The Impact of the Yen Loan and Japanese Bilateral Financial Assistance for Development

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Abstract

The Government of Japan has been the largest provider of financial assistance to developing counties since the 1980's. They believe that conducting bilateral financial assistance, the so-called "Yen Loan", is the most effective tool for socio-economic development. The Yen Loan's main use is for the construction of infrastructure such as major roads and highways, electric transmission networks, dams, water supply pipelines, water treatment plants, or other related facilities.

However, recent government-to-government assistance styles have shifted from the "traditional type" assistance styles to new methods such as poverty reduction, rural development, and participatory planning and development. Also, the demand side of financial assistance is changing. Recently, medium developed countries do not always need to rely on loans from other countries because they can use private, financial initiatives from their domestic financial market instead. Low-developed countries want to get more financial assistance but donors are afraid to create another non-performing loan.

On the other hand, Japanese bilateral assistance agencies are criticized for their old style of assistance and the long economic recession of Japan forces to reduce the amount that can be allotted. In such circumstances, they will need to find new styles of assistance to conduct effective and efficient socio-economic developments using the Yen Loan.

We develop financial assistance models for Japanese bilateral donor agencies and analyze the impact of the recent trends for their benefit. We also recommend shifting to a new style of assistance in order to improve the effectiveness of the Yen Loan system, such as in the case study in Thailand.

Key Words:
Financial Assistance, Financial Model, ODA, Bilateral Assistance, Sustainable Development

(1) Background

The Structure of Assistance to Developing Countries

The structure scheme of the Japanese ODA (Official Development Assistance) is shown in Figure #1. In this method, the governments of developed countries contribute money, as capital or fund, to international assistance agencies, such as the World Bank, Asian Development Bank, or the European Bank for Reconstruction and Development. In addition to this, the governments also share their operation costs. These international assistance agencies can also be referred to as "multilateral donor agencies". Multilateral donor agencies provide technical and financial assistance, usually in the form of a loan, to developing countries. As well, the governments of developed countries have their own assistance agencies called "bilateral donor agencies", and these provide technical and financial assistance, usually in the form of a grant or a loan. Therefore, there are two types of assistance provider: multilateral donors and bilateral donors. On top of that, there are two styles of assistance: technical assistance and financial assistance by a grant or loan.

The Government of Japan has been providing the largest amount of ODA in the total ODA of the world. It is always around 30% and has been for more than a decade. Table #1 shows the trend and amount of ODA in the world. In the share of the Japanese ODA, around 30% is used for contribution to multilateral donors and the remainder, around 70%, is used for bilateral assistance. According to the actual expenditure report of the government in the year 2000, within this 70% of bilateral assistance, around 60% is granted and the remaining 40% is loaned as a Yen Loan. The Yen Loan is provided mainly by the JBIC (Japan Bank of International Corporations) and its' lending is used mostly for the development of infrastructure such as for the construction of subways, highways, and irrigation systems.

Table-1: Capital Flow from Developed Countries to Developing Countries

(Actual disbursement base, current, unit: Billion $)

Category and Year	92	93	94	95	96	97	98	99
1. Official Development Fund (ODF)	78.3	82.4	84.5	87.6	73.5	75.3	88.4	84.9
1-1. Official Development Assistance (ODA)	58.3	55.5	59.6	59.1	55.8	47.7	49.7	51.3
A. Bilateral	41.4	39.4	41.3	40.6	39.1	32.4	35.2	37.9
B. Multilateral	17.0	16.1	18.3	18.4	16.7	15.3	14.5	13.4
1-2. Other Official Assistance Fund	20.0	26.9	24.9	28.5	17.7	27.6	38.7	33.6
2. Export Guarantee	1.0	-3.0	6.3	5.6	4.0	4.8	8.3	4.0
3. Private Fund (PF)	80.1	86.3	134.7	172.0	276.2	241.3	134.0	159.2
Total (1+2+3)	159.4	165.7	225.5	265.1	353.7	321.4	230.8	248.0

