



## The Imports of Used KRL as Indonesia's Dependency on Japan in Electric Train Technology

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### Article Info

#### Article history:

Received July 5, 2020

Revised July 30, 2020

Accepted August 14, 2020

Available online September 18, 2020

#### Cite:

Prasodjo, Haryo. (2020). The Imports of Used KRL as Indonesia's Dependency on Japan in Electric Train Technology. *Global-Local Interaction: Journal of International Relations*, 1(1).

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### Abstract

*Indonesia and Japan have established formal diplomatic relations since 1958 marked by the signing of a peace agreement between the two of them. The peace agreement includes a program of assistance provided by the Japanese government to Indonesia as a form of compensation for Japanese colonialism in Indonesia. This assistance program is known as Japan Official Development Assistance / ODA. Through this ODA program, Indonesia and Japan began to engage in import and procurement of used KRL fleets and make Indonesia dependent on Japan in electric train technology. By using descriptive research methods and dependence theory, this study seeks to describe Indonesia's dependency on Japan in electric train technology through KRL import cooperation which has an impact on the strengthening of Japanese dominance in Indonesia, especially in the automotive sector and will certainly affected on government policies related to this matter.*

*Keywords: Interest, Japan, Indonesia, Dependence, Used KRL*

### Introduction

The bilateral and cooperation relationship between Japan and Indonesia in railways is nothing new. It starts for the first time in 1954, when Indonesia imported passenger trains directly from Japan. In fact, in the late 1980s, before Indonesia had its National Railway Industry (INKA), Indonesia had imported 40 units of the economy and business class passenger trains from Japan for the second time and used as an additional train for Eid transportation. Whereas in the case of Electric Rail Trains (KRL), history began when Ir. Soekarno, as the President of the Republic of Indonesia at that time, ordered the Governor of Jakarta, Sudiro, to stop the operation of the electric tram was considered the cause of congestion. The electric tram-train officially stopped operating in Jakarta in 1960 so that in 1965 KRL trips also stopped operating because the number of KRL passengers continued to decline and the electric locomotive facilities inherited from the Netherlands often experienced disruption. KRL returned to operated in Jakarta in 1972 after the Indonesian Government imported 10 sets of KRL series from Japan. The KRL, known as the Rheostatic KRL, arrived in Indonesia in 1976 and operated using 4 trains in each series with a carrying capacity reach to 536 passengers each series (Kompas.com, 2016)

Furthermore, in 1979-1981 Japan assisted Indonesia in formulating a master plan on "Study of Railway Transportation Plans in the Metropolitan Area of Jakarta". Besides, in the 1982-2001 period Japan through Official Development Assistance (ODA) loans, has helped Indonesia a lot in rail modernization projects in Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) areas. Some of the main railway modernization projects are carried out through the ODA program, such as the procurement of new circuits, electrification, signaling and telecommunications systems, double track projects, as well as the middle elevated route from Manggarai to Jakarta Kota (Japan International Cooperation Agency, 2018) Then on the 15th September 2008, PT KAI established a subsidiary named PT KAI Commuter Jabotabek (KCJ) which started operating in 2009. This company focuses on commuter train transportation services in the Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek) areas where on the 19th September 2017, PT KCJ changed its name to PT Kereta Commuter Indonesia (KCI) ([krl.co.id](http://krl.co.id), tt) This subsidiary of PT KAI played a lot in cooperation with Japan in procuring KRL fleets in Indonesia.

The cooperation in procuring electric trains is based on KCI's need for an electric train fleet because the number of passengers using KRL continues to increase. The limited number of fleets caused because the rejuvenation of the fleet with the increasing of the number of users is not

proportional. This condition results in an imbalance between supply and demand caused by increasing population growth in the Jabodetabek area (Purwoko, 2010). Its require KCI to make strategic choices as a solution to dealing with passenger spikes during peak hours. On May 8, 2014, Indonesia, represented by PT KAI as well as KCJ, signed a cooperation contract with the East Japan Railway Company in connection with a project to develop electric railway facilities and infrastructure in Indonesia. In this collaboration, both PT KCI and Japan Railway (JR) are committed to jointly improving the quality of train facilities both in terms of fleets and supporting infrastructure. The agreement was signed by each of the main directors, PT KAI was represented by Ignasius Jonan, KCJ by Tri Handoyo, and the President of JR East by Tetsuro Tomita. Furthermore, up to 2014, 95% of KRL operating in Indonesia were Japanese products, of which 30% were KRL from JR East (Bisnis.com, 2014)

As of June 2018, PT KCI has 900 KRL units operating in Indonesia with a volume of 1,001,438 passengers on weekdays. PT KCI targets to be able to meet the service target of up to 1.2 million passengers per day and increase the number of fleets to 1,450 KRL units in 2019 (KRL.co.id, 2019) The trains technology are not only being transportation, but trains are also a tool of investment and expansion of the economic and political influence of Japan. Japan has an important position because they become a strategic trading partner for Indonesia, where Japan is in the 3rd position and is the 2nd largest investor in Indonesia (President.go.id, 2017). The discussion of this paper is important and interesting because even though Indonesia has PT. INKA, as a company which capable of producing KRL, Indonesia periodically from 2010 until 2018 continues to import used KRL from Japan. Researchers analyzed, even it is driven by needs, the continuous imports of used KRL by Indonesia has created Indonesia's dependence on Japan in the use and development of KRL technology. Also, Indonesia is the only country that has specifications for an electrification system and rail width similar to Japan. Through foreign cooperation and assistance, Japan strives to stabilize the international environment around it and improve bilateral relations between Japan and Indonesia.

### **Dependency Theory**

International relations as a phenomenon illustrates how cross-border linkages are between actors, both state and non-state. These interactions then form a pattern of relationships and describe the global structure of the existing power of actors. In the context of the state, this structure divides the country into two poles, namely North and South. North countries identified with developed countries, with indicators as industrial countries, namely countries that have the ability (means of production and technology) to produce a product. Meanwhile, southern states are identified with third-world country, or non-industrialized countries, where the economic base is still on natural products and mining. In this interaction, economic factors become an important indicator, apart from politics and security as an indicator of a country's status. Where economic factors are the key to understanding the creation, evolution, and function of the world system. Each actor interacts through bargaining relations, agreeing, and building coalitions in international relations and building global structures.

