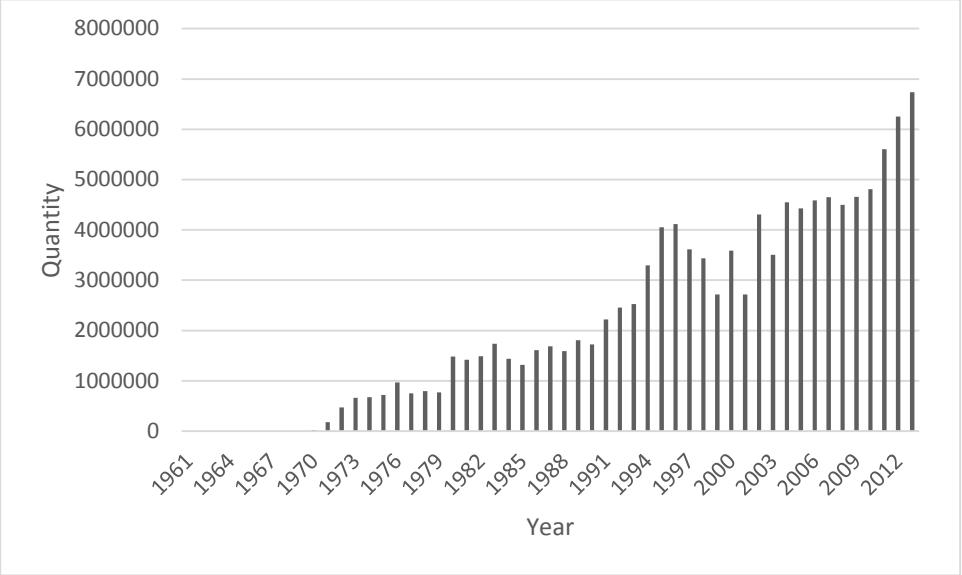
While all node is important in the commodity chain, wheat production become crucial key for this commodity reproduction. Not only because all other node depend on this node to be functioning but also the historical and political dynamic surrounding this node that determine the birth of instant noodles. Understanding historical context and power dynamic of wheat import in Indonesia is important in order to understand the condition in which instant noodles emerge. As the birth

of this commodity is the result of opportunity provided by the abundant of wheat in the market as the consequence of several policy taken.

Wheat itself has special significances in the study of food and power, it especially hold significances for developing countries. First, wheat is the dominant imports commodity by developing countries. Second, unlike rice, world wheat exports are dominated by developed countries. Third most of importers countries lying in tropical belt that could barely produce wheat, hence there is an incongruity between the traditional food staple and the importation of wheat. Lastly it has to undergo processing process that would involve several more actors (Byerlee 1987: 307-308). With decade process of trade and wheat penetration, Indonesia had finally taken part of this global wheat system. Leo Kusuma (2012 as cited in Subejo 2013) discovered that Indonesia's processed wheat per capita consumption only reached 8.1 kilograms per year in 1980, but it swelled to 21.2 kilograms in 2010. Within 20 years, per capita consumption of wheat has increased by more than 200 percent. The latest official data reveals that imports of wheat and wheat flour exceed 7 million tons, totaling Rp 25 trillion (US$2.52 billion). This amount outweighs the state budget allocation for agricultural development in 2013, which was set at Rp 16.4 trillion.

Unfortunately, recognition of the country's high dependence on wheat import is low despite the fact that the level have reached an alarming level (Subejo 2013). If these massive and systematic food imports keep continue it will potentially undermine the sustainability of domestic food system (Subejo 2012). Supposing that the food production and consumption have to continually highly depend to the global economy, on the goodwill of a superpower not to use food as a weapon, or on the unpredictability and high cost of long distance shipping the country could not be secure in the sense either national security or food security (Rosset P 2003).

Figure 3.2
Indonesia Wheat Import Quality



Source : FAOstat, 2016

From the graph above we could examine that commercial wheat import in Indonesia started came to the market from the late 1970s and continue to go up from then on. This trend was a part of the consumption trend in the Third World which accelerated during early 1950s and the late 1970s. During those period, estimated 80 per cent of global traded wheat was consumed by developing countries (Byerlee 1987: 308). Per capita consumption of wheat increased by 63 per cent in the market economies of the Third World (Friedmann 1992: 372). This global consumption trend was a part of Fiedman and McMichael's second food regime in which food surplus in 1950s from the United States came into markets and transforming the US into a 'dominant exporter' and in turn transforming 'Japan and new nations of the Third World from self-sufficient to importing countries'. The postwar food regime enable the US to penetrate Third World countries market by circulate the agriculture commodities in the forms of aid and not as trade. Framing surplus transfer as aid naturalized what were a set of implicit power relation (McMichael, 2009: 143-144). This surplus the US determine to get rid was the result of the country's domestic program namely PL480. Established in 1954, the program not only sought to create overseas markets for the US commodities, but also to securing loyalty against communism and to imperial markets (McMichael 2009: 141, Van der Eng 2014: 5).

Indonesia, as a budding major market for wheat-based food product was an ideal target for the program. However under the leadership of the first president Soekarno wheat surplus could not entering the market, instead it was raw cotton,

tobacco and small amounts of rice as emergency aid that PL480 brought. Food aid was the least in the president priority, on public rally he even bluntly said "Go to Hell with your Aid" to the US Ambassador in Jakarta on March 1964 (DeGroot 2009: 387). The penetration of PL480 was then only able to success after the change of political ideology in the country which marked the first era that I mentioned in the previous chapter: the initial era of instant noodles boom.

The initial era of instant noodles boom in Indonesia was indirectly the result of the domino effect from what happened to the country political and economic condition in the 1960s. The shift of political and economic view following military coup de e'tat to the former president Soekarno was what the first trigger to the rapid penetration of aid into Indonesia's market. Initially, donor countries focused on rice aid in efforts to secure share in Indonesia's growing import however it shifted due to the new opportunity provided by the new president (Van der Eng 2014: 13).

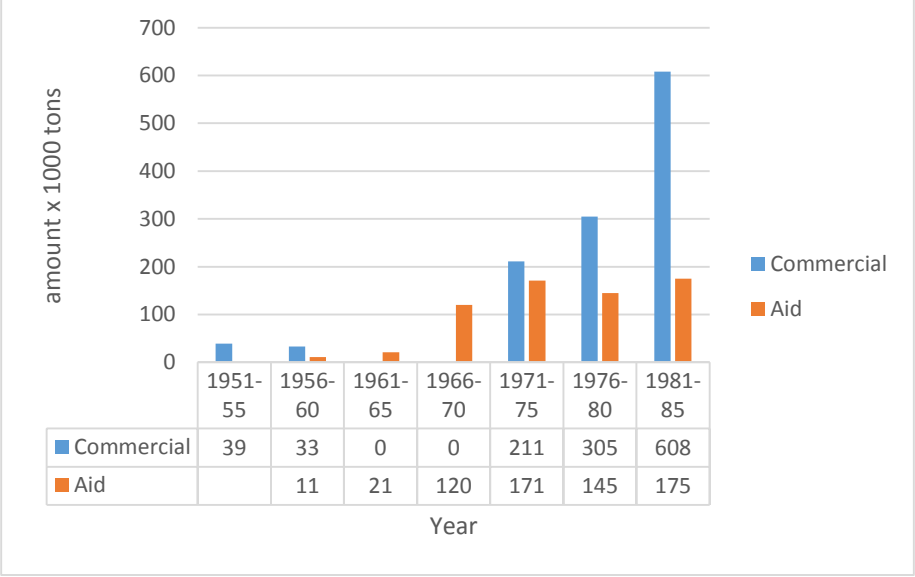
In the old order regime lead by Soekarno, the country had never requested food aid despite occasional famines at those time. Most of the economic aid to Indonesia took the form of project aid that primary aimed to support economic development and strengthen the competences of the country's armed forces. Until 1965, the aid mostly came from Soviet Union due to the former president's political view and his abhorrence towards neocolonialism, colonialism and imperialism (Van der Eng 2014: 1, Frederick and Worden 1993). Six weeks after the president suggestion to join anti-imperialism alliance with Beijing and other Asian communist regime he was dethroned by a group of army officer, leaving the chair of presidency to military figure General Suharto (Thirteen n.d).

