

REQUIRED CHANGES IN CONSTRUCTION BY PARADIGM SHIFT FOR SUSTAINABLE DEVELOPMENT IN THE ASIA IN 21ST CENTURY

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ABSTRACT

Before previous economic recession, construction projects in the Asia have been increased in proportion to the growth of economy. Everyone involved in construction business had been used to consider that construction business in this region, Asia, is always busy and constructed facilities are always feasible and meet requirements. Therefore, every construction had been executed without careful study of feasibility. But, this recession which may take longer period of time due to influence of the terror of New York proved that above-mentioned view has become illusion. The necessity of detailed studies become more important to evaluate feasibility of proposed construction since the previous recession started from money crisis in Thailand made many facilities unfeasible. This situation has been brought by the rapid changes of market conditions of construction by the shift of economy from old to new economy. These changes of conditions are big and many other additional changes will be expected in future. Therefore, construction projects in the future should be studied for their feasibility more carefully in the planning stage including marketing from many view-points for both sustainable construction and for broad sense of sustainability of construction industry in the Asia under the influence of new economy.

KEYWORDS

Change, Sustainable Development, Asia, New Economy, Investment for Construction

1. INTRODUCTION

A well-known sociologist has pointed out that "what is happening in Asia is the most important in the world" if recovery from this recession will be done. This opinion depends on that Asia will be one of the centers of world economy in future as it has been. But before discussing this, the lesson obtained through previous recession should be applied for improving the situation that brought the recession. Since recession caused by bubble economy, the mechanism of causing bubble should be studied at first. For long period of time after the Second World War countries in Asia experienced quite rapid growth of the economy. In that situation every people involved in construction project have been so optimistic that execution of projects is done without careful studies for their justification. These caused bubble economy. Therefore, investment for construction should be carefully evaluated and more detailed feasibility and efficiency study should be indispensable in planning stage of construction projects. Moreover, nature of economy, which is important background of the construction investments, has been shifted to new economy. Also, the coming 21st century should be a challenging era for human kind because it requires a new philosophy in many fields due to the quite rapid development of mainly technology. It produces a paradigm shift For sustainability some philosophy should be established to maintain on environmental balance in our future world. The important issue for the global future should be the relationship between development in Asia and its influence on the world environment and resources. Also, influence of the change from old economy to new economy on

construction investments should be studied and evaluated. Also, other additional requirements should be examined as well as the background for construction investment.

2. RAPID DETERIORATION OF CONSTRUCTION MARKET IN ASIA

2.1 General

The growth rate of an economy is one of key factors dominating the condition of the construction market. In this region, the Asia, many projects are planned and executed without doing detailed feasibility study and marketing because only rapid execution considered most important since growth of economy have been quite high in this region.

2.2 Turning Point of the Economy of Asian Countries

After the Second World War there have been quite long period of rapid development of economy in several countries in the Asia. Especially, after the end of the Vietnam War and policy change to market economy in China, the countries in Asia have been considered most prospective region of the world in this century. But, the previous recession showed some turning point of the age is coming to Asian countries. Among them Japan is first country facing to turning point of the age. And losing the speed of development and suffered from recession of the economy for long period of time and also, demographical change into society of more old people.

2.3 Bubble Economy in Japan and Other Countries in Asia

The period from 1990 to 2000 in Japan is called "lost decade." What happened for Japanese economy? It is quite interesting to consider these phenomena from the view-point of Nikolai Kondratieff. He was a Russian economist and was executed on Stalin's orders in the mid-1930s because his econometric model predicted, accurately as it turned out, that collectivization of Russian agriculture would lead to a sharp declined in farm production.

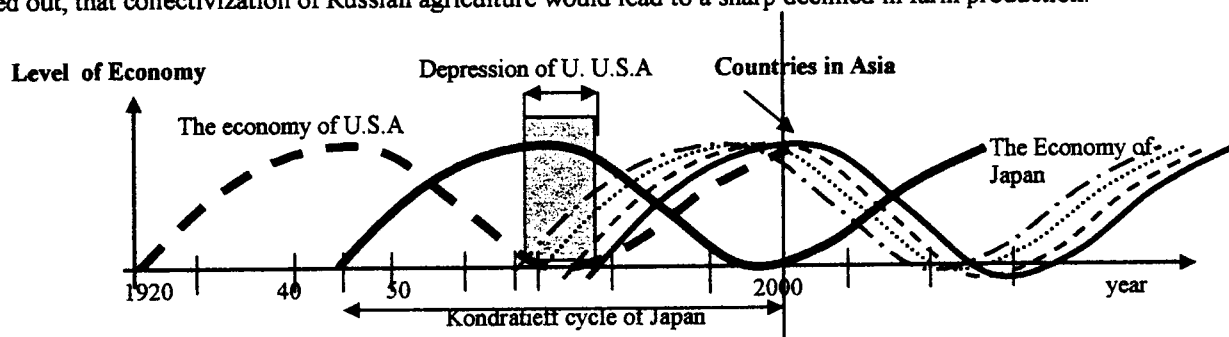


Figure 1 : Kondratieff cycle of the economy of US and Japan

The "fifty-year Kondratieff cycle" was based on the inherent dynamics of technology. Every fifty years, so Kondratieff asserted, a long technological wave crests.