Dependency theory is a view that looks at the conditions in which the global political economy structure is more on the division of two different classes, namely the North and the South, where the North is more familiar with developed industrial countries, while, the South is identical with developing countries with the orientation of their economy is still based on natural products. The dependency theory is a criticism of the modernization theory assumes that modernity in developed industrial countries can become a role model for developing countries, where if developing countries are on the track model, they will be able to reach the point of becoming developed countries. According to modernism, the cause of the inability of developing countries to develop is the internal obstacles that exist in these countries by making the system of developed industrial countries as a reference in development. So the criticism of the theory of dependence on modernism is that the real problem does not come from the domestic factors of a country, but because of external factors created by developed countries through the system of international institutions (Ferraro, 2008).

Dependency theory is a concept based on the relationship between global economic domination and exploitation by industrialized countries against economically non-industrial countries. Dependency theory used to explain the phenomenon of the failure of developing (non-industrial) states to be able to advance economically without having to use the investment from industrialized countries. The main argument of the dependency theory is the condition of the global system which unequal in the distribution of power and resources and places most developing countries at a disadvantage by continuing to depend on the power possessed by developed (industrial) countries.

According to Andre Gunder Frank, a US economist who is also a pioneer of the dependency theory, it is not because a state is unable to develop its economy, but because the international system causes it to not able to develop. Also, the whole system in developing countries was destroyed by industrial countries during the imperialism period. In its development, the dependency theory sees that the problem of a country's underdevelopment is not due to the integration of the international system, but rather the emphasis on how system integration occurs. Historical research reveals that the underdevelopment experienced by a country in the contemporary period is influenced by the historical product of its ongoing past economic relations, that is a relationship between the core and the periphery developing country (Frank, 1972)

Structurally, the elites from these developed countries work together with elites in developing states, so that from the existing dealings there is no benefit for developing countries because, in every interaction, developed countries only take advantage of and take advantage of developing countries. The elites in developing countries are given training by sharing the values and cultures that exist in developed countries. Thus, the pattern of interaction formed between developed and developing countries is a voluntary relationship. The dependency theory assumes that economically developing countries will not be able to become independent countries because they are trapped and causes these countries to be unable to be independent of developing country due to the strong dominance of developed countries. Dependence is caused by the existence of relations either through cooperation or in the form of assistance, between economically developed countries and developing countries, so that this relationship creates artificial progress. The progress obtained by developing countries is due to the results of capitalism and investment by developed countries that have much more to gain from this relationship (Frank, 1998)

Theotonio Dos Santos said: "Dependency is a situation where the development and economic expansion of a country are more due to interactions from other countries. There is an interdependent relationship between two or more states in an economic context, in which there is a trade relationship between countries. Dependency occurs when a (dominant) country expands and develops itself through another country, and this condition is a reflection of expansion where the impact can be negative or positive ". Dos Santos sees three eras of dependence in modern history. First, dependency on colonialism during the 18th and 19th centuries. Dependency on colonialism was more on the dependence of developing countries on trade activities carried out with the colonial state, due to the monopoly exercised by them for its interests. Second, financial dependency on the industrial era during the 19th and early 20th centuries, where dependence on this phase created dependency in developing countries on imported products from developed industrial countries. Third, the dependency structure on multinational companies. This dependency is more on technology dependence due to the technology monopoly that requires developing countries to pay rents from these technology patents. In the end, exploitation and imperialism create backwardness (Frank, 1998)

According to Theotonio Dos Santos, the dependency is more influenced by historical factors that raise a determined structure of the world economy. So that in its development, the existing economic system only benefits a few countries and harms other countries by limiting and conditioning the increasing and expansion of the economy so it cannot grow like a beneficiary country (Santos, 1971). This kind of situation results in difficulties for third world countries to escape from the dependence of developed countries. Dependency does not only arise from cooperative relations, but also through foreign assistance from donor countries to debtor countries. This is related to the main reason a state provides defined aids, which tends to be more political interests, strategic and economic motives. Although there are general reasons for humanitarian, moral, or helping other parties (Ikbar, 2002). Through the structure of cooperation between donor countries and debtor countries, donor countries can intervene through policies of political, economic, and social structures of debtor countries. Developed countries and developing countries will always be in two different positions, by continuing to take advantage of developing countries to increase the wealth of developed countries and keep leaving the country in underdevelopment. Developing countries will only become destination markets for finished goods/products and also supply cheap raw materials. The impact of dependency on developing countries is domestic development such as its economic, political, and social development, including its policy, will be more influenced by external actors.

By using this theory, the researcher wants to explain the dependence on the phenomenon of importing used KRL by Indonesia through the KCI from the Japan Railway (Japan) as a result of Indonesia's dependency on Japan in terms of financial and technological foreign companies. First, the financial dependence, explained through how dependent Indonesia is on Japan, both in terms of capital assistance, as a way for Indonesia to upgrade the existing railway system, starting from the

signaling technology, electrification, and procurement of KRL circuits. Second, Indonesia's dependence on the technological monopoly contained in the railroad system has made Indonesia always dependent on Japanese railroad companies in terms of technology, spare parts, operation, and maintenance of KRL. Where the technology and electrification system built-in Indonesia is an adoption of technology originating in Japan. So it is not surprising if the specifications of used KRL from Japan match the conditions in Indonesia, compared to KRL made by INKA.

The Indonesia-Japan cooperation in procuring used KRL from Japan has led to a pattern of Indonesia's dependence on Japanese KRL products. Indirectly, this cooperation had an impact on Japan's bargaining power in Indonesia. As Japan is Indonesia's strategic partner, with the second-largest investment value in Indonesia, of course, the KRL procurement will further strengthen Japan's position in Indonesia. Japan needs to create a pattern of dependence on Indonesia to stem China, whose investment value continues to increase in Indonesia. This thing can be seen in how Japan lost to China in the tender for the Jakarta-Bandung fast train project in 2015 (Uyun, 2017) This condition certainly made Japan more vigilant in protecting its national interests in Indonesia. Through the import of KRL, Japan creates dependence on Indonesia, especially in the technology and infrastructure of the electric railroad.