The new regime lead by former military major general Suharto took opposite direction from his precedent in political and economic orientation into a pro-Western (Yazid 2014: 1). While in his foreign policy the former president concentrated more upon nation pride, military improvement and closer relation with communist countries, under President Suharto cooperation with the United Started and foreign investment began to operate. (Frederick and Worden, 1993). The shifting of the state and state system in the country lead to the reproduction of the US food regimes in the newly revolute country (Friedmann 1992: 380).

As a result, a year after the regime officially change from old order to the new order, in 1967 the aid in the form of wheat flour, rice and other products started to arrive to Indonesia (Van Der Eng 2014: 13). At the same time, Indonesia had to face instability of world thin rice market, during those period only 7 percent of world production traded that make any insufficient supply would lead to world price rise when imports are needed. The condition was dangerous for the country because during 1960-1964 Indonesia become the world's biggest rice importer. In order to counter this condition the new government limited rice imports to an

annual average of 5 percent of total supply during 1966-70 (Van der Eng 2014, Fabiosa 2006: 2). At those time of instability, flour and wheat market promises stability with less volatile market, abundant supply and in the same moment could substitute rice as a staple food (Timmer 1971 in Sawit 2003: 59). This risky condition of rice market flames the opportunity for wheat and wheat based product to develop. This opportunity were foresaw by The US' government that through Marshall Plan and PL480 program grant Indonesia soft loan for importing flour. At the end 1960s The US gave a concessional funds to Indonesia for buying the country's wheat (program PL 481 Title I) (Sawit 2003: 59).

Figure 3.3
Commercial and Aid Import to Indonesia



	1951-55	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85
Commercial	39	33	0	0	211	305	608
Aid		11	21	120	171	145	175

Source : Van der Eng 2014: 16

As could be seen from the graph above, supplying food aid offered the US opportunities to establish and build market share in Indonesia which in previous order was limited (Van der Eng 2014: 8). In accordance with the amount of wheat imported as aid, the number of wheat imported as commercial wheat also soaring up. Providing the success penetration from the US that been supported by the subsidy program from the government. Clearly, the governments in both importing country and exporting countries have been key actors that consistently reinforced market phenomena and accelerated the growing of wheat based products (Byerlee, 1987: 311).

However, the US domination through aid had raised a concern among several countries that exporting agricultural commodities. In order to counter rapid growth of the US PL480 program, several countries established World Food

Programme (WFP) in 1963, Inter-Governmental Group for Indonesia (IGGI) in 1967 and the Food Aid Convention of the multilateral International Grains Arrangement (IGA) in 1968. In the case of IGA, the country member was obliged to provide a minimum amount of food aid, as a result, EU, Australia and Canada emerge as major aid donor of agricultural produce (Van Der Eng 2014: 3)

> "In the late-1960s, Indonesia was one of the first and main beneficiaries of WFP and the 'Food Aid Convention'. IGGI donor countries were interested in helping Indonesia to overcome its economic difficulties through foreign aid as soon as possible. But Indonesia's capacity to absorb foreign project aid at short notice was limited. Food aid therefore became an important part of instantaneous aid that these countries could offer. For example, Australia's food aid program to Indonesia expanded very quickly as part of Australia's effort to counter the effects of the rapid growth of US food aid to Indonesia in the late 1960s and 1970s. In general, food aid was provided under multilateral WFP commitments for famine relief and emergency, or it was provided bilaterally as aid in kind yielding local currency proceeds that were soon used to finance bilateral aid projects..." (Van Der Eng 2014: 6).

As the result of this joint effort of other capitalist countries, the US hegemony undergoes a challenge of its aid programme, the new contender both accumulated surpluses through their own domestic policy and were in the end strong enough to challenge the US in the aid game (Friedmann 1992: 373). In Indonesia, Australia came as the strongest contender for the US aid. The table below showed how aid evolved through periods of time. It was clear that aid came to Indonesia in the 1956-60 after the establishment of PL480 and rapidly grow after the regime changes. The US, Australia and Canada later also became the largest exporter for wheat to Indonesia. The initial era of this wheat production node was heavily influenced by political dynamics in global power arrangement that leaving Indonesia as an object of political contestation between advance capitalist countries.

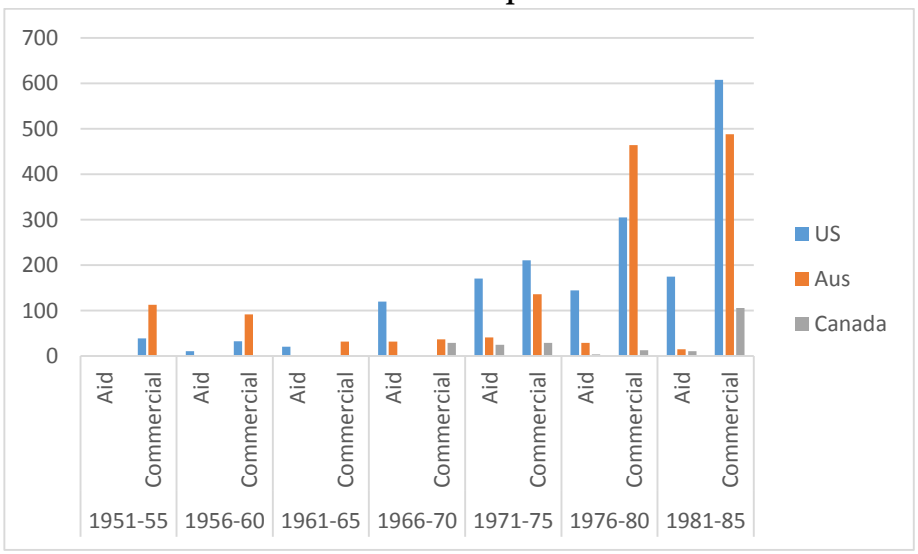
Table 3.1
Wheat Aid to Indonesia x 1000 tons

Country	1951-55	1956-60	1961-65	1966-70	1971-75	1976-80	1981-85
USA		11	21	120	171	145	175
Australia				32	41	29	15
Canada					25	4	11
Western Europe				25	31	10	28
Other			2	9	3	4	5

Source: Van der Eng 2014: 16

This continuation of aid penetration had successfully established the now large market of wheat and wheat based product in Indonesia. As the aid grow, so did the commercial import of wheat, to put it into perspective, the figure above and below showed clearly how aid was supporting the growth of commercial wheat products and the two went in the parallel direction. From 1951-1960 the country import commercial wheat but no aid coming. This situation started to significantly change in 1966-170 when both aid and commercial wheat come to the country. However, the aid in those time is higher. Started from the 1976-80 the commercial aid significantly became higher while the aid is declining from the previous year. The gap between aid and commercial wheat then became larger in the next year with. Figure 3.4 provide an insight in which each exporter country grow their wheat market in Indonesia. Until 1985 the number of aid was influencing commercial aid figures. The US for example had lead the commercial market that might have something to do with their high number of aid.

Figure 3.4
Aid and Commercial Import to Indonesia



Source : Van Der Eng 2014: 16

The initial era of instant noodles boom in this particular node ended when wheat import started to became consistent part of Indonesia's trade balance which triggering the birth of instant noodles in 1969.