Drucker applied this theory to the economy of U.S.A. in mid '80 when American economy was suffered from export pressure of made in Japan. So, it may be applied to the recent economy of Japan. Figure 1 shows the application of Kondratieff cycle to the economy of Japan under the assumption of starting point at the end of the Second World War in 1945. Several years after the Kondratieff cycle of Japan, same cycles of the countries in the Asia follow. After the first oil shock the economy of Japan peaked out and the demanded projects of construction has been decreased. And many projects of surplus executed become bubble.

2.4 Fall-down of Productivity of Japanese Manufacturing Industry

Immediately after the end of the Second World War almost all facilities both infrastructure and industries in Japan were destroyed completely. Therefore level of the GNP per capita of Japan at that time was quite low and at approximately the same level of that of Philippines. It was incredible now that almost all people of Japan were suffered from starvation due to extreme shortages of food.

After approximate 30 years from this severer situation, Japan became one of the leading industrialized countries and the size of total economy of Japan became second largest after that of U.S.A. What brought to Japan their prosperity in '80 is the high productivity of industries. Especially that of manufacturing industries is quite high and "made in

Japan” products spread all over the world. Japanese manufacturing industries, which produce made in Japan, are managed by the unique Japanese management system which had been evaluated quite excellent method of management of manufacturing industries with some outstanding methods of management developed in Japan to back up the industries. Typical examples of these are TQC, and just-in time. However, in '90 productivity of manufacturing industries of Japan has been fallen down as shown in the figure 2. This rapid fall down of productivity also resulted in the loss of the international competitiveness. The Rank of competitiveness of Japan fall down quite rapidly. That of Japan at year 2001 is around 25th.

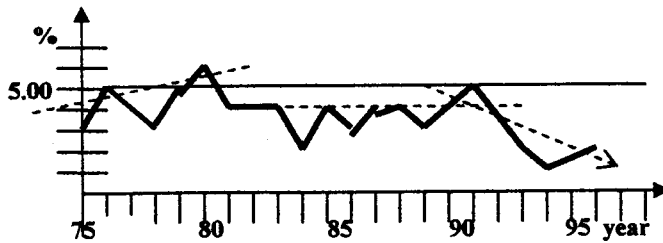


Figure2: Annual Growth Rate of Productivity of Manufacturing Industries in Japan

2.5 Deterioration of Manufacturing System of Japan

Not only Japan lost some part of her territories by defeat of the Second World War but also air-laid brought fatal domestic condition. However, by establishing some excellent system of manufacturing industries Japan became one of the super powers of industrialized countries in rather short period. This progress has been called “miracle of the Asia” and many countries of Asia such as 4 dragons want to follow Japanese system.

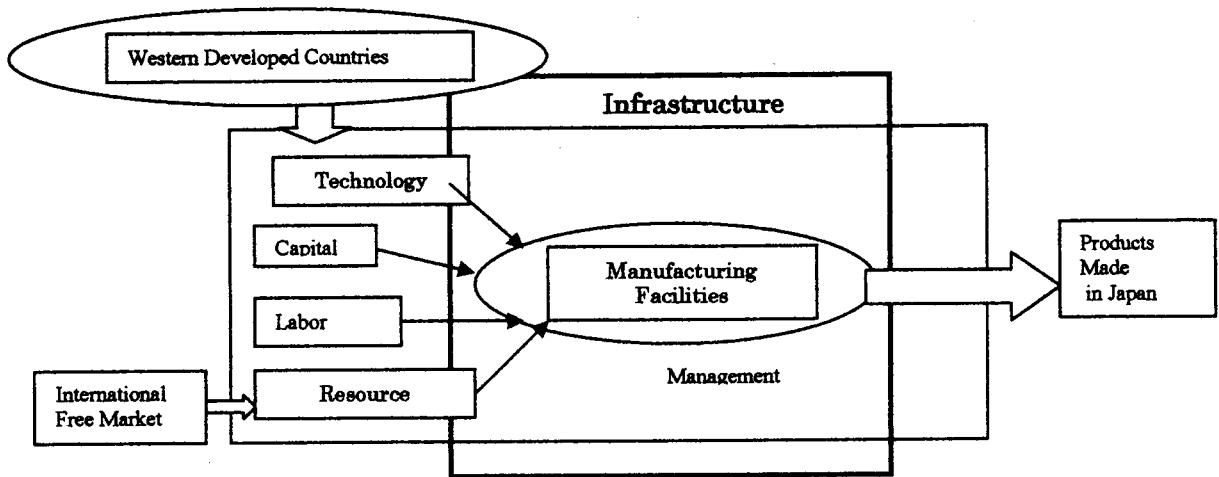


Figure 3 : Model of Manufacturing Industry of Japan

Figure 3 shows the outline of Japanese model of manufacturing system. In this model there are several outstanding economic and social conditions as follows;

1. Technology has been imported from western countries.
2. Capital has been put into manufacturing industries by placing their land on the mortgage.
3. Abundance of labor of good quality at reasonable cost has been used.
4. Resources have been procured in rather reasonable price at international free market.
5. Japanese management was unique and has been used only in Japanese industries.