### **Political Economy Concept**

The concept of political economy is a concept that explains political activity in government as influenced by economic development. In vice versa with that statement, economic activity is also very dependent on social and political dynamics. There is a reciprocal relationship between economic and political activity, and many historians and political scientists have paid more attention to exploring the nature and interrelationships of the political economy and comparing the two. As John Stuart Mill said, "political economy is the science that teaches a nation how to be rich". There is an understanding that political and economic activities are interrelated. National policies and the domestic economy are the main determinants of economic affairs in international relations. Globalization has created a pattern of interdependence between national economies and international economies. Political economy is used in analyzing the interactions and changes between local and global (Gilpin, 2001)

The main focus of the political economy is its view of the advantages and disadvantages that occur as a result of implementing a policy. Some of the main elements that affect the political economy are interests, which are related to the power of individuals and groups in influencing policy. These groups exist in government structures and tend to promote economic and political interests that will help them maintain power. The second is the idea of groups and individuals who will seek rationality and assess the results of all available options. The third is an institution that has a significant role in helping implement the policy.

Political economy analysis methods are further developed by economic experts in the flow of institutionalism. The flow of institutionalism itself combines two economic and political analyzes through reciprocal interactions, namely an application of the method of political-economic analysis derived from political theory to understand economic problems and the application of political economy analysis based on economic theory to understand political matters. With the development of globalization, the interference of international financial institutions, the interaction of bilateral-multilateral economic cooperation can no longer separate from the domestic political life of a country. There are three factors that most determine the political economy of a country, namely the economic policies implemented by the government, the scope in which the economic policies and systems operate, and the political economy system used (Delianorv, 2006)

The policy of importing used KRL from Japan is economically part of Indonesia's efforts to meet the needs of KRL facilities operating in Jabotabek. The increase in the number of passengers, the pressing time, and the financial condition are the main factors for economic considerations. Meanwhile, in the political context, since the end of World War II, through ODA assistance, Japan become a major partner for Indonesia. Japan has provided a lot of capital assistance, through direct investment and infrastructure projects in Indonesia. Japan also plays a dominant role in technology transfer (INKA development) and rail infrastructure (KRL electrification and signaling). Indonesia assesses that the KRL product specifications from Japan match the specifications and conditions of the existing electrification network infrastructure in Indonesia. Also, Japan offers these used KRLs at very low prices compared to buying new KRLs from INKA. There are political and economic considerations behind Indonesia choosing to import used KRL from Japan.

## **The History of the Import of Used KRL from Japan by Indonesia**

Japanese electric trains (KRL) starts used in Indonesia is came from aid funds from Japan for Indonesia through the Japan Official Development Assistance / ODA program. This program is a form of assistance provided by the Japanese government to Indonesia as part of the compensation for the spoils of war during the Japanese occupation of the Dutch East Indies during World War II (1942-1945). This is mentioned in article 14 of the San Francisco Agreement that states Japan must pay the cost of war seizure to Indonesia, both through production assistance and post-war recovery. Therefore, in 1954, Japan assisted Indonesia in training in the industry, human resource development, and infrastructure in the fields of technology, communication, and transportation, as well as in the health and agriculture sectors. Furthermore, on January 20, 1958, Japan and Indonesia signed the Treaty of Peace that also marked the opening of bilateral relations between Japan and Indonesia. (JICA, 2018)

In the peace agreement, six categories of ODA programs and projects were ratified for Indonesia. The six categories include development in the field of transportation and telecommunications, development in human resources, industrialization development, development in agriculture and fisheries, development in the mining sector, and development in the field of services and services (jica.go.jp, tt) Besides, there are three forms of assistance provided by Japan through ODA based on the new JICA scheme took effect from 1 October 2008, namely loans in Yen currency through the Japan Bank of International Cooperation (light requirements, long term, low interest), grant assistance (without repayment), and cooperation in the engineering sector to develop human resources (Rahmatullah, 2020) After receiving aid from Japan through the ODA program, on May 16, 1972, Indonesia brought in 10 sets of electric trains to rejuvenate the fleet and meet the needs of passengers (kompas.com, 2018) Furthermore, in 1976, Indonesia brought the first KRL from Japan, which is a product of Nippon Sharyo, Kawasaki, and Hitachi. This first-generation KRL became known as the Rheostatic KRL (inka.co.id, 2015)

Furthermore, in 2000, Indonesia received a grant from Emperor Akihito in the form of the 6000 series KRL Toei, which was the first former Japanese KRL to operate in Indonesia. Japan again provided 60 units of used KRL grants in 2006-2007 (dephub.go.id, 2007). In the following year, in 2008 until 2013 PT KAI Commuter Jakarta (in 2017 became PT KCI: PT Kereta Commuter Indonesia) brought in 308 units Used KRL. In fact, in the period 2008-2015, the total number of used KRL from Japan imported by PT KCJ was 784 KRL units (Bisnis.com, 2013) has been carried out by the Jabodetabek Urban Transport Division that is the forerunner of PT. KCI since 2004. When the Jabodetabek Urban Transport Division changed to PT KAI Commuter Jabodetabek in 2009, Indonesia continues to bring in used KRL from Japan until now to meet the mass transportation needs of KRL and to reach the target of 1.2 million passengers by 2019 (cnbcindonesia .com, 2019)

Things that underlie Indonesia's dependence on Japan in importing used KRL are divided into two factors, the internal and external factors. Internal factors include the price offered by Japan, the quality and specifications of used Japanese KRL, the urgent need for a fleet, limited INKA products, and the constraints on KRL infrastructure in Indonesia. Meanwhile, external factors include bilateral relations between Indonesia and Japan and international political conditions.