The import of wheat to Indonesia then continue to increase, however this market was being monopolized by the government's body; Bulog. This particular event was the key that opening new era to instant noodles development; 'Bulog era'. BULOG was set up in 1967 directly after President Suharto came to power,

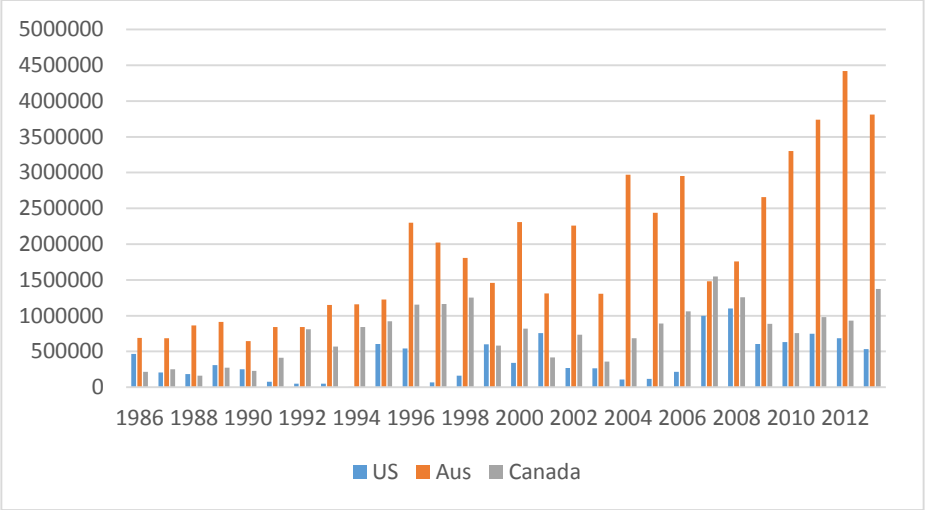
in 1978 it became an agency directly under president control (Yonekura 2005: 122). However the second era of instant noodles boom had started in the 1972 when Bulog given the authority to be the sole legal importer of wheat. The extension of Bulog's monopoly came at a time when Indonesia still imported most wheat on a concessional or grant basis (Van der Eng 2014: 12). The dependency of market operation on the permission issued by Bulog brought the opportunity to intuitional corruption that already happened to rice market in 1970 (Van der Eng 2014: 11).

> "The existence of a single and ostensibly effective food logistics agency in Indonesia facilitated an ulterior motive that donor countries tacitly pursued with food aid. This was related to the fact that each was also an exporter of staple foods, particularly wheat, wheat flour and/or rice. In the 1950s, Indonesia's rice imports were dominated by supplies from countries in Southeast Asia, while its wheat flour imports largely came from Australia. But in the 1960s, supplying food aid offered a major donor country like the USA opportunities to establish and build market share in Indonesia" (Van der Eng, 2014: 8).

The setting up of BULOG in handling wheat market develop in the ideal nepotistic business-politics structure in Indonesia. It is the result of policy making in Indonesia that highly centralized and directed by the President through his Cabinet. This central role played by the President in policy formulation serves the opportunity for him to create mechanisms that will only benefit him and his crony (Mobarok and Purbasari 2006: 8).

Under the direct assessment of the president, until the middle of 1980s the US was the major contributor for wheat's supply to Indonesia's market. However in the middle of 1980s, world trade in wheat dropped sharply and the US share fell even more (Friedman 1992: 373). Started from 1986, then Indonesia shift its major importer to Australia. The shifting of importer source in the middle of 1980s also might influenced by the changing preference of PT Bogasari as the biggest sole buyer of wheat. This table below showed how Australia overturned the US in the wheat market:

Figure 3.5
Indonesia Wheat Importer



Source : FAOstat 2016

The figure above showed how rapidly the table of wheat market turn in Indonesia's market. With the decreasing of aid grant, the US slowly lost their market share in the country. Canada which did not invest large amount of aid for Indonesia in earlier year surprisingly could overturn the US in commercial wheat market in the early 1990s.

While in the 1980s Indonesia could achieve zero import of rice as the result of green revolution, wheat import continue to soaring even though the government reduced the subsidies. This fact supporting the fact that wheat market had already successfully established in Indonesia. In this rise of wheat, Bulog as government body hold a significant role.

After being monopolized the market for nearly three decade, this institution's power have to come to an end. Ironically its power have to come to end with the collapsed of the President. As Asian economic crisis hits Indonesia in 1997-1998, the political power of new order regime also gradually depleting. The tense economic chaos lead to the dethroned of president Suharto after 32 years served the country (Indonesia Investment n.d.). Before the final blow, the government made an agreement with IMF in 1998 for receiving an IMF loan during the crisis. However Indonesia have to agree to the letter of intent (LOI) proposed in which liberalization of Indonesia's wheat sector was listed in (Sawit, 2003, Fabiosa 2006). In November 1998, presidential decree no. 45 was announced, under the influences of the IMF and World Bank BULOG underwent a reforms in accordance with LOI.

This reforms consist of abolishment of its exclusive right and privileges that had come with being directly under the president. This decree also indicated that Bulog would no longer be under the sole control of president (Mobarok and Purbasari 2006).

As wheat market no longer being monopolized, the new era of liberalization emerge. After the agreement with IMF, in 1998 the government set 5 per cent of wheat tariff import and reduced it into 0 per cent in 2002. This policy made Indonesia as one of the most liberal country in wheat trade compare to other Asia countries (Sawit 2003: 61). Nowadays Australia holding 60 percent of market share in Indonesia, followed by Canada that hold 25 percent and the US whom opening the market in Indonesia currently only hold 7.7 percent. The high number of import from Australia is due to noodle industry's preference for Australia standard white wheat, price and proximity (GAIN Report 2016: 5).

As the evolving of each era and the rising of wheat import the environmental impact is eventful to occur. As proved by already abundant research paper, agriculture is the biggest contributor for the global carbon emission. The large number of land transformation and input uses by no means were the biggest challenge for today's climate change eradication. As wheat is the second most trade commodities the carbon occurred from this commodities production have been researched by more researcher.

3.2 Milling Node

Ironically, as non-wheat-producing country, today Indonesia have an excess of milling capacity beyond the county's annual consumption and host of the biggest flour mills (Byerlee, 1987: 320) . This situation was the consequences of the flooding of aid in the initial era as mentioned before. This initial era in this node is mostly the time of establishment for milling flour industry. The 'idea' of setting up milling industry was came from wheat flour shipping inefficiency. In the first arrival of the aid, approximately 2.000 tons of the aid had to be thrown away to the sea because it was rotten in the long journey (Aditjondro 2007: 237). This became one of the trigger for the president to sought milling as one of his business aspirations. Together with his main business partner; Liem Sioe Liong they establish the first milling flour at 19 May 1969: PT Bogasari Flour Mills. Liem was his old friend before the general stepping into the throne. President Suharto and Liem formed their personal bound in the early 1950s when the young commander of the Diponegoro Division in Central Java gave contracts to supply whatever the division needed for his soldiers as a return of Liem financial back up (Aditjondro 1998).

In really unusual speed, only five day after the establishment of the company, it received approval to invest in the construction of a factory. Furthermore, PT Bogasari received rare direct loan from the central bank which usually only given for certain state-owned corporations (Sato 1993: 415). Two year after the company establishment in 29 November 1971 the first milling factory was operated in Jakarta and a year later in 10 July 1972 the second wheat milling was set up in Surabaya, East Java (Bogasari n.d). PT Bogasari was given full support by the government, it was even get the 'right' to the West Indonesia market which previously promised to the Singapore milling based company. The West market became so much important because it hold 80 per cent of Indonesia flour market. The Singapore company latter being pushed away to Ujungpandang (also known as Makassar; a port city in South Sulawesi), and allocated the meager East Indonesian market by decree of the Bulog (Aditjondro 1998). With all exclusive economic privileges Liem soon had become widely known as one of the *cukong;* Indonesia-Chinese businessmen associated with political figures (Sato 1993: 415).

However even with all the support in its early year Bogasari did not have had big income due to relatively small flour consumption in Indonesia. But the business was poised for growth as it was securely protected by the government (Borsuk and Chng 2014). Bogasari even became the major beneficiary from the solo licensed importer of wheat possessed by Bulog.