Source: Based on the DAC report to the chairman

Remarks: Exclude waiving a credit obligation as non-

Include assistances from non-OECF member countries and non-DAC member countries

The figure in 1999 is estimated

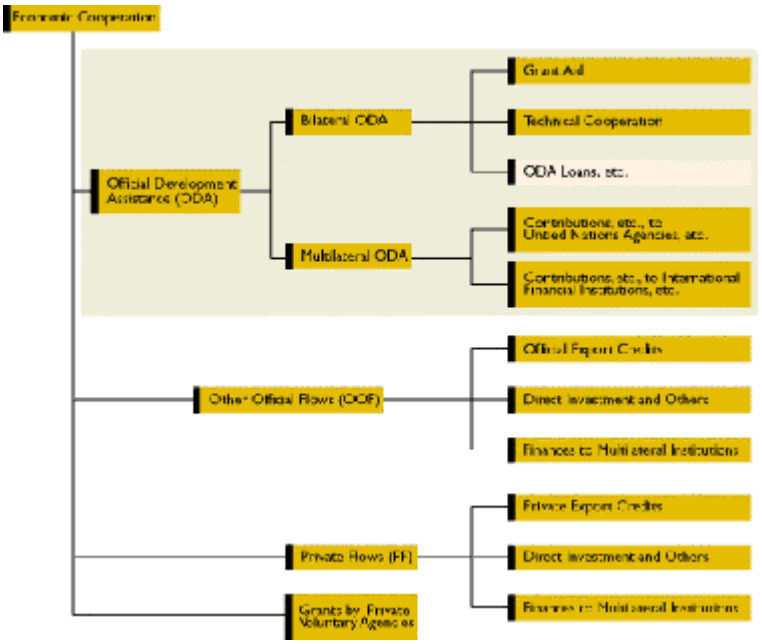


Figure 1: Japan's Economic Corporation and ODA

Governments of developing countries normally have many reasons for requiring financial assistance. For example, many developing countries need infrastructure development and funds for industrial development. Due to this, the governments of developing countries require the assistance of multilateral donors and/or bilateral donors. Usually, the donor agency confirms the requirement and decides on the amount of assistance based on their analysis. Normally, donor agencies conduct several analysis such as the reason for the request, feasibility, impact, and risks. Then, they decide whether to provide assistance or not, and if so, the style of assistance and the areas to focus it on.

A grant is preferable for developing countries but normally, the amount provided from a grant is usually quite small. Infrastructure development, such as building highways or water treatment plants, requires large

amounts of money and the grant amount sometimes is not enough to cover the construction costs. In many cases, technical assistance is covered by the grant and in some instances, they can receive design and consulting services, but they will still be missing the construction costs. To covering those construction costs, the governments of developing countries can request a "Loan to Donor". However, sometimes the loan amount provided from a single donor is limited and they might need to make more requests to several other donors too. Also, the interest rates of a bilateral donor agency is most often cheaper than a multilateral donor. However, to conduct the analysis and to reduce the risk of becoming a non-performing loan, bilateral donor agencies provide their loan only after the multilateral donor agency decided to provide their loan first. For this reason, in many cases, multilateral donor agencies such as the IMF and the World Bank play the role of the flagship bank.

(2) Reductions of the Yen Loan Amount

Because of the current economic recession in Japan, the total amount of the ODA budget was reduced. There are mainly two reasons for this reduction.

The first reason is that it's difficult to find good borrowers. There is still very much demand for giving financial assistance to developing countries, especially low developing ones. In those countries, infrastructure is still underdeveloped and they need that infrastructure for socio-economic development. However, those low developed countries usually have heavy debt already and therefore cannot return a loan properly.

The loan system is designed and operated almost the same as any bank. The government provides capital to the fund and JBIC disburses it to the borrower. The operation agency can't operate business if the borrower does not return the money, in which case those loans would become non-performing loans. Therefore, JBIC always pays attention to a borrowers repayment capability and actively searches for new, capable borrowers. Recently, requests from low developing countries for debt relief from the government has sometimes been granted, but this is another issue. Debt relief is not a responsibility for JBIC. At present, it's the responsibility of the Government of Japan.

The second reason is that the need to borrow has been reduced in medium developing countries. In countries such as China, the private finance markets are developing rapidly. Direct finance systems (such as the stock exchange) and non-direct finance systems are being progressed because of financial deregulation, and private banks and financial institutions have grown as the main player in this sector. Add in the progress of the financial sector and new financial styles, such as project finance, and PPP's (Private Public Partnerships) will become popular in almost every country. Using those financial schemes effectively, the governments of developing countries would be able to reduce the amount of the loan needed from donors.

The change to the concept of sustainable development is also another reason for the reduction of the Yen Loan. Some countries consider harmonious development with nature and the environment to be more important than economic development initiatives. This is the recent trend of development methodology, especially as poverty reduction shifts to the method of participatory development. Using these techniques and thinking of a suitable solution together, we sometimes find that there are many things local people can do by themselves before they jump into the construction of infrastructure.

It is mainly because of these three reasons, the disbursement of Yen Loans are becoming smaller.

Now, two questions arise in this situation. Firstly, is the Yen Loan still necessary as an effective ODA scheme? If so, then what should they do for this situation? And secondly, if the Yen Loan is no longer effective as an ODA method, what is another method that they can use in its place?

Before answering those questions, we must understand the characteristics of the Japanese ODA, especially the Yen Loan, using a comparison analysis, and then try to figure out a hypothesis from there. The next step is to examine the hypothesis based on the economic development model. Because we have limited information about the ODA, we chose the Thailand SME sector as a typical example and we examined our hypothesis based on that. We will explain why we chose the SME sector of Thailand as our model later on.

(3) The Purpose of This Study

The purpose of this study is not to provide simple management solutions to JBIC. Rather, it's objective is to submit a clear picture about the nature of ODA in socio-economic development and how it relates to their loan business.

JBIC is the executing agency of Japanese ODA policy and they are a non-profit organization. Every private bank is different. This study is not to provide normal management solutions to JBIC, but to prospect what is necessary to carry on the Japanese ODA policy as a loan method. We intended to provide in-depth knowledge of socio-economic development for their government bank. For this reason, we try to use the economic model analysis approach rather than the management analysis approach normally conducted for such questions. JBIC's aim and objectives are to provide effective financial assistance to developing countries. Therefore, the effectiveness of the present style of financial assistance, by using the Yen Loan, must be examined first.