### **Internal Factors**

#### **Reason for Import in terms of Price**

One of the internal factors PT KAI import used KRL from Japan is the reason for the price point of view. The purchase of used KRL from Japan takes into account the efficiency aspects in terms of price and quality compared to new products made by PT. INKA. The price of each train (1 train = 1 carriage) from Japan is 600 million rupiahs to 1 billion rupiahs, while the price for a new train made by PT. INKA reaches 12 billion to 15 billion rupiahs. Also, the price offered by Japan includes postage, product insurance, and preparation costs for train operations. Thus, it can be concluded that there is a price difference between the used Japanese KRL and the new train produced by PT. INKA.

The purchase price of the KRL will affect the ticket sales price, which is a sensitive matter, especially for urban people who use KRL services from Bogor to Jakarta every day. Besides, KCJ as a KRL service operator collided with government regulations that impose an upper limit on train ticket prices. Furthermore, another goal of PT KAI as the holding company of KCJ in importing used KRL from Japan is to look at the profit side where the government does not need to provide subsidies in the budget. Therefore, importing used KRL from Japan is the main choice even though there is a risk of damage faster (Merdeka.com, 2013)

### **Japanese Product Quality and Technical Compliance**

Another internal factor is the quality and technical suitability of Japanese KRL production. The used KRL imported by KCI from Japan is a train made in 1985 that was produced by Japan Railway East (JR East) which in terms of technicality, maintenance, and several train support features are suitable for Indonesian needs. One of them is that the Indonesian and Japanese trains have the same rail width, which is 1067 mm, and also the corresponding pantograph height. Besides, the used Japanese KRL can meet the quota needs of passengers every day. What's more, PT. KCI is targeting 1.2 million passengers per day in 2019 (Kompas.com, 2015)

Furthermore, in terms of quality, used trains from Japan are still fit for use, train materials use quality products, and can endure that can last decades and are considered more reliable than European-made KRL that can be seen from the technical problems when the train operates. Besides, in the KRL pantograph section, trains from Japan are considered more capable of making adjustments to the voltage currents that often fluctuate on railroad tracks in the Jabodetabek area.

### **Urgent Needs and Limited Productivity of PT. INKA**

It is undeniable KRL is one of the most popular modes of public transportation today. This is evidenced by an increase number of KRL passengers in 2014 as many as 208,496,000 passengers, in 2015 as many as 257,531,000, in 2016 as many as 280,586,407, in 2017 as many as 315,853,991, and in 2018 as many as 336,799,000 passengers (BPS.go.id, 2019). Based on these data, it can be said that the public has a great interest in KRL so that the increasing public need for this public transportation mode becomes an urgent need for the government to provide KRL transportation facilities. Meanwhile, PT. INKA as a train manufacturer in Indonesia has limitations in the production of trains, especially KRL in a short time. PT INKA is only able to produce 40 KRL per year, while the need for KRL is far greater than INKA's production capacity (Kemenperin.go.id,). In an interview in Jakarta, KCI's Technical Director, Saridal said that the reason KCI has not used KRL products from INKA is that INKA only produces KRL with 4 trains in each train set, while KCI requires 12 trains in each train set. President Director of KCI Wiwik Widayanti said that INKA has not been able to produce KRL under the specifications required by KCI. (Beritatrans.com, 2020)

It's due to the inability of national resources so that PT INKA experiences obstacles in the price of the supporting components for the manufacture of KRL that impact on the KRL selling price. The selling price will affect the ticket sales price as previously mentioned. The inability of the national resources of PT. INKA, one of them is that Indonesia has weaknesses and limited competent human resources and also to create a quality and competitive product in the market, Indonesia still needs technology and knowledge transfer from developed industrial countries such as Japan.

Also, the KRL product made by PT. INKA has not fulfilled the safety and security aspects. This thing is related to the KRL technical standards, where KRL products are more complex compared to simpler freight cars. This is evidenced by the fact that in February 2013, the KRL made by INKA was still in the trial phase operating on the Serpong route to Tanah Abang experienced a disruption where the KRL speed suddenly dropped to 30 kilometers/hour. Apart from the problem with the KRL speed suddenly dropping, another problem is that some KRL doors cannot be opened when the train is stopped (Kompas.com, 2013). Furthermore, in 2014 the KRL made by the INKA KfW series was withdrawn due to a fire in the fireplace system that could endanger the safety and security of train travel. Besides, the glass used by INKA trains still uses ordinary glass that breaks easily if it is hit (Commuterline.com, 2014). Then, in 2015 the KRL made by INKA often experienced technical problems in the gearbox, which is a part of the KRL that has a function as a power successor, just like a garden in a car. Some of the spare-parts of the KRL made by INKA need to be carried to Germany for further investigation of the causes of damage (Detik.com, 2015) These technical standards can affect KRL operations that can harm the community and KRL operators in operating KRL regularly. Therefore, PT INKA requires an injection of capital as capital for research and product development inadequate safety and security standards, testing processes, quality control, as well as research and development processes. Several other calculations regarding the import of used trains from Japan compared to trains produced by PT. INKA, namely the high maintenance of KRL made by PT. INKA and also longer maintenance period than used KRL from Japan. Furthermore, in terms of engines, KRL products made by INKA have a higher noise level compared to KRL from Japan. The used KRL from Japan also has a much less disturbance level than the KRL made by INKA that has been explained previously.

## External Factors

### Regional Political Dynamics and Japan's Strategic Position in Indonesia

Apart from being influenced by internal factors, KCI's decision to import used KRL from Japan is also affected by external factors that are influenced by international political conditions. Japan sees China's dominance in Asia getting stronger, especially China's domination over Southeast Asian countries, one of which is Indonesia. China is currently a country that has great potential to replace the dominance of large industrial and investment countries in Indonesia. On the other hand, Indonesia is still playing the role of its free-active foreign policy by keep opening up new opportunities for cooperation with countries that have more competitive offers, especially in the fields of investment and trade. China is one of the countries that provide the most investment in Indonesia, including in infrastructure development and transportation. China has succeeded in becoming the main vendor in the Jakarta-Bandung fast train construction project. This thing poses a threat to Japan as one of the main investors for Indonesia. The following is data on the largest investor countries in Indonesia.