> "Bogasari has special rights to mill Bulog's wheat into flour and received the flour at well below world market price ($82.48 per ton, whereas the purchase price was $150). This gave Bogasari's owner monopolistic control over all of Indonesia's flour, allowed him to charge a milling margin equivalent to 22% of the world price of wheat …' (Magiera 1993, Jakarta Post 1997, Aditjondro 1998b in Mobarak and Purbasari 2006: 8).

In the middle of 1970s President Suharto letting go his part in the flour mills company as he and his wife began frantically setting up their own family-controlled foundations. However the president had not totally letting the company go under his watch since the president still placing his step brother; Sudiwokatmono in the company (Aditjondro 1998). In exchange for monopoly privileges given by the government on wheat production, the conglomerates have to help government industrialization goals by undertake large-scale investment project (Frederick and Worden, 1993). In additional, PT Bogasari had the obligation to spare 26 percent of its profit for foundation own by the president's wife and also to a military unit that had tight relations with Bulog (Aditjondro 2007: 238).

The monopoly by PT Bogasari practically facing hindrance with Bulog's loss of power. Moreover, the LOI signed by the government triggering the enforcement of antimonopoly law No.5 year 1999 that prohibit business practices that unfairly restrict competition (Juwana 2002 : 87). Wheat millers and other wheat flour user

were then get the chance to import wheat and directly purchasing flour from foreign suppliers. Without Bulog handling the market they can sell their product directly to the market, triggering more versatile wheat market (Fabiosa 2006). Up until 1998, there was only five milling wheat existed; Bogasari, (with 80 percent share), Eastern Pearl Flour Mills (previously named Berdikari Sari Utama Flour Mills with 8.5 percent share) and Sriboga Ratujaya & Pangan Mas (with each 5 percent share) (World Grain 2015).

Half decade later, and the business vision of Liem is now being proven. His company is now the largest flour mill in the world and Indonesia now able to export wheat flour to other countries, particularly South East Asia countries (GAIN Report 2016: 6). It was quite remarkable achievement from the country that do not have any culture related to wheat to become one of the exporter despite the still dependency of the basic ingredient. Now, it is safe to say that the actors in milling industry had been gain benefit from the value adding process in the chain. Thus, it was not a surprise when after the market liberalization the number of wheat milling company is soaring. In only 15 years, the number of actors double into 29 while in previous era need 30 years to doubling the number. This table below showed the growth of milling company in every era.

Table 3.2
Number of Milling Company in Liberalization Era

Subject	Initial Era	Bulog Era	Liberalization Era	Total
	1960-1972	1972-1998	1999-2015	
Number of Milling	5	5 + 6	11+18	29
Location	Jakarta (1) Surabaya (1) Makassar (1) Semarang (1) Cilacap (1)	Gresik (1) Tangerang (1) Sidoarjo (3) Medan (1)	Cilegon (5) Tangerang (2) Medan (3) Bekasi (3) Gresik (3) Sidoarjo (1) Mojokerto (1)	Java : 24 Outside Java : 5
Total of Wheat Mill Capacity : +/- 10.3 million MT/year				

Source : Welirang, 2014

Even with the doubling numbers of players, PT Bogasari still holds 51 percent of Indonesia's market share. This number however is less than what they used to have before the liberalization took place. In 2000 the company holds 67 percent of share (World Grain 2003, 2015). However, the declining of market share does not mean the production is also declining, on contrary due to increasing number

of wheat consumption, the production is now increasing. Nowadays, the company's milling capacity in Jakarta is 10.450 MT per day and 6.000 MT per day in Surabaya (Bogasari, n.d). The graph above clearly indicate that the milling companies are concentrated in Java. This tendency to centralizing administrative and economics activities in Java existed since the era of Dutch colonialism which Indonesia seems could yet get free from.

As mentioned before, PT Bogasari established two milling flour in the early 1970s. These two milling were located in Java. The first one is in Tanjung Priok, outside Jakarta and the second one is located in Tanjung Perak in Surabaya. Both Tanjung Priok and Tanjung Perak is key ports in the country. The two location is a strategic choose for business since it will be easier to access other divers market that spread across the Indonesian archipelago. Moreover the company need not to transport the wheat they import too far.

PT Bogasari had their own unloading port that provide more benefit for them. The Jakarta's branch have two ports with five pneumatic equipment with capacity of 3200 ton unloading per hour and 800 ton loading per hour. While in Surabaya, one port operate with three unit unloader with capacity 1.200 ton unloading and 400 ton loading per hour. To support the company's activities, Bogasari makes use of PLN (nation's electricity corporate) electric plants with 30 MW and 6 MW capacities (Bogasari n.d). This individual port not only gives the company benefit in the production efficiency but also to limiting the environmental impacts that came from the loading process of production. With their own port, the company estimated to be able to press down ten times emissions that came from the period of time the ships at berth.

> "Emissions from ships at berth have been estimated to approximately ten times greater than those from the ports' own operations and there is a greater potential to reduce GHG emissions from ships in port than from port activities on the landside" (Habibi & Rehmatulla, 2009 in Winnes et al, 2015 : 74).

With this being said, the emissions produced in this node is less than the general port user. This port is located in the factory area of PT Bogasari. Thus the company do not use any mode of transportation to transport their commodity into production process factory. Eventhough the emissions that came from transportation seems like does not occur in this node, further research need to be done to be understand the real nature of the process.

3.3 Noodle Production Node

Instant noodles was an evidence of food culture transition in Indonesia. From unaccepted, instant noodles remarkably became second staple food for Indonesian people. As Japanese people choose instant noodles as the best invention, Indonesian people might also think that instant noodles is one of the best 'new food' introduced to the country's food tradition. After more than half decade, instant noodles gain so much fame. From small stall until high end café have this food in the menu. From elderly to toddler, everyone must have taste or at least heard about this commodity. Bringing Indonesia name in its expansion toward international market, this commodity became 'pride' for some part of the society.

The introduction of instant noodles as wheat based product had been unexpected. At those time when instant noodles first introduced, bread is the only wheat-based product well known enough to the public as the 'heritage' from the Dutch colonialism. Those time, wheat based noodle was only regulated in Chinese community. The only noodle that existed in Indonesia's cuisine tradition was rice noodle where the basic ingredient could easily be found.

For at least three decade instant noodles was generally known as 'Indomie' in Indonesia, the brand had been favorite for very long time. However, the first brand that introduce instant noodles to Indonesian market was not those giant. As the answer of wheat abundance in the initial era, Instant noodles was first introduced in 1969 as Supermie. This noodle was the result from joint venture between PT Lima Satu Sankyu (later became PT Supermi) and Sankyo Shokuhin from Japan. Instant noodles at those time, aiming to substitute rice as staple food. In the beginning, numerous people doubt the ability of instant noodles to compete with rice as preferable primary food (Indomie n.d., Kompas 2009). It was hard for the society to accept wheat-based food in general hence the government intensified campaign to introduce the food. However, the middle of 70s, people started to acknowledge the existence of instant noodles as one of the wheat-based product even though it was not yet popular enough to be staple food. In those period Supermi was acknowledge as generic name of instant noodles ('Wingsfood vs Indofood Essay' n.d.).

In the era of BULOG monopoly, Liem Sio Liong business group; Salim Group established other product to maximize the use of available resource. With value adding process towards the flour their produce, the company choose to involve in instant noodles market. At the same time, in 1974 the president instructed private sector to develop instant noodles industry as a part of diversification program. Salim Group then established another subsidiary to develop instant noodles under the name of PT Sarimi Asli Jaya and in 1979 this division released its first instant noodles: Sarimi. Started from those moment, instant noodles market in Indonesia began to flourish ('Wingsfood vs Indofood

Essay' n.d.). In 1982, Salim Group re-launched another brand of instant noodles called Indomie. Indomie itself had been circulated in the market since 1970 under the ownership of PT Sanmaru Food Manufactures from Jangkar Jati Group (Kompas 2009). Later, Salim Group through PT Sanmaru Food Manufactures exchanged share with Jangkar Jati Group (Indomie n.d., 'Wingsfood vs Indofood Essay' n.d.). The sales of instant noodles in Indonesia then significantly rose in 1983 when Indomie launch a flavor that compatible with majority of Indonesian people's taste (Indomie n.d.). Branching yet another business in instant noodles market, Salim group acquired PT Supermi Indonesia in 1984 (Kompas 2009). Interestingly, the rose of instant noodles boom was in the same time with the time of importer shifting from The US to Australia. This event might be contribute to the shifting since instant noodles production prefer white wheat from Australia.