(4) Characteristics of the Yen Loan and New Opportunity Areas

Characteristics of the Yen Loan

When the Japanese ODA is compared with another donor, especially one with bilateral agencies, these four characteristics are found:

- Usage for expanding or advancing (purpose for secondary use)
- Infrastructure oriented (hardware oriented, or engineering oriented)
- Co-finance provider
- Follower of multilateral donor agency

Usage for Expanding or Advancing:

Though the assistance amount by grant is bigger than other donors, the share of loans in Japanese assistance is higher than other countries. Also, the Yen Loan is provided as a secondary financial assistance, or in other words, in many cases, it provides for rehabilitation and expansion of existing basic facilities. Basic infrastructure facilities are provided by a grant from Japanese ODA, mainly for the purpose of the reduction of poverty and to improve basic human needs. In this concept, the minimum facilities are constructed, such as water treatment plants and safe water supply systems. Due to an increase in the urban population and because of industrialization and expansion, further infrastructure needs are arising. Developing countries always need new highways or water treatment plants and electric power generation plants with more capacity, etc. The Yen Loan is mostly spent on the expansion of basic infrastructure. Therefore, the Yen Loan had key roles for further development to developing countries. Or in other words, the Yen Loan is mostly used to fulfill secondary needs, where basic infrastructure needs could be referred to as primary needs.

Previously, many other donor agencies have provided financial assistance for the same purpose. Before the 1990's, financial assistance was used mainly for infrastructure development in developing countries. However, in the later 1980's to early 1990's, many arguments within the donor agencies arose concerning loans for infrastructure development. The biggest problem was that of inefficiency, including the poor governance of developing countries in regards to problems such as corruption, poor institutional capability, and lack of sustainability. Many donors, especially multilateral donor agencies (including the World Bank) think strengthening government capability is much more important than providing financial assistance for infrastructure; the so called "software vs. hardware" argument. In this concept, many donors shift their assistance from hardware to software. This trend reduces financial assistance for hardware and the Yen Loan is one of the last providers of a loan for hardware.

In this chapter, the word "software" is defined as "capability strengthening" and may include alternate skills such as consulting, training, planning, and managing. Also, "hardware" is defined as an infrastructure facility such as a highway, a electric power supply network, a port facility for import and export, an airport, a railway, an EPZ: export process zone, an SME incubation center, and/or a telecommunication network. The word "infrastructure" is meant to describe not only a hardware facility such as a highway and port facilities, but may also include systems such as private sector development funds and technology centers for SME's (Small and Medium Enterprise).

Infrastructure Oriented:

It has been already mentioned that the Yen Loan's focus is on infrastructure development. Japan has two major bilateral donor agencies - the JICA (Japan International Corporation Agency) and the JBIC. The JICA mostly provides technical assistance and the JBIC provides the Yen Loan. Technical assistance provided from the JICA is mostly in the form of a grant. The Ministry of Foreign Affairs also provides financial grant aid, such as debt relief and infrastructure development, to help improve basic human needs such as building water treatment plans and constructing safe water supply network systems.

From the late 1990's, technical assistance from the JICA shifted to the area of software. But before that, they also focused on technical assistance for hardware development, such as feasibility studies, basic designing, and detail designing. Also, they provided training to government staff to help strengthen their capability of managing those infrastructure facilities. In this regard, Japanese aid focused on hardware rather than software after many donors shifted their assistance to software. The JICA is still providing a lot of technical assistances by grant for infrastructure development and that technical assistance is sometimes helping to reduce the preparatory work a developing country must do to request a Yen Loan, as well as reducing the efforts needed for an analysis by the JBIC. Even though the JICA contributes to the basic and detail design of the hardware, they also foot the bill for the financial assistance, although the technical assistance does not guarantee the making of affirmative decision to give a Yen Loan. The Government of Japan does not have a rule concerning the use of the Yen Loan for hardware infrastructure development. However, most amounts are used for this.

Nowadays, developing countries still make requests to the JICA for technical assistance for infrastructure development, but compared to the rate before the 1990's, it has declined. Many donors, including the JICA, think software focused development is important. (*1) In such situations, the JBIC also started to consider assisting in software areas.

While the Government of Japan hesitates giving assistance for infrastructure development, a new donor is arising – China.

For neighboring countries such as Laos, Bangladesh, and Myanmar, China has made grant aid available, though the conditions of the assistance is not stated. The assistance of China is considered to be what is known as "tied. This means that there are restrictions on the assistance. For example, they must use products that are made in China and they are not able to choose material and consultants freely. The Yen Loan is more than 90% untied. This means that the developing country can choose the material and the consultants with ICB (International Competitive Bidding) and therefore, use the assistance amount more cost effectively and efficiently. Financial assistance by a loan can also be provided by other bilateral donor agencies and their untied rate is also quite high - usually more than 80%. Also, the interest rates of multilateral donor agencies are rather high. Therefore, the Yen Loan usually seems to be quite an attractive option for developing countries.

Co-Finance Provider:

On the other hand, although the Yen Loan seems to be quite attractive, there are many reasons why the JBIC cannot just easily give out loans. First, the Yen Loan is just one of the ODA's methods and they can lend only to the government of a developing country, not it's private sector. This rule dictates a narrow range when it comes to the variety of borrowers available. For example, if the government of a developing country needs more money for its' private sector, (such as a private coffee plantation owner whose government wishes to lend him money with the expectations of him to improve the quality of his products and increase his exports) the government needs to make a special fund for this and provide the money. The JBIC would then release the funding to the central bank of the developing country and its' central bank would then release the money to the fund. In this structure, the JBIC must analyze the capabilities of three agents - the central government, the central bank, and the fund. It is quite complicated and in many cases, the governing capability of the central government and the central bank might not be able to continue to support this fund because they have so many other things to do. Also, the international market price of commodities, such as in this example (coffee), changes rapidly and these changes can impact the farmer and the fund to a great degree. Basically, there is no collateral for covering the fund in case of bankruptcy.