**Table 1. List of Indonesian Investor Countries 2018**

Country	Amount of Investment (US\$ Million)	Number of Project
Singapura	9,193.18	4.946
Jepang	4,952.77	3.166
China	2,375.54	1.562
Hongkong	2,011.42	1.072
Malaysia	1,774.90	1.276
Korea Selatan	1,604.72	2.412
Amerika Serikat	1,217.62	572
British Virgin Island	1,043.26	800
Belanda	943.12	840
Australia	597.44	635

**Source:** Badan Koordinasi Penanaman Modal (<https://www.bkpm.go.id>)

From this data, in 2018 Japan became Indonesia's second-largest investor with a total investment of 3.8 US dollars or 17.4% in 2,731 projects. Meanwhile, China was in the third position with an investment value of 1.8 US dollars in 1,265 projects. Thus, to maintain Japan's position and interests towards Indonesia, Japan is trying to build various partnerships and strategic cooperation in the economic field with Indonesia, one of which is through cooperation in procuring used KRL from Japan. Also, ODA activities in Indonesia have an impact on reducing investment costs for Japanese companies in Indonesia because of their benefits in helping infrastructure procurement in Indonesia as an investment destination country (Dobson, 1993) The total Japanese investment in the data also shows an increase in the value of Japanese investment in Indonesia, which is shown in the following table.

**Table 2. Japanese Investment Value in Indonesia 2010-2015**

Year	Amount of Investment
2010	713 million dollar AS
2011	1,5 billion dollar AS
2012	2,3 billion dollar AS
2013	4,7 billion dollar AS
2014	2,7 billion dollar AS
2015	2,8 billion dollar AS
2016	5,4 billion dollar AS
2017	5 billion dollar AS
2018	3,8 billion dollar AS

**Source:** Kementerian Perindustrian Republik Indonesia

Meanwhile Indonesia, through its free-and-active foreign policy, tries not to depend on just one industrial country. Although there are two countries other than Japan with the same rail width as Indonesia that is New Zealand and Africa, however, KRL from Japan is considered superior in terms of price, quality, and maintenance. This is because of train companies in Japan will carry out regular maintenance on the KRL every 4 years and replacing all interior parts of the train so the train will always look like new (beritatrans.com, 2013) Therefore, Indonesia prefers to buy used KRL products from Japan even though it creates dependence for Indonesia on KRL products from Japan in terms of technology, procedures, and used KRL spare parts imported from Japan.

### **Indonesia's Dependency on Japan in Electric Train Technology through Used KRL Import**

Indonesia created its dependency on Japan not without any reason. The domestic and international situations had a major influence on Indonesia's decision to import used KRL from Japan as previously explained. However, by not trying to produce domestically-made KRL, Indonesia will indirectly become a country that depends on KRL products from Japan. Based on Dos Santos' dependency theory as previously mentioned, Indonesia's dependence on Japan can be categorized as industrial-technology dependence, which occurs due to investment from multinational companies investing in industrial activities in the destination country.

Indonesia's dependency on Japan through cooperation in the procurement of used KRL could weaken Indonesia's bargaining power against Japan due to the large amount of assistance Indonesia received from Japan. Indonesia's dependence on Japanese-made KRL also has an impact on technological innovation, product competitiveness, and technology transfer in the domestic train industry. Not only dependent on technology, but Indonesia also depends on the operating system and spare-parts of the trains used so that Indonesia is unable to be sovereign in the products used. This is evidenced by the involvement of the Japan International Cooperation Agency (JICA) through the ODA scheme to assist in the form of the preparation of the Jabotabek KRL Master Plan for the years 1980-1985 (Haya, 2013). In the KRL Master Plan, there are several studies related to the KRL development plan for the next 20 years. , steps to repair and rejuvenate the KRL series, implementation costs, problems in KRL both of technical and managerial, the spatial layout of the city of Jakarta and its surrounding areas, as well as a study of the number of KRL passengers every day and a projected increase in KRL users in the future. From the study, there are several explanations regarding what steps Indonesia should take to improve the existing KRL services at that time. Some of the things conveyed in the KRL Master Plan are the provision of double rails for KRL, increased electrification on rail lines, installation and operation of automatic crossing and signaling systems (improving service and safety of KRL trips), upgrading of existing train maintenance systems in depots, and procurement of a new KRL series (Haya, 2013) Through this master plan, JICA also proposes the construction of a KRL elevated route on the central route from Manggarai to the city as far as 9.5 kilometers, where the Japanese government says it is ready to assist in the design work and fundraising for the project (Jumardi, 2020)

President Soeharto responded to the Jabotabek KRL Master Plan by issuing Presidential Decree (Keppres) No. 26 of 1982 and Presidential Decree No. 67 of 1983 that stated the project was included in the National Project (historia.id, 2019). Then, in 1984 Indonesia began to purchase KRL from Japan. Indonesia bought 4 train sets that consisting of 16 new trains produced by Kawasaki for 1.9 billion rupiahs for each series (historia.id, 2019) Then in 1987, in collaboration with Nippon Sharyo, PT INKA was able to assemble its first KRL (beritasatu, 2016) In 1995, together with Toshiba, PT INKA produced AC-Type Propulsion (Alternating Current), which is a mechanism used to generate thrust where the propulsion is used in KRL products and Electric Electric Rail Car (KRDE). In 1997, in collaboration with Hitachi, PT INKA produced KRL series OECF with VVVF (Inverter Variable Voltage Variable Frequency) propulsion, where the inverter converts AC or DC voltage flows in the appropriate voltage, which used to control speed, voltage, and the frequency of the traction motor used in the trains circuit (inka.co.id, tt)

Also, PT. KAI cooperates with JR East in a project to develop electric railway facilities and infrastructure in Indonesia, through which PT. KAI then imports used KRL from Japan to meet the needs of this mode of transportation in Indonesia (economy.okezone.com, 2019) The following data on KRL procurement based on the year of arrival.