With this acquisition, now Salim group had the strongest instant noodles brand under their belt and able to monopolize the market for this commodity. In 1999, Salim Group owned 90 percent of instant noodles market in Indonesia; 44 percent from Indomie, 28 percent from Sarimi sales and 18 percent from Supermi ('Wingsfood vs Indofood Essay' n.d). The company success to anchoring their position not only by market domination, but also their ownership of the product's resource. All ingredient for this product was directly supplied by their 'sister' company, PT Bogasari. As an upstream company PT Bogasari supplying all the flour needed for production. Approximately, a quarter of PT Bogasari product went to PT Indofood (World Grain 2015). All this three brands and other business branch of Salim Group including PT Bogasari then joined together in 1994 under the name of PT Indofood Sukses Makmur ('Wingsfood vs Indofood Essay' n.d.).

The success penetration of instant noodles could be seen when people started to recognize instant noodles as a staple food or side dish (Sawit 2003). In 1999, Indofood earned net sales of Rp. 4.315 billion and net profit Rp 892 billion from instant noodles product only ('Wingsfood vs Indofood Essay' n.d.). No different from the establishment of PT Bogasari, the expansion of instant noodles by Salim Group also had assistance from the government. Research institution INDEF reported that the government subsidized Rp 760 billion for Salim Group to produce instant noodles every year based on data from 1994 (Sawit 2003: 60). With the success venture in instant noodles market, Salim Group started also working in other food manufacture and able to became strong player in the area. Prior to the Asia economic crisis, Salim Group became the biggest conglomerate in South East Asia, ahead of those in Singapore, Taiwan and Hong Kong and just behind the Republic of Korea (Sato 1993: 408).

When the backing of his chief patron gone in 1997, the sentiment towards conglomerate especially Chinese was heated. The unstable condition of the country forced Mr Liem to fled to Singapore and leave his business empire shattered. In the middle of the crisis, Salim Group had lost huge amounts of

business in finance, cars and cement (Vatikiotis 2004). The average loss of company 'connected' to the president was 907.3 billion Rupiah in 1998, a significant decline from the loss of 3.9 billion Rupiah in 1997 (Mobarok & Purbasari 2005: 32). In order to secure PT Indofood, through Hong Kong-based First Pacific Group 40 percent of PT Indofood share was acquired in 1999 (Vatikiotis 2005 First Pacific, 1999). First Pacific Group itself is Salim Group's offshore company that established in 1979 to cover Asia and Australia market (Aditjondro 1998).

With all the situation happened in the liberalization era, the market started to attract more player and opening new era of competition. While in 2001 there are 57 companies, in 2005 the number increasing into 84 player of instant noodles ('Wingsfood vs Indofood Essay' n.d.). Despite the large number of instant noodles player, it had always considered tough for newcomer to penetrate Indonesia's instant noodles market as Indofood has a strong brand, loyal customers and dominant market position (Indonesia investment 2016). Even after the liberalization of the upstream company, the oligopoly still became a hindrance for development of other competitor. Nestle for example, even their instant noodles market in India and other Pacific countries was hugely successful their rather choose to join PT Indofood in producing other food products rather than challenging the giant.

However surprisingly, in 2003 Wings Food under division of Wings Group successfully stepped into the market with Mie Sedaap. The business group previously known as toiletries producer now expanding its division ('Wingsfood vs Indofood Essay' n.d.). From those onward, the once stagnant market started to grew and more variation of instant noodles threw to the market. This sharp competition resulting in demand grew for instant noodles from the middle and higher market segments (Indonesia Commercial Newsletter 2009). The new emerging competition has resulted in cut in market share of the PT Indofood. Eventhough still holding domination, the former 90 percent market holder share now hold less share (Indonesia investment 2016).

Table 3.3

Market Share Composition of Indonesia's Instant noodles Market (%)

Company	2011	2012	2013	2014
Indofood Sukses Makmur	71.8	71.8	71.8	72.0
Wings Group	14.6	14.6	14.8	14.9
Conscience Food Holding	2.7	2.7	2.7	2.6

ABC President Indonesia	1.9	1.9	1.8	1.8
Jakarama Tama	2.4	3.0	2.9	2.9
Medco Group	1.2	1.2	1.2	1.1
Nissin Foods Holdings Co Ltd	1.1	1.1	1.0	1.0
Delifood Sentosa Corp	0.7	0.6	0.6	0.6

Source : JP Morgan in Indonesia Investment (2016)

The liberalization of market in reality could not yet overcome PT Indofood's monopoly. However with the new competition the market meets much more variation, PT Indofood then launched 78 taste variation to keeping and gaining more customer. The domination of PT Indofood in the market also might related with how they established their brand as 'the taste of Indonesia' through their rampant advertisement.

Moving to the environmental impact, in PT Indofood's annual report 2015 the company mentioned to have been operate 14 manufactures facilities across Indonesia in order to achieve production and distribution efficiency (Indofood 2015). The manufacture facilities was operate not only to produce instant noodles, but also other food product. However, given the fact that instant noodles contribute to 65% of the company's net profit (Pasopati, 2015) I estimated the company operates all facility to also produce instant noodles. In order to understand the environmental impact from the transportation process in this node I will try to use this data to predict how much Carbon emission released. As the data is limited, I make a prediction on the milling origin of the flour. The number of the distance was also a result of estimation since the data is lacking. Several factors need to be considered in order to get precise estimation of the emissions. For once, in this data I did not consider the distance taken by ship, instead I generalize the data from land vehicle.

For the emission calculation in this node, first I estimating the distance between the main factory in Jakarta and Surabaya to the branch by using the distance estimation from google maps. After that, I estimated the company to used big truck, probably with 6- 8 wheels. The general type of this vehicle used solar as fuel and usually run about 6 km/liter. I also estimated that the vehicle went every once a week. However, there is no data in the regards how many trucks they uses in every shipping. Thus, I only calculate for one trucks only. With the assumption

that this trucks have to go back to the main branch, commute distance was being used in the calculation. From then on, the calculation was conducted. The table below showed the result of the calculation that have been conducted.

Table 3.4

Calculation of Carbon Emissions in Noodle Production Node

Facilities	Origin	Commute Distance (km)	Carbon Estimation per week (tons)	Cost ($)
North Sumatra	Jakarta	3976	80.5854	2042.84
Riau	Jakarta	2692	54.5613	1383.13
Lampung	Jakarta	520	10.5393	26.17
Jambi	Jakarta	1774	35.3473	896.05
South Sumatra	Jakarta	1262	25.5782	648.41
Jabodetabek	Jakarta	85	1.7228	43.67
West Java	Jakarta	266	5.3913	136.67
Central Java	Jakarta	882	17.8763	453.16
East Java	Surabaya	41.6	0.8431	21.37
West Kalimantan	Surabaya	2798	60.358	1530.08
South Kalimantan	Surabaya	1974	40.0089	1014.23
South Sulawesi	Surabaya	1656	33.5637	850.84
North Sulawesi	Surabaya	5070	102.759	2604.93
Bali	Surabaya	832	16.8629	427.47
Total Per Week		23828.6 km	485.997 tons	$12,079.02
Total Per Year			23327.856 tons	$579,792.96

Source: Google Maps 2016, sustainabletravel 2016

Those calculation above is raw estimation for transport for only one vehicle per year. The numbers of carbon emission I believe would be higher in realities. The price given in this calculation also give preview to how much the cost of externalities in one node only. Due to the centralization more branch were located in Java Island. This also means that consumption is higher in this island where industrialization concentrate and urbanization number were high. The branches also were not covering all the big islands, meaning that several location have to 'import' this commodity from other city. This way of operation might cost higher number of emissions that could not be calculated in this paper.