Even with the guarantee of the central government, it is still risky business. Therefore, the JBIC needs to conduct a very careful analysis of their management capability.

However, the analysis of the capability of the central government is not so easy. Almost always, the grand design of the central government is to follow the advice of the IMF, the World Bank, or other major multi donor agencies. For this reason, because the multilateral donor agencies have a lot of staff and information, the bilateral donor agencies, due to their own lack of staff and information, prefer to provide the loan as a co-finance. And in this case, the priority of return goes to the multilateral agency because it is the flagship bank. The co-financer sometimes must wait for its return and must arrange, reschedule, or postpone the returning period.

In summary, the Yen Loan is used as a way to co-finance and to avoid risk, but is therefore often criticized because the multilateral donor agencies have more money, more staff, more experience, and more information.

Followers of Multilateral Donor Agencies:
The borrower of a Yen Loan is normally the executing agency of a developing country, such as electric power companies, water supply authorities, and road and highway authorities. It is those that manage the infrastructure facility and system. Since the grand design of the central government is decided by the advice of the multilateral donor agency, it is rather difficult to take initiatives to improve the capability of the developing country. Normally, multilateral donor agencies take in such initiatives and the bilateral donor agency follows. Also, in the Japanese ODA system, it is the JICA that takes a lot of initiatives to strengthen the recipient government's capacity as a form of technical assistance and therefore, the borrower receives the opportunity to take these initiatives to strengthen the capacity of their institutional system. Usually, they do not receive these opportunities. Sometimes, the policies of the central government go in different ways, which can sometimes be the opposite of what the bilateral donor agency is hoping for. For example, borrowers, such as the example of the coffee farmer fund, were privatized and faced hard competition from private city banks, and therefore, ended up going bankrupt. Even in such a case, what the JBIC thinks they can do is limited.

Therefore, some people criticized the JBIC as a follower of the multilateral donor agencies and as a result, considered them unnecessary. However, these people still think bilateral donor agencies have many advantages and can do many other things a multilateral donor agency cannot do.

(5) New Business Areas
Some of those problems are also common for other multilateral and bilateral donors, such as the EBRD and the DFID (Department for the International Development of UK). They often try to find a new style of assistance and have often times succeeded, heralding these three new areas of opportunity:

- Common Fund
- Direct Investment
- Micro Credit

Common Fund:
Its main purpose is to reduce the contribution amount on the donor side. Recently, European bilateral donors have been choosing the Common Fund. This is the system used for collecting financial aid from donors and then pulling it into one big fund. Because it collects many donors, the fund becomes quite large and then becomes more useful. European governments have been spending quite a lot on assistance to their former colony countries, including places like Africa. However, that aid was criticized for it's poor performance, especially concerning the aid for Africa. The poverty level has not improved since the aid started and has continued for more than three decades. Therefore, the governments of donor countries end up having difficulty understanding why they still need the aid when no improvement has been realized. The Common Fund can provide an easy excuse for accountability to the tax payers of a donor country, as well as causing no need to take responsibility for the effective spending of tax payer's money. If the aid is for poverty reduction or for basic human needs such as providing for safe water, it is easy to explain its necessity.

Several recipients government insist to take initiatives for spending this fund, but the donors don't always believe that the money will be spent properly due to poor governance. However, the Common Fund has merit for both the donor country and the recipient country. The donor country can reduce the contribution to the recipient country but can cause the fund to have a bigger impact by making the whole amount bigger and donating it to more than one recipient. As one of the alternatives, the JBIC could shrink the lending business of the bilateral donor agencies and shift over to the Common Fund.

Direct Investment:

Even the World Bank conducts Direct Investment. Actually, the World Bank should be called the World Bank Group because it is made up of a group of 5 organizations, which are the IBRD (International Bank for Reconstruction and Development), the IDA (International Development Association), the IFC (International Finance Corporation), the MIGA (Multilateral Investment Guarantee Agency) and the ICSID (International Centre for Settlement of Investment Disputes). Direct investment is conducted by the IFC in the World Bank Group.

The main concept is to invest in the pilot projects or leading projects of the private sector and/or public sector and for the IFC to try to help and contribute to the development of the private sector and industry. In many poor countries, there is no existing major SME that could contribute to improve socio-economic development. For example, suppose there aren't any hotels for tourists to visit on some island country in the South Pacific. The starting of the hotel business, as a pilot project, may help the development of the tourism industry in this country. This would help bring more foreign currency into this country. In this example, the IFC could provide money for the pilot hotel project as a flagship investor and the IFC could also give advice for starting a hotel business. As the IFC takes initiatives of this hotel business, the hotel owner could also gather other co-investors more easily. The "know-how" of operating a hotel business, this experience, and its success may accelerate another hotel business. In turn, a small souvenir shop might start to cater to the new tourists that come to visit. This is the style of their development assistance and is much more effective by starting initial industry where none existed before. This style of investment can be applied in any area, such as rural or urban. There is so much need for small, but direct investment in rural and urban areas, for example, poultry farming and small, but modern style grocery or convenience stores. These small investments could encourage the starting of related/similar businesses in the local economy and may also contribute to poverty reduction.