**Table 3. List of KRL Made in Japan Operating in Indonesia**

No.	Year	Type of KRL	Production Year	Year of Operation	Information
1.	1976	KRL Rheostatik Mild Steel	1976-1987	1976	New
2.	1986	KRL Rheostatik Stainless Steel	1986-1987	1986	New
3.	2000	Toei 6000H	1968-1999	2000	Used
4.	2004	JR East 103	1964-1984	2004	Used
5.	2005	Tokyu 8000	1969	2005	Used
6.	2006	Tokyu 8500	1974-1991	2006	Used
		Tokyo Metro 5000	1964-1981	2006	Used
		Toyo Rapid 1000	1995	2006	Used
7.	2010	Tokyo Metro 7000	1974-1990	2010	Used
		Tokyo Metro 05	1988	2010	Used
8.	2011	Tokyo Metro 6000	1968	2011	Used
		JR East 203	1982-1986	2011	Used
9.	2013-2018	JR East 205	1984-1994	2013	Used
10.	2019	JR East 205 Marchen	1991	2019	Used

Sources: Compiled by authors from various sources

From this data, we can see that Indonesia has imported a lot of used KRL from Japan to accommodate domestic needs, although basically, Indonesia has INKA as a producer of both trains and KRL. Based on research conducted by SCI Verkehr GmbH, PT. INKA is one of the top five manufacturing companies for train supply facilities under the Russian, Indian, and Chinese train manufacturers (goodnewsfromindonesia.id, 2018). This thing is showing that INKA's products are of high quality at competitive prices. However, Indonesia continues to importing used KRL from Japan starting from 2000 until 2018, both through a grant scheme from Japan for Indonesia, as well as purchased directly by Indonesia.

### Conclusion

Indonesia and Japan have been cooperating bilaterally for quite a long time. One of the bilateral collaborations among them is cooperation in the procurement of used KRL fleets from Japan to meet the high demand for this mode of transportation in Indonesia. The Indonesian government's decision to buy used KRL from Japan instead of using domestically made electric trains produced by PT. INKA, among others, is due to the limited production capacity of INKA in a short time, the price is more expensive than the used KRL from Japan, and the quality and technical suitability of Japanese products that are considered to meet the standards from PT. INKA. However, through the import of used KRL from Japan, Indonesia has created its dependency on Japanese products. The form of Indonesia's dependence on Japanese products is according to the Dos Santos dependency theory,



the industrial-technology dependency that is marked by investment from industrialized countries that invest their capital for economic activities in the destination country.

## References

- [1] Beritasatu.com, 2010. "Lagi, PT KAI Impor Kereta Bekas Jepang" [online] accessed from <https://www.beritasatu.com/ekonomi/10605/lagi-pt-kai-impor-kereta-bekas-jepang->
- [2] Beritasatu.com, L Gora Kunjana, 2016. "Metamorfosa KRL, dari Zaman Hindia Belanda Hingga Sekarang" 12 Januari 2016, accessed from <https://www.beritasatu.com/megapolitan/340327-metamorfosa-krl-dari-zaman-hindia-belanda-hingga-sekarang>
- [3] Beritasatu.com, L Gora Kunjana, 2016. "Metamorfosa KRL, dari Zaman Hindia Belanda Hingga Sekarang" [Online] accessed from <https://www.beritasatu.com/megapolitan/340327-metamorfosa-krl-dari-zaman-hindia-belanda-hingga-sekarang> (13/09/2019)
- [4] Beritatrans.com, 2020. "Pilih Impor dari Jepang, KCI Beberkan Alasan Belum Beli Kereta dari INKA" (06/03/2020) accessed from <http://beritatrans.com/2020/03/06/pilih-impor-dari-jepang-kci-beberkan-alasan-belum-beli-kereta-dari-inka/> (08/08/2020).
- [5] Bestpft.com, 2014. "Kalau Tak pakai Kereta Bekas, Tiket KRL Jakarta-Bogor Rp 50.000" [online] accessed from <http://bestpft.com/bestprofit-kalau-tak-pakai-kereta-bekas-tiket-krl-jakarta-bogor-rp-50-000/>
- [6] Bisnis.com, 2014. "KAI-KCJ Gandeng East Japan Railway" [online] accessed from <https://ekonomi.bisnis.com/read/20140508/98/226156/kai-kcj-gandeng-east-japan-railway> (12/03/2019).
- [7] Bisnis.com, Yudi Supriyanto, 2016. "KCJ Yakin ROI Pembelian 60 Unit Kereta Bekas di Bawah 10 Tahun" [online] accessed from <https://ekonomi.bisnis.com/read/20160811/98/574051/kcj-yakin-roi-pembelian-60-unit-kereta-bekas-di-bawah-10-tahun> (10/09/2019)
- [8] Bisnis.com, 2019. "PT KCI Siap Datangkan Ratusan Kereta Baru dari Jepang" [online] accessed from <https://ekonomi.bisnis.com/read/20190411/98/910732/pt-kci-siap-datangkan-ratusan-kereta-baru-dari-jepang> (10/09/2019).
- [9] Cnbcindonesia.com, Tahir Saleh, 2019. "Tahun ini, KRL Commute Line Bidik 1,2 Penumpang/Hari, 10 Maret 2019, accessed from <https://www.cnbcindonesia.com/news/20190310144514-4-59728/tahun-ini-krl-commuter-line-bidik-12-penumpang-hari>
- [10] Commuterline.com, 2014. "Apa Kabar Kereta KfW?" [online] accessed from <https://commuterline.com/2014/12/13/apa-kabar-kereta-kfw/> (13/09/2019)
- [11] Deliarnov, 2006. *Ekonomi Politik*, Jakarta: Penerbit Erlangga, Hal 3-4
- [12] Dephub.go.id, 2007. "Biro Komunikasi dan Informasi Publik, Menhub Dampingi Wakil Presiden Kunjungan Ke Jepang", 23 Mei 2007, accessed from <http://dephub.go.id/post/read/MENHUB-DAMPINGI-WAKIL-PRESIDEN-DALAM-KUNJUNGAN-KE-JEPANG816?language=en>
- [13] Detik.com, Feby Dwi Sutianto, 2015. "Jonan Sindir Kualitas Kereta Made in Madiun, Ini Kata INKA" [online] accessed from <https://finance.detik.com/berita-ekonomi-bisnis/d-2976692/jonan-sindir-kualitas-kereta-made-in-madiun-ini-kata-inka> (13/09/2019)
- [14] Dobson, Wendy, 1993. *Japan in East Asia: Trading and Investment Strategies*. Singapura: ISEAS. Hal. 20
- [15] Dos Santos, Theotonio, 1971. "The Structure of Dependence," in K.T. Fann and Donald C. Hodges, eds., *Readings in U.S. Imperialism*. Boston: Porter Sargent p. 226
- [16] Economy.okezone.com, 2019. "Banyak KRL yang Sudah Tua, KCI datangkan 192 Kereta Bekas Jepang", 11 April 2019, accessed from <https://economy.okezone.com/read/2019/04/11/320/2041901/banyak-krl-yang-sudah-tua-kci-datangkan-192-kereta-bekas-jepang>
- [17] Ekonomi.bisnis.com, 2013. "Kereta Api: KAI Commuter Jabodetabel bekas Di Jepang" 7 Januari 2013 accessed from <https://ekonomi.bisnis.com/read/20130107/98/122528/kereta-api-kai-commuter-jabodetabek-beli-krl-bekas-di-jepang>
- [18] Uyun, Fatkhul, 2017. *Kondisi Hubungan Triangular Indonesia-Tiongkok-Jepang Setelah Terbentuknya Konsorsium PT. KCIC*. *Jurnal Analisis Hubungan Internasional* Vol.6 No. 2 Agustus 2017