3.4 Retail And Distribution Node

The availability and easier access of instant noodles were also contribute to the boom of instant noodles in Indonesia. Instant noodles in Indonesia could be found in Supermarkets/Hypermarkets, Minimarkets, Warungs (traditional small stalls), and Wet Markets. In the country, consumers from higher and middle income are tend to purchasea product from Minimarkets and Supermarkets due to their better product assortment and availability while lower incomes groups more likely choose small stalls and traditional markets due to convenience and affordable prices. The brand of instant noodles are more robust in the Supermarket/Hypermarket and less variation in Warung. However, Warungs and Minimarket are more preferable by the majority of consumers and still account for the majority of the retail presence in Indonesia (Deloitte 2015). Unlike minimarket, warung is an informal economic sector, it is randomly distribute in the whole country and there is no written archive of how many and where the stall were located. Warung is also more preferable for bigger portion of consumers because usually it have easier access for people especially thus in lower and middle income group. Every village could have hundreds of warung depend on how big the area is.To covering this kind of market thus, companies need extensive distribution networks to tap into the market (Deloitte, 2015).

Realizing the nature of the market condition in Indonesia, the biggest instant noodles producer PT Indofood established their own division of distributor; PT Indomarco Adi Prima. This branch aiming to expand the product's distribution network to cover Indonesia's market. Since 1954 PT Indomarco Adi Prima had been operate their service in distribution sector. In 1983, majority of the company's share was bought by PT Indofood and in 2000 the company totally operate under the ownership of PT Indofood. This distributor company became the most extensive distribution in the country with national coverage and became a leader in the area. In order to support its operation, the company divided 3 region to cover every area of the country. Within this 3 region the country had 23 branch and 1030 stock point (Yusuf 2008: 6-7).

Table 3.5
Distribution Points of PT Indomarco Adi Prima

Region	**Branch**	**The number of *Stock Point***	**Total**
Region 1	1. Medan	52	**250**
	2. Pekanbaru	37	
	3. Padang	31	
	4. Palembang	44	

	5. Bengkulu	18	
	6. Bandar Lampung	44	
	7. Pontianak	24	
Region 2	1. Jakarta 1	24	**380**
	2. Jakarta 2	2	
	3. Bekasi	26	
	4. Tangerang	41	
	5. Bogor	37	
Region 3	6. Bandung	80	
	7. Semarang	83	
	8. Yogyakarta	87	
	1. Surabaya	116	**400**
	2. Jember	50	
	3. Malang	103	
	4. Denpasar	29	
	5. Samarinda	21	
	6. Banjarmasin	27	
	7. Makasar	36	
	8. Manado	18	
Total			**1030**

Source: Yusuf 2008: 6-7

The branch are responsible to make sure that the demand in the market could be fulfilled by supplying the stock point underneath, stock point itself is responsible in direct selling to buyers. To support the operational of each branch, the company operate 2.805 land vehicle (Yusuf 2008: 7-8).

Table 3.6
Distribution Facilities of PT Indomarco Adi Prima

Regional	Branch	4 wheel	3 wheel	2 wheel	Total
Regional 1	1. Medan	99	0	26	125
	2. Pekanbaru	59	0	15	74
	3. Padang	44	0	27	71
	4. Palembang	65	0	24	89
	5. Bengkulu	28	2	5	35
	6. Bandar Lampung	60	3	48	111
	7. Pontianak	43	0	12	55
Regional 2	1. Jakarta 1	60	0	88	148
	2. Jakarta 2	73	0	55	128
	3. Bekasi	67	1	34	102
	4. Tangerang	89	7	30	126
	5. Bogor	93	2	58	153

	6. Bandung	122	17	96	235
	7. Semarang	117	36	17	170
	8. Yogyakarta	123	29	47	199
Regional 3	1. Surabaya	141	33	145	319
	2. Jember	51	18	68	137
	3. Malang	115	43	32	190
	4. Denpasar	45	2	49	96
	5. Samarinda	38	0	39	77
	6. Banjarmasin	37	8	3	48
	7. Makasar	51	8	3	62
	8. Manado	28	3	24	55
Total		1648	212	945	2805

Source : Yusuf 2008: 7-8

In regards to the food distribution PT Indomarco Adi Prima is the biggest in its league. However even with this massive amount of logistic facilities as listed above the company could not yet able to cover entire country. From the data above, only 17 provinces listed out of 34 provinces listed in the ministry of general affairs. Meaning that there were possibilities of more emissions from the other 17 provinces distribution process.

The information about the ownership of logistic facilities in every region could be used to calculate total emission from this node. However using this data will also makes the calculation even more complex for the scope of this paper. Probability of crossing route in particular location, the difference type of fuel uses, the estimation use of the fuel per km are several consideration that will have to be acknowledge if this data will be use. Thus, to fit the scope of this paper, I will use the same method with the calculation from the previous node. However, considering instant noodles is not only available in those 17 province listed above I will calculate the emission from 34 province with the assumption that every province have enough vehicle to distribute instant noodles across every road in the province without considering that PT Indomarco Adi Prima only have branch in half of the province. I estimated that all the province by some way or another have access to instant noodles. The distance used will be taken from national statistics data, however the data available only covering nation until district rode and no data about village road that might be have yet covered by the government roads. The data will give significant disadvantage for the calculation since Indonesia have 80.714 villages in total. Another disadvantages is I could not estimate the emissions from transportation process from factory to other city without factory because the limitation of the data. To continue the estimation, I

assume the vehicle used for this logistic transport to be medium four wheels truck with fuel efficiency of 9 km per liter solar.

Table 3.7
Calculation of Carbon Emissions in Retail and Distribution Node

Province	Total	Emission (tons)	Cost ($)
Aceh	23769	321.17	8141.56
North Sumatera	37820	511.02	12954.42
West Sumatera	22938	309.94	7856.92
Riau	24860	335.91	8515.26
Jambi	12028	162.52	4119.93
South Sumatera	17468	236.03	5983.28
Bengkulu	8621	116.47	2952.59
Lampung	17803	240.55	6098.03
Bangka-Belitung Islands	4534	61.26	1553.02
Riau Islands	5325	71.95	1823.96
DKI Jakarta	7094	95.84	2429.55
West Java	23196	313.42	7945.29
Central Java	28627	386.81	9805.56
DI Yogyakarta	4642	62.72	1590.02
East Java	35170	475.22	12046.72
Banten	5779	78.09	1979.47
Bali	7870	106.34	2695.70
West Nusa Tenggara	8026	108.45	2749.13
East Nusa Tenggara	18882	255.12	6467.28
West Kalimantan	14482	195.67	4960.15
Central Kalimantan	12682	171.36	4343.95
South Kalimantan	12566	169.79	4304.21
East Kalimantan	10902	147.31	3734.25
North Kalimantan	3118	42.13	1068.00

North Sulawesi	8472	114.47	2901.90
Central Sulawesi	14363	194.06	4919.39
South Sulawesi	29505	398.66	10105.95
South-East Sulawesi	9454	127.74	3238.26
Gorontalo	4840	65.38	1657.49
West Sulawesi	6512	87.98	2230.20
Maluku	7806	105.46	2673.43
North Maluku	6863	92.72	2350.43
West Papua	6624	89.50	2268.91
Papua	14936	201.81	5116.00
Total per day		6452.87	163580.21
Total per year		2.355.297.039 tons	$59.706.777

Source: Ministry of General Affairs 2015, Sustainabletravel 2016

The calculation result showed that more than 2 million tons of carbon omitted to the atmosphere per year. In 2015, global economies annually emit nearly 40 billion tons of carbon emission (Zeller Jr, 2015). This mean, this node contribute to at least 0.005 percent of global emission. On 2010, the chairman of the Intergovernmental Panel on Climate Change (IPCC) estimated 13.8 percent of annual human based carbon emissions comes from instant noodles manufacturing, transportation and cooking (mattfischer.com, 2010).