Not only the IFC, but also other donors, such as the EBRD, initiate direct investment and play the role of a flagship bank.

Micro Credit:

This is another area of opportunity. Micro credit is a way to provide small amounts of money to poor people. As in the case of the Brahmin Bank of Bangladesh, the bank was looking to find a group of 5 to 6 female borrowers. The bank wanted to provide small amounts of money (normally less than 10$) to only one person in the group while the responsibility to return the money falls on everyone. Therefore, if the one borrower falls in trouble, the bank can rely on the rest of the group to pay it back. Often, the borrower needs a small amount of money to start a private business, such as small-scale poultry farming. A housewife could get a small amount of money from Micro Credit, buy chickens, raise them, and sell their eggs. She then could buy notebooks and pencils for her children and could also get her children to school. In this type of loan, the borrower does not need to offer collateral. Traditional banks often possess high interest rates as well as needing collateral, and most often times, they do not lend money to poor people - especially to poor females. However, many Micro Credit loans can be successful and often times may find that a poor, female borrower is trustable and therefore, a good borrower.

Many other donor agencies also provide a Micro Credit fund to help poor people. On the whole, these Micro Credit organizations perform quite well and they do not require a lot of money to start out. Actually, the JBIC already provides financial assistance to Micro Credit organizations, including the Brahmin Bank of Bangladesh, so it is not new for them at all.

(6) Hypothesis and The Model for Evaluation

Hypothesis

Here are two hypotheses for the two questions already mentioned. The first question before was; whether a Yen Loan is still necessary as an effective ODA scheme. The second question was; if the Yen Loan is no longer effective as an ODA scheme anymore, what is another scheme that they can transfer or shift to takes its' place? Here are our two hypotheses:

1. The Yen Loan is not effective as an ODA scheme if they keep insisting to use it to provide financial assistance for infrastructure development.
2. There could be new alternatives to the Yen Loan, such as Direct Investment and Micro Credit.

Isn't the Yen Loan Effective as an ODA Scheme?

We are not saying that the Yen Loan is not necessary or effective anymore. There are still many uses for the Yen Loan, especially for low developed countries. The JBIC could still find many good borrowers, but as a co-financer, it is recommended that they stop lending for infrastructure development to medium developed countries. However though, as a single provider, it is still recommended. The classical style of a loan is now changing. There are still many areas that the JBIC do not provide loans for. However, there are some misunderstandings in regards to the nature of infrastructure development. Infrastructure is necessary, especially when in a stage of being underdeveloped, and it contributes to socio-economic development. However, after the development of infrastructure, further infrastructure development sometimes causes a negative impact on further socio-economic development; especially for SME sector driven development. We try to improve this fact using an SD model. The fact remains, however, that the Yen Loan is not an effective ODA scheme if all the Japanese ODA does is focus on the infrastructure development of a medium developed country, all the time.

There Could be New Opportunities for the Yen Loan

We suggest these new opportunities - direct investment and micro finance, as well as financing for SME. Financial assistance for infrastructure development is rather an indirect assistance for socio-economic development. However, direct investment makes a big impact on socio-economic development. Micro Credit and financing for SME also has a big impact. Micro Credit has just recently started to become a little more popular but still needs to be more known. The problem is that the risk becomes bigger. The finance system for SME is still poor and multilateral and other bilateral donors are avoiding it for many reasons. In recipient countries, the finance system for SME could not succeed due to poor governance and lack of proper evaluation of the SME support system such as using an SME incubation center, certificated consultants, and other incentive systems. Economists agree on the necessity of assistance to poor people, but do not agree on government financial assistance to SME. Economists also insist that governments should be small and limited and should not involve free competition in any situation and in any form. They believe special purpose government banks cause harm for free competition and market-oriented systems within a capital market. But, some cases show that a special purpose, government bank is effective, such as BARK in Thailand. The problem is poor governance, not a special purpose, government bank. The Yen Loan could provide financial assistance to special purpose, government banks, keeping in mind that the establishment of a well-controlled government system, including both the central government and it's relationship with those institutions, is very important.