- [19] Frank, A. G., 1972. "The Development of Underdevelopment," in James D. Cockcroft, Andre Gunder Frank, and Dale Johnson, eds., *Dependence and Underdevelopment*. Garden City, New York: Anchor Books, p. 3.
- [20] Frank, A. G., 1998. *ReOrient: Global economy in the Asian age*. University of California Press
- [21] Gilpin, Robert, 2001. *Global Political Economy, Understanding the International Economic Orde*. New Jersey: Princeton University Press. Hal 25-26.
- [22] Goodnewsfromindonesia.id, 2018. "PT. INKA di Lima Besar Penyedia Kereta Penumpang Dunia" [online] accessed from <https://www.goodnewsfromindonesia.id/2018/12/08/pt-inka-di-lima-besar-penyedia-kereta-penumpang-dunia>.
- [23] Historia.id, Hendaru Tri Hanggoro, 2019. "Matahari Terbit di Kereta Rel Listrik", 25 April 2019, accessed from <https://historia.id/urban/articles/matahari-terbit-di-kereta-rel-listrik-Dr9Om>
- [24] Inka.co.id, Company profile, accessed from [file:///Users/saeed/Desktop/INDONESIAN%20RAILWAY%20INDUSTRY%20INKA%20PT%20INDUSTRI%20KERETA%20API%20\(Persero\)%20-%20COMPANY%20PROFILE%20-.pdf](file:///Users/saeed/Desktop/INDONESIAN%20RAILWAY%20INDUSTRY%20INKA%20PT%20INDUSTRI%20KERETA%20API%20(Persero)%20-%20COMPANY%20PROFILE%20-.pdf)
- [25] Jica.go.jp, "Pembangunan Indonesia dan Kerjasama Jepang: Membangun Masa Depan Berdasarkan Kepercayaan", Japan International Cooperation Agency. Hal 13. Accessed from [https://www.jica.go.jp/publication/pamph/region/ku57pq00002izqzn-att/indonesia\\_development\\_ind.pdf](https://www.jica.go.jp/publication/pamph/region/ku57pq00002izqzn-att/indonesia_development_ind.pdf)
- [26] Jica.go.jp, 2018. "Pembangunan Indonesia dan Kerjasama Jepang: Membangun Masa Depan Berdasarkan Kepercayaan", Japan International Cooperation Agency, April 2018 accessed from [https://www.jica.go.jp/publication/pamph/region/ku57pq00002izqzn-att/indonesia\\_development\\_ind.pdf](https://www.jica.go.jp/publication/pamph/region/ku57pq00002izqzn-att/indonesia_development_ind.pdf)
- [27] Jica.go.jp, Types of Assistance, accessed from [https://www.jica.go.jp/english/our\\_work/types\\_of\\_assistance/index.html](https://www.jica.go.jp/english/our_work/types_of_assistance/index.html)
- [28] Jica.go.jp, JICA profile, accessed from [https://www.jica.go.jp/english/publications/brochures/pdf/jicaprofile2010\\_01.pdf](https://www.jica.go.jp/english/publications/brochures/pdf/jicaprofile2010_01.pdf)
- [29] Jumardi, dkk, 2020. Perkembangan Transportasi Kereta Api di Jakarta. *Jurnal Pemikiran Pendidikan dan Penelitian Kesejarahan* Vol. 7 No. 1 April 2020, hal 40-48
- [30] Katadata.com, Safrezi Fitra, 2019. "Candu Impor Kereta Bekas Jepang" [online] accessed from <https://katadata.co.id/berita/2019/08/21/candu-impor-kereta-bekas-jepang> (09/09/2019)
- [31] Purwoko, 2010. Kajian Level of Service Kereta Rel Listrik dan Kereta Rel Diesel (KRD) Ekonomi Jabodetabek. *Warta Penelitian Perhubungan* Vol. 22 No. 9 September 2010
- [32] Kaorinusantara.or.id, Fasubkhanali, 2015. "Data Pengadaan KRL Berdasarkan Tahun Kedatangan" 9 Agustus 2015 accessed from <https://www.kaorinusantara.or.id/newsline/32741/data-pengadaan-krl-berdasarkan-tahun-kedatangan>
- [33] Kedutaan Besar Jepang di Indonesia, 2019. "Hubungan Ekonomi Jepang-Indonesia". [online] accessed from [https://www.id.emb-japan.go.jp/birel\\_id.html#2](https://www.id.emb-japan.go.jp/birel_id.html#2) (15/03/2019)
- [34] Kemenperin.go.id, Kementerian Perindustrian Republik Indonesia [online] accessed from <http://www.kemenperin.go.id/artikel/4646/Inka-Tak-Mampu-Penuhi-Kebutuhan-KRL>
- [35] Kemenperin.go.id, "Kemenperin: Setop Impor Barang Bekas" [online] accessed from <https://kemenperin.go.id/artikel/10271/Kemenperin:-Setop-Impor-Barang-Bekas> (09/09/2019).
- [36] Kompas.com, 2015. "Kenapa KCJ Memilih Kereta Bekas Jepang" [online] accessed from <https://megapolitan.kompas.com/read/2015/07/02/11045751/Kenapa.KCJ.Memilih.Kereta.Bekas.Jepang>.
- [37] Kompas.com, Estu Suryowati, 2013. "Beli KRL Bekas Jepang, KCJ Mengaku Rebutan dengan Afrika" [online] accessed from <https://money.kompas.com/read/2013/11/04/1700317/Beli.KRL.Bekas.Jepang.KCJ.Mengaku.Rebutan.dengan.Afrika> (10/09/2019)
- [38] Kompas.com, 2015. "Layanan KRL Kota-Priok Gunakan Kereta yang Dinilai Tak Layak" [online] accessed from <https://sorot.kompas.com/meikarta/read/2015/12/21/18584691/Layanan.KRL.Kota-Priok.Gunakan.Kereta.yang.Dinilai.Tak.Laik>. (13/09/2019).
- [39] Kompas.com, Agnes Rita Sulistyawaty, 2013. "KRL KfW Buatan PT INKA Dicek Ulang "[online] accessed from <https://megapolitan.kompas.com/read/2013/02/27/18230542/krl.kfw.buatan.pt.inka.dicek.ulang> (13/09/2019).
- [40] Kompas.com, Aswab Nanda Pratama, 2018. "KRL Jakarta, dari Era Belanda hingga Hilangkan Tradisi Penumpang di Atap" 28 September 2018 accessed from <https://megapolitan.kompas.com/read/2018/09/28/13482861/krl-jakarta-dari-era-belanda-hingga-hilangkan-tradisi-penumpang-di-atap?page=all>