The table also informed that at least almost 60 million dollar worth of environmental damage materialize each year from this node only. The cost of carbon emissions in this calculation actually is lower than the number estimated by the US government. In this calculation, the price per ton of emission was $23.5 while the US government's figure is $37 per ton. Though this number is higher, recently a study from Stanford University estimate that the economic damage from carbon emissions is roughly $220 per ton (Zeller Jr, 2015) almost ten time higher than the estimation used above. Though this number is still debatable, it at least shows us on how massive the impact might have cost. Seeing this data it might be the right time for the producer and distributor of instant noodles to shift towards greener supply chain. This number of carbon emission and external cost also should be examine for the future policy making program.

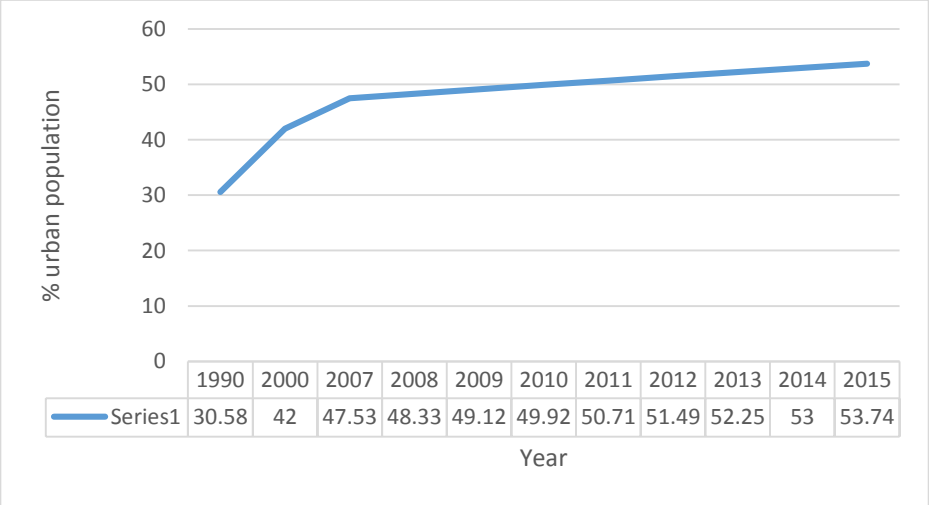
3.5 Consumption Node

Anthropologist Sidney Mintz say that instant noodles are a "proletariat hunger killer" albeit not exactly nutritious. These super affordable noodles help the low-

wage workers in rich and poor countries alike survive when the situation are not so well. (Barclay 2013). The relevance of instant noodles also proved when after the economic crisis hit Asia in 1997 instant noodles producer from Thailand use instant noodles as economic indices by launched the Mama Noodles economic index in order to reflect the country's recovery from crisis. The theory behind this index was the increase in sales occurred because people could not afford more expensive foods. (Errington et al 2013).

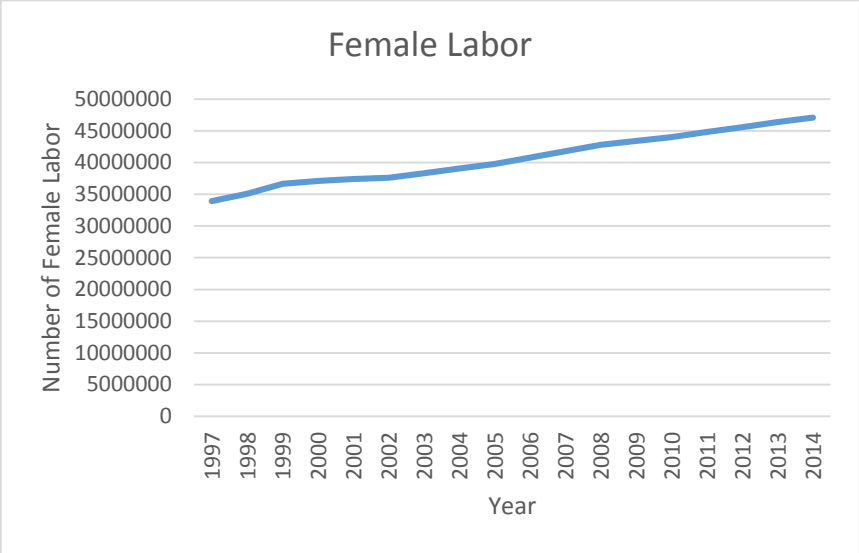
In Indonesia, instant noodles is consumed in several mannerism: plain instant noodles, instant noodles as a side dish with rice and instant noodles with other side dish. The way instant noodles consumed is mostly depend on people's income. People with lower income might more likely to consume instant noodles with rice while middle income and higher income people are more likely to consume instant noodles with various other side dish. Instant noodles consumption are influenced by urbanization and the rising number of female workers (Sawit, 2003: 62). Urbanization, in particular might contribute to higher number of working class that life in fast paced and busier lifestyle. By 2030, the number of Indonesians shifting to urban areas is expected to reach 71 percent of total population (Asian Consumer Insight Center 2013: 4). As female is usually the one with the decision power for food preference in the family, losing them to work might increasing the preference to easier prepared meal. The data from world bank below showed how Indonesia's urban population and female labor keep increasing each year: **Figure 3.6**

Urban Population Growth (% of Total)



Source : World Bank 2016

Figure 3.7
Female Labor Growth



Source : World Bank 2016

The data available from the World Bank indicate that the trend of urban population and female labor move to the same direction. Urban population particularly jump in number in the 1990s until 2000. Economic growth experienced by the county in those time might be the reason of this phenomena. By time, city became the center of not only production but also consumption (Cohen 2006). With the steady growing of city, instant noodles became important mean of surviving for poor people living in cash-dependent and peri-urban circumstances. Study conducted in Papua New Guinea showed that wile instant noodles is helping poor people in surviving it also transformed them into the Bottom of the Pyramid. It helps poor people to hang on, but it do not necessary help them move up (Errington et al 2012: 27).

Not only aiming consumer in BOP, nowadays instant noodles producer started to broadening their market by creating segment for higher income class. PT Indofood launched their new product with price 4 times higher than the generic version. The product had better packaging and provide side dish. With how Indonesian people perceive instant noodles, it is very likely that this commodity will keep standing for a very long time.

However, even with the expansion of instant noodles, the environmental impact was not coming into consideration. Eventhough the carbon emission from transportation calculation was considered to end in the retail node there are also impact in environment like the issue of waste. Unfortunately, there are still less effort from instant noodles producer to take this issue into consideratio

CHAPTER 4

CONCLUSION

In this study, I have attempted to examine the nature of instant noodles boom in Indonesia and how its impact the environment by following its commodity chain. The objective of doing so was to see how historical events and actors transform the commodity that once foreign to people into one of the most consumed food in the country and by doing so impacted the environment. Through this analyze, I intend to show what role this actors hold in every node of instant noodles commodity chain throughout the years, and with doing so showing where and when the monopoly occurring within the chain. I also tried to examine where and how much carbon emissions occurring alongside the chain.

Instant noodles boom in Indonesia must be understood not only in the recent context but also in its historical context starting in the middle of 1960s. The beginning of instant noodles production in Indonesia was triggered by the US global power domination through the use of wheat aid. This domination was able to penetrate the country by the backing of the new president. Instant noodles then born as a result of the market opportunities provided by abundance of wheat that used to be lowly consumed on those period. From then on, wheat and instant noodles production being politicalized and monopolized. This commodity had become averment of the power abused operate by the government and its crony.

In the attempt of explaining the growth of instant noodles boom in Indonesia, I established 3 different era based on distinguish major event happened in each period. First period is 'initial era' when the introduction of instant noodles begin, second era is 'Bulog era' where the boom begins lead by market monopoly and lastly the third era 'liberalization era' marked by the agreement with the IMF and destruction of the regime lead by president Suharto that lead to more liberal market.