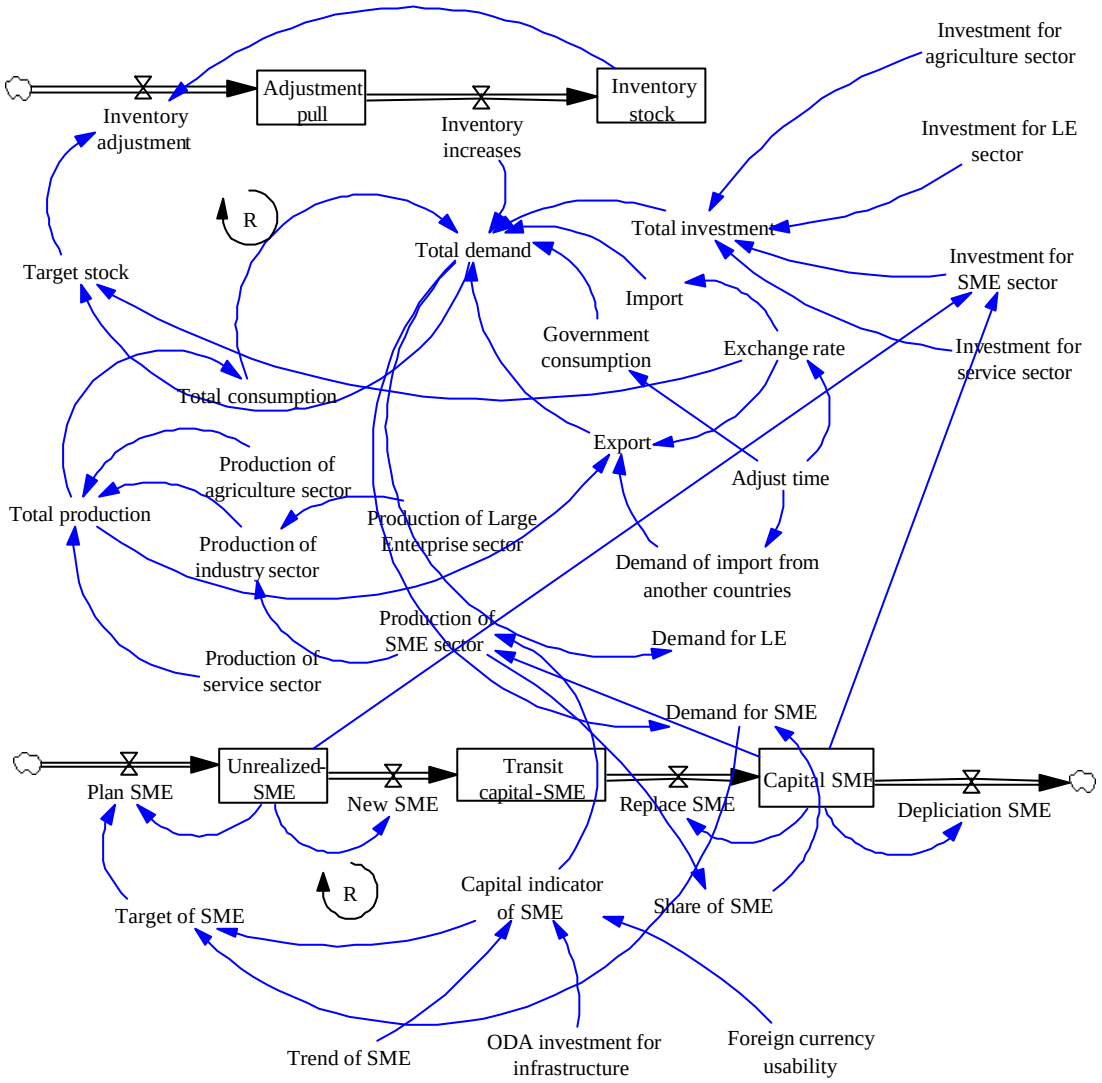
(7) Model For Evaluation

For evaluating these two hypotheses, we use a simple and traditional investment, economic model shown in Figure #2.

This model aims to describe the ODA for Thailand, with special focus on assistance to the SME sector development. When we started this study, we immediately found it difficult to get appropriate information concerning the ODA and private assistance. However, there exists a lot of information about the ODA that is useless for model building such as, the total amount, narrative project details, and project evaluation reports. Actually, there are quite a lot of junk project evaluation reports but their evaluation methodology is quite qualitative and their evaluation does not hold up using the model approach. It only works when using an observed measurement, though somehow their evaluation method itself contains some sort of logical comprehensiveness. (*2) However, in Thailand's case, we know a lot about the Japanese ODA and their contribution.

The second reason we choose Thailand as our target is because its GDP growth in 1980 to 1990 mainly comes from the growth of the SME sector. The Japanese ODA focuses mainly on the construction of infrastructure for industry development. In this section, we use the word “infrastructure” to describe not only hardware, such as highways and EPZ’s (Export Process Zones), but also to describe software, such as an SME development master-plan, systems for industrial development centered with EPZ, and the production of industrial products for exports to earn foreign currency. (*3)

Figure-2: Model (Exclude LE sector. Agriculture sector and Service sector)



This model is composed using five main modules. Namely, the GDP section, the Agriculture section, the SME section, the Large Enterprises section, and the Service section. The GDP section is the main engine of this model and the four other sections provide information to the GDP section. Actually, this model is basically the same one we used in the report we submitted in 2001 and 2002. This time, we simplified it and focused more on the SME sector. We added an infrastructure sub module that is affected by the ODA and the infrastructure affected the capital indicators of each four sections. Capital indicators may effect productivity.

The result of the simulation shows in Figure #3. With the growth of the SME, the GDP increases. Also, this shows that the Japanese ODA that shared around 70% of the total ODA to Thailand provided 1% of it's GDP growth. The total ODA for the GDP of Thailand is only less than 0.5%.