- [41] Kontan.co.id, 2013. "Ini Alasan KCJ Beli Gerbong Bekas dari Jepang" [online] accessed from <https://industri.kontan.co.id/news/ini-alasan-kcj-beli-gerbong-bekas-dari-jepang>
- [42] KRL.co.id. "Sekilas PT Commuter Indonesia" [online] accessed from <http://www.krl.co.id/> (12/03/2019).
- [43] KRL.co.id, 2020. "Sekilas PT Kereta Commuter Indonesia" accessed from, [http://www.krl.co.id/#\\_m\\_tentangkami](http://www.krl.co.id/#_m_tentangkami) (08/08/2020).
- [44] Liputan6.com, 2016. "3 Penjelasan JK Atas Pembelian Gerbong Kereta Bekas Jepang" [online] accessed from <https://www.liputan6.com/news/read/2406604/3-penjelasan-jk-atas-pembelian-gerbong-kereta-bekas-jepang>
- [45] Marketeers.com, 2015. "Kenapa Gerbong KRL Harus Impor Bekas dari Jepang" [online] accessed from <https://marketeers.com/kenapa-gerbong-krl-harus-impor-bekas-dari-jepang/>
- [46] Media, Kompas Cyber. "Putaran Roda KRL, Bonbon, hingga KfW/10/2016". KOMPAS.com 03/10/2016 (dalam bahasa Inggris) accessed from <https://megapolitan.kompas.com/read/2016/10/03/18000051/putaran.roda.krl.bonbon.hingga.kfw>
- [47] Merdeka.com, 2013. "Alasan Bos KAI Jor-Joran Impor Kereta Bekas dari Jepang" [online] accessed from <https://www.merdeka.com/uang/alasan-bos-kai-jor-joran-impor-kereta-bekas-dari-jepang.html>
- [48] Rahmatullah, Muhammad Rafi, 2020. Kepentingan Jepang dalam Pemberian Official Development Assistance (ODA) Terkait Pembangunan Mass Rapid Transit (MRT) di Jakarta 2013-2019. Disertasi. Fakultas Komunikasi Diplomasi, Program Studi Hubungan Internasional, Universitas Pertamina.
- [49] Okezone.com, 2019. "Kerap Gangguan, 40% KRL Sudah Berusia Tua" [online] accessed from <https://economy.okezone.com/read/2019/04/11/320/2041881/kerap-gangguan-40-krl-sudah-berusia-tua>.
- [50] Okezone.com, 2019. "Banyak KRL yang Sudah Tua, KCI Datangkan 192 Kereta Bekas Jepang" [online] accessed from <https://economy.okezone.com/read/2019/04/11/320/2041901/banyak-krl-yang-sudah-tua-kci-datangkan-192-kereta-bekas-jepang>
- [51] Presiden.go.id, 2017. "Hubungan Saling Menguntungkan Indonesia-Jepang" [online] accessed from <http://www.presidentri.go.id/berita-aktual/hubungan-saling-menguntungkan-indonesia-jepang.html> (12/03/2019)
- [52] Sistem Bantuan ODA Jepang di Indonesia, accessed from [https://www.id.emb-japan.go.jp/oda/id/whatisoda\\_01.htm](https://www.id.emb-japan.go.jp/oda/id/whatisoda_01.htm)
- [53] Tempo.com, 2017. "Jepang Dukung Indonesia Jadi Anggota Dewan Keamanan PBB" (14/04/2017) [online] accessed from <https://nasional.tempo.co/read/866151/jepang-dukung-indonesia-jadi-anggota-dewan-keamanan-pbb/full&view=ok> (15/03/2019)