I have shown that in Indonesia, monopoly occur in almost every node of the commodity chain. The actors present in every node as well in every era is always the same. The five nodes I examine in this paper are wheat production, milling, instant noodles production, retailer and distribution and consumption. Within this five nodes, president Suharto, the government body of logistic affair or Bulog and Salim groups (with its division of PT Bogasari and PT Indomood) are the three main player that get the most benefit in every chain of this commodity. This table below showed the distribution of every actors in each node of instant noodles commodity chain :

Table 4.1
Summary of Actors Distribution

Actors	Wheat Production	Wheat Milling	Instant noodles Production	Retailer and Distributor	Consumption
New Order Regime	V	V			
The US					
Australia					
BULOG	V	V			
Salim Group PT Bogasari PT Indofood PT Indomarco		V	V V	V	V
Middle and Lower class					V

With the focus of environmental impact in emission that came from the logistic process, instant noodles production and retailer and distributor node came out particularly as the biggest contributor. This two node contribute at least 2.357.634 tons carbon emissions or 0.005% of global carbon emission, however due to the limitation of the data this number is most likely to be lower than the actual number. From this emission, the estimation cost for the environmental impact is $60.286.596.

Table 4.2
Summary of Environmental Impact in Every Node

nvironmental impact	Wheat Production	Wheat Milling	Instant noodles Production	Retailer and Distributor	Consumption
Carbon Emission	-not being concidered	- own port	23327.856 tons	2.355.297.039 tons	- assuming to none
Cost			$579,792.96	$59.706.777	

Some limitation of this research should be considered. The main concern in this study were the lack of data and preliminary study in the environmental aspect of the commodity chain. Moreover time, method and the scope of this study were limiting more in depth study of the environmental aspect. Therefore, I suggest future research that solely focus in this theme to be conducted.

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APPENDICES

Appendix 1
Estimation of Distance for Table 3.4

Facilities	Origin	Address	Distance	Round trip x 2
North Sumatra	Jakarta	PT Indofood Sukses Makmur, Jalan Medan-Lubuk Pakam KM. 18,5 B, Tanjung Morawa, Kabupaten Deli Serdang, Sumatera Utara 20551	1988 km	3976
Riau	Jakarta	Jalan Kaharudin Nasution, Maharatu, Marpoyan Damai, Kota Pekanbaru, Riau 28288	1346 km	2692
Lampung	Jakarta	Ir Sutami KM 15 Sindang Sari, Tanjung Bintang	260 km	520
Jambi	Jakarta	Kenali Asam Bawah, jambi Kota Jambi	887 km	1774
South Sumatra	Jakarta	Jln HBR Motik Km 8, Alang Alang Lebar, Karya Baru Kota Palembang 30961	631 km	1262
Jabodetabek	Jakarta	Jln. Jendral Sudirman Kav 70-71 Senayan Kebayoran Baru Jakarta Selatan	42.5 km	85
West Java	Jakarta	Jln Raya Caringin No. 353 Padalarang, Bandung Barat	133 km	266
Central Java	Jakarta	Jln Tambak Aji II, No 8-10 50185	441 km	882

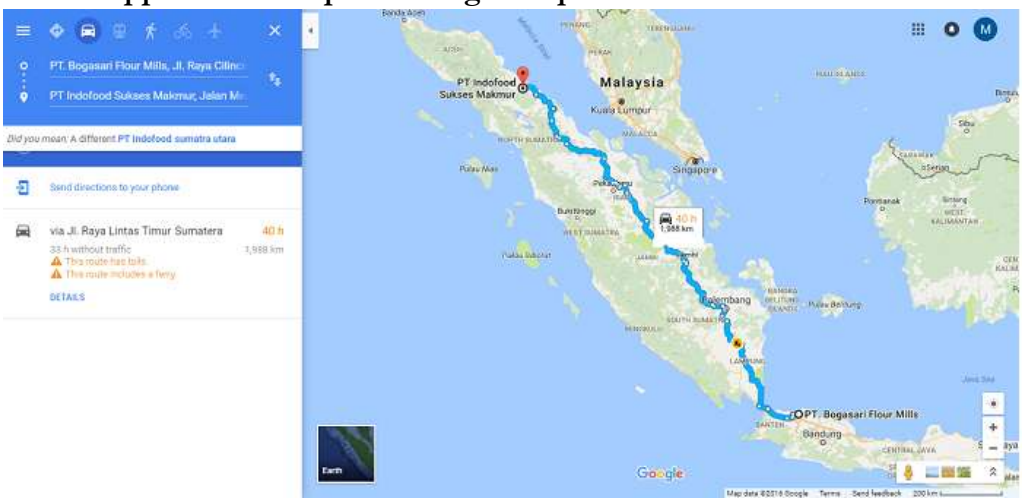
East Java	Surabaya	PT. Indofood Sukses Makmur Tbk, Kawasan SIER, Jalan Raya Rungkut Industri No.11-A, Kota Surabaya, Jawa Timur	20.8 km	41.6
West Kalimantan	Surabaya	PT. Indofood Sukses Makmur, Jl. Raya Wajok Hulu Km. 10,7, Siantan, Kalimantan Barat	1399 km	2798
South Kalimantan	Surabaya	PT. Indofood CBP Sukses Makmur Tbk, Jalan Ayani KM. 32, Liang Anggang, Bati - Bati, Kabupaten Tanah Laut, Kalimantan Selatan 70723	987 km	1974
South Sulawesi	Surabaya	Jl Kima X Kav A/3, Makssar 90241	828 km	1656
North Sulawesi	Surabaya	Pakadoodan, Maesa, Bitung City	2535 km	5070
Bali	Surabaya	Jalan Sari Dana. IV, Ubung Kaja, Denpasar Utara, Kota Denpasar, Bali 80116	416 km	832

Appendix 2
Road Distribution in Indonesia

Province	National Road	Province Road	District Road	City Road	Total
Aceh	1803	1702	18310	1954	23769
Sumatera Utara	2249	3046	27436	5089	37820
Sumatera Barat	1212	1231	16628	3867	22938
Riau	1134	3033	17528	3165	24860
Jambi	936.48	1505	8888	699	12028.5

Sumatera Selatan	1444	1466	12268	2290	17468
Bengkulu	783.87	1563	5325	949	8620.87
Lampung	1159	1703	13638	1303	17803
Kepulauan Bangka Belitung		899	3342	293	4534
Kepulauan Riau	334	895	2904	1192	5325
DKI Jakarta	142.65	6951			7093.65
Jawa Barat	1351	2191	16266	3388	23196
Jawa Tengah	1390	2566	22650	2021	28627
DI Yogyakarta	223	690	3021	708	4642
Jawa Timur	2027	1761	28946	2436	35170
Banten	476.49	853	3124	1326	5779.49
Bali	535.23	861	5826	648	7870.23
Nusa Tenggara Barat	632.17	1772	5084	538	8026.17
Nusa Tenggara Timur	1406.68	1737	15040	698	18881.7
Kalimantan Barat	166.55	1562	12052	701	14481.6
Kalimantan Tengah	1714,83	1100	10670	912	12682
Kalimantan Selatan	866.09	852	9614	1234	12566.1
Kalimantan Timur	2118.17	1640	5837	1307	10902.2
Kalimantan Utara			2891	227	3118
Sulawesi Utara	1319.23	940	4624	1589	8472.23
Sulawesi Tengah	2181.95	1619	9734	828	14363
Sulawesi Selatan	1722.86	1148	25256	1378	29504.9
Sulawesi Tenggara	1397.05	906	6566	585	9454.05
Gorontalo	606.7	433	3576	224	4839.7
Sulawesi Barat	571.98	722	5218		6511.98
Maluku	1066.65	1297	5026	416	7805.65
Maluku Utara	511.89	1867	3922	562	6862.89
Papua Barat	963.24	1425	4036	200	6624.24
Papua	2111.44	1499	11139	187	14936.4

Appendix 3
Appendix 3 Sample of Google Map's for Distance Estimation



Appendix 4
Carbon Calculator