Figure #4 shows the impact of infrastructure on the productivity of the SME sector and Large Enterprises sector. This shows that the ODA for infrastructure results in a positive impact when in the first stage, but becomes rather negative in the later stage, especially for the SME. It is explained that the vitality of the SME comes from their variety and diversity; but infrastructure can sometimes cause a negative impact. For example, the EPZ or the industrial zone can provide a good environment for the SME; but a highway provides transportation to the center of a city. Thus, the SME in the EPZ feels it's rather difficult to find efficient and cheap blue collar worker in suburban areas where the EPZ is located. Also, many countries wish to develop IT and high-tech venture capitals because having this type of industry speeds new age, industrial development. EPZ's or normal industrial areas are not suitable for such an industry. They need a more intelligent environment such as one that's near a university and a good telecommunication infrastructure.

Impact of Japanese ODA for Economic Development Unit: B

Year	Current	Proj.	Not Tec.	Not Fin.	Not Jap.	Actual
1984	988	1,20	1,20	1,19	1,20	5
1985	1,05	1,17	1,14	1,16	1,14	5
1986	1,13	1,25	1,19	1,24	1,19	3
1987	1,30	1,30	1,19	1,28	1,19	6
1988	1,56	1,42	1,24	1,39	1,24	14
1989	1,85	1,60	1,34	1,57	1,34	5
1990	2,18	1,91	1,58	1,86	1,57	15
1991	2,50	2,37	1,92	2,31	1,92	16
1992	2,83	2,84	2,36	2,79	2,36	0
1993	3,16	3,42	2,86	3,31	2,86	40
1994	3,62	4,03	3,29	3,92	3,29	20
1995	4,18	4,54	3,82	4,43	3,82	10
1996	4,61	5,00	4,32	4,86	4,32	25
1997	4,73	4,75	4,11	4,57	4,11	22
1998	4,62	4,22	3,64	3,97	3,64	25
1999	4,63	4,77	4,01	4,51	4,00	38

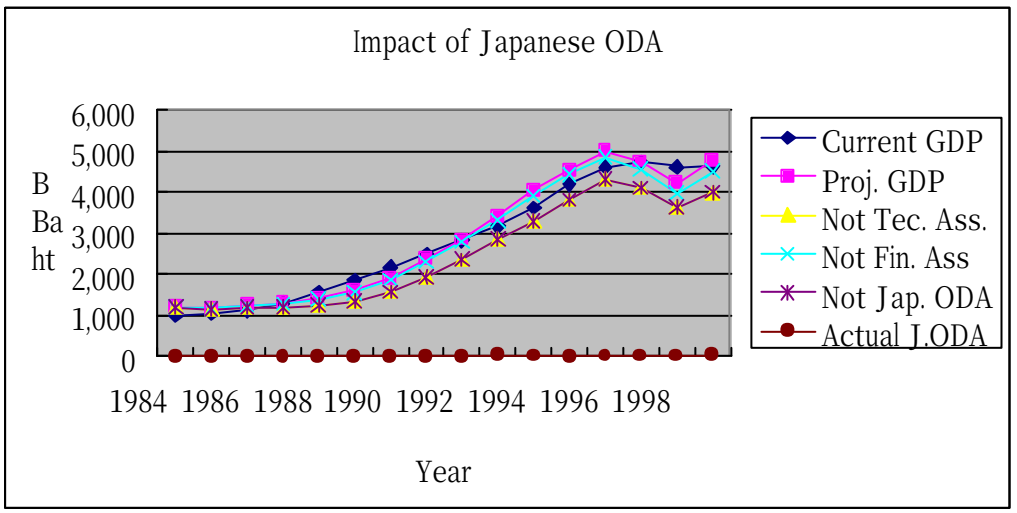
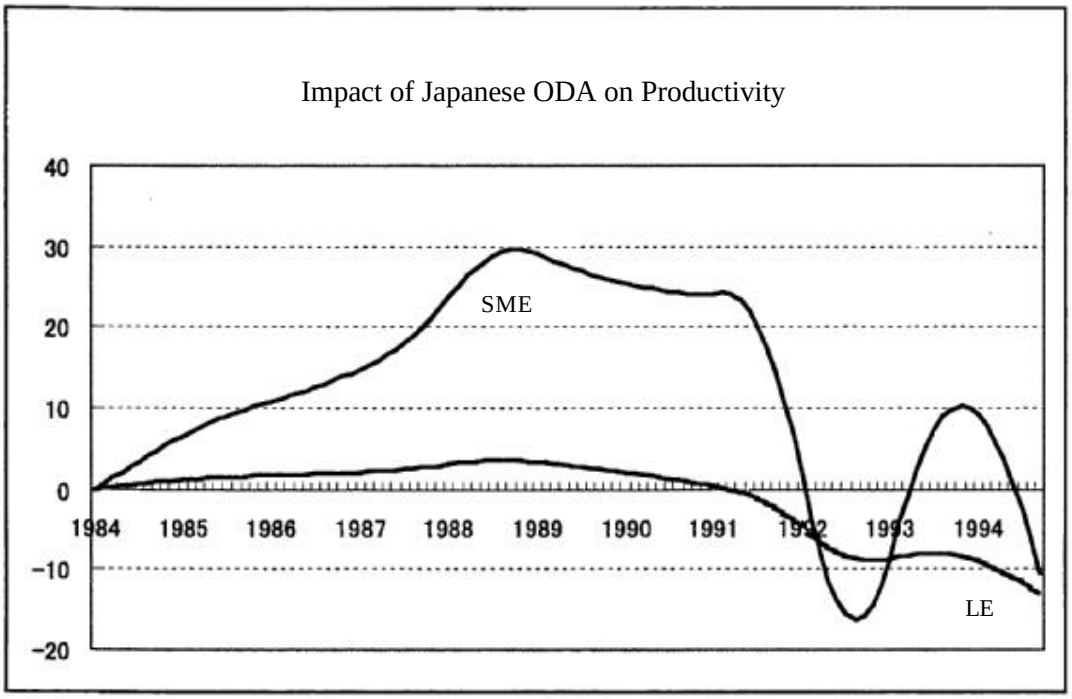


Figure-3: Simulation results of the Japanese ODA and its impact on the economy of Thailand

The impact of Japanese ODA for the productivity of the Thailand industry shows in Figure #4. This result shows that assisting to the development of infrastructure is important and effective, especially for low developed countries but less effective for medium developing countries. It also shows that direct investment makes a very positive impact. In addition, it shows the importance of risk control and it is

important for the borrower to establish a risk management system. At present, the JICA handles most of the assistance to building up the capacity of a developing country. In this system, the Government of Developing country could not request for assistance from another agency. However, this system should be improved, especially since the JICA is trying to shift to another scheme and their target and interest is rather different than the target client of the JBIC. Therefore, it is recommendable to provide technical assistance for the capacity building of the borrower.

Figure 4: Impact of Japanese ODA to the productivity to SME and LE



(8) Conclusion and Our Recommendations

In conclusion of our simulation, two things are clear:

Firstly, infrastructure development is effective for socio-economic development in the primary stage but after that, it is not so effective. However, the present target of the Yen Loan is the infrastructure development of medium developed countries – those that already have basic infrastructure in place. Therefore, the needs and effectiveness of the infrastructure is higher and a lot more necessary for low developed countries, but banks hesitate to provide loans to them. However, the point is not to profit from the loan business, but to avoid a non-performing loan. Therefore, providing a Common Fund or making a suitable fund with a 0% interest rate and strengthening the management and control capacity may be effective. The World Bank has such a system in place called "IDA". Using this system is also a considerable solution.

Secondly, strengthening direct assistance initiates a more effective, socio-economic development. However, the risk in shifting to Direct Investment becomes high. Micro Credit and Direct Investment show that they can trigger socio-economic development in the free competition of the capitalistic world.

(9) Comments and Remarks

*1) Of course, the World Bank said that the comprehensive approach is important and assistance to infrastructure is necessary. However, the World Bank focuses their assistance on software and believes it would be better if another donor, and/or the private sector, provided the necessary hardware development.

*2) Normally, the evaluations of ODA projects use PCM (Project Cycle Management) as their methodology. This methodology is used throughout the project cycle, planning, monitoring, and it's evaluation. In the planning stage, they make the PDM (Project Design Matrix) as the summary of the

project plan. PDM contains the purpose of the project; it's outputs, inputs, activities, assumptions, measurements, and means of validation. Evaluation is conducted based on this PDM and it judges impact, efficiency, and sustainability. This PCM methodology itself is a very good methodology. Also, this methodology has commonly been used in recent ODA projects. The problem is proper measurement. Observational measurers always take the easy way and end up being narrow minded. In many cases, those observational measurements only measure one aspect and miss the results of related, combined activities that don't necessarily come from that project. For example, take the construction project of a water supply system. In such projects, the reduction of the infant mortality rate is commonly accepted as a measurement and can evaluate the impact or effectiveness of the project. It is no doubt that the quality of a water supply system directly contributes to the reduction of the infant mortality rate. However, it also improves hygiene, improves the healthcare system, which then improves parental education - all of which in turn help to reduce the infant mortality rate. So therefore, a safe water supply system is not the only factor determining the rate of infant mortality. Therefore, without a model approach, we cannot measure the effectiveness of a water supply system by comparing it to the infant mortality rate and expect it to be correct. To avoiding making a mistake, planners normally use several different indicators in PDM, but it is not a guarantee for accurate measurement because those measurements don't cover all the variables in the big picture.

*3) For giving assistance to software infrastructure development, especially to the SME sector, the Japanese ODA provided three components of assistance to Thailand. In the first stage, it was still agriculturally-oriented and there were not many manufacturers that could produce industrial products. The Japanese ODA then assisted the production of a master plan for the development of local manufacturers. A change in the local industry was needed to make more products tailored for local use as well as for export, instead of relying on other countries goods that don't necessarily always fit the needs of the region. Also, to assist venture capital and small companies to help them make their own industrial products, the creation of an SME center was included in the plan.

In the second stage, after local manufacturers were developed, they then assisted the development of an industrial development master-plan, in which the EPZ is the heart. Finding ways to attract foreign manufacturers, as well as local ones, was deemed important and the plan consisted of ways to do this. Assisting production of high quality, exportable products in the EPZ was needed so that Thailand could obtain foreign currency. Most times, invited foreign manufacturers have their own network for marketing and therefore, the products are normally guaranteed for export. Also, many foreign manufacturers provide technical transfer to their local supplier and/or local partner company in Thailand.

In the last stage, Japanese ODA focuses to assist in institutional strengthening such as an official SME consultant system. These official SME consultants have been certified by the government and give advice on how to improve the management system of SME. They are also required to get their analysis to SME before SME requests financial assistance to their special bank. In this paper, we included such a consulting system and institution as a type of infrastructure.

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