According to the big changes in several items listed above this Japanese system lost the strength and obsolescence. Especially China is establishing quite strong manufacturing industries.

In both the short and long term, our ability to solve social and economic problems will be limited primarily to our lack of imagination in seizing opportunities, rather than trying to optimize solutions. In new economy it is said that there is more to be gained by producing more opportunities than by optimizing existing ones. Optimization and efficiency die hard. In the past, better tools made our work more efficient. So economists reasonably expected that the coming information age would be awash in superior productivity. That's what better tools gave us in the past. But, surprisingly, the technology of computers and networks has not yet led to measurable increases in productivity. Therefore, it is question that this is favors Japan or not.

3. PARADIGM SHIFT REQUIRED BY TREND OF AGE

3.1 General

In general, it is said that there are quite big differences in many important aspects of economy between first cycle and second cycle of Kondratieff cycle of the Japan. Some of them are listed in the Table 1. These differences will bring quite big changes in economy. Especially nature of construction market will have to shift to meet the requirement by these changes.

Table 1: Difference between first cycle and second cycle of Kondratieff cycle of the Japan

Item	First Cycle (1945-1995)	Second Cycle(1995-2045)
Technology	Engine	IT
	Power, Energy	Gene (Genome)
	Electric Appliance	Genetically Modified Products
Require Infrastructure	Highway	Not specific Infrastructure required
	Railway	
	Dam	
Type of Economy	Old Economy	New Economy
Background	Development	Environment

3.2 Nature of New Economy and Its Influence on Infrastructure

While the quite rapid technological revolution is undergoing these days, something much larger change in the society is slowly turning beneath it. Steadily driving the cycles of technology is an emerging new economic order today. We now live in a new economy created by shrinking computers and expanding communications. This will bring new economic order. And the new economic order has not only its own distinct opportunities but also pitfalls. We have seen only the beginnings of the anxiety, loss, excitement, and gains that many people will experience as our world shifts to a new highly technical planetary economy.

This new economy has three distinguishing characteristics:

1. It is global.
2. It favors intangible things, e.g. ideas, information, and relationships.
3. And it is intensely interlinked.

It is quite important fact that these three attributes produce a new type of society which require new infrastructure and constructed facilities.

What's different in society now is that networks, enhanced and multiplied by technology, penetrate our lives so deeply that "network" has become the important core around which our thinking and our economy are organized. The disembodied world of computers, entertainment, and telecommunications is now an industry larger than any of the giants of old day, such as construction, food products, or automobile manufacturing. This new information-based sector will occupy considerable part of the economy and expand quite rapidly. This situation will cause the considerable changes of the types in the demand of facilities of infrastructure and facilities of industries.

Brad DeLong, an economist at UC Berkeley, has a handy theory of economic history. The history of the American economy can be seen as a parade of "heroic" industries that first appear on the scene as unknowns, then heroically "save" the economy by doing economic miracles, and far a time are treated as economic stars. In the 1900s, the automobile industry was heroic.

There was incredible innovation, many car company upstarts, incredible productivity. Communication is the foundation of society, of our culture, of our humanity, of our own individual identity, and of all economic systems. As tremendous as the influence of financial inventions have been, the influence of network inventions will be as great, or greater. More efficiency of financial investment will be required not only intangible asset but also tangible asset. Therefore, efficiency in facility management will be more important. Before the efficiency of facilities, opportunity to use the facilities more efficiently will govern the planning and designing infrastructure and facilities.

This change in the economic condition as a background of investment for construction facilities will cause new system of the analysis of feasibility study of facilities.

The structure of the network economy suggests that it will bolster this efflorescence of opportunities, for the following reasons:

1. Every opportunity inhabits a connection. As we connect up more and more of the world into nodes on a network, we make available billions more components in the great combinatorial game. The number of possibilities explodes.
2. Networks speed the transmission of opportunities seized and innovations created, which are disseminated to all parts of the network and the planet, inviting more opportunities to build upon them.

3.3 Consideration of Future State of World

World Bank report 1995 shows that energy consumption per capita equivalent to kilograms of oil will increase proportionately to GNP per capita. (World Bank 1995). This means that rapid development of countries in Asia has caused consumption of large quantities of oil resulting in emission of greenhouse as was discussed at the Kyoto conference in 1997 and shown in Figure 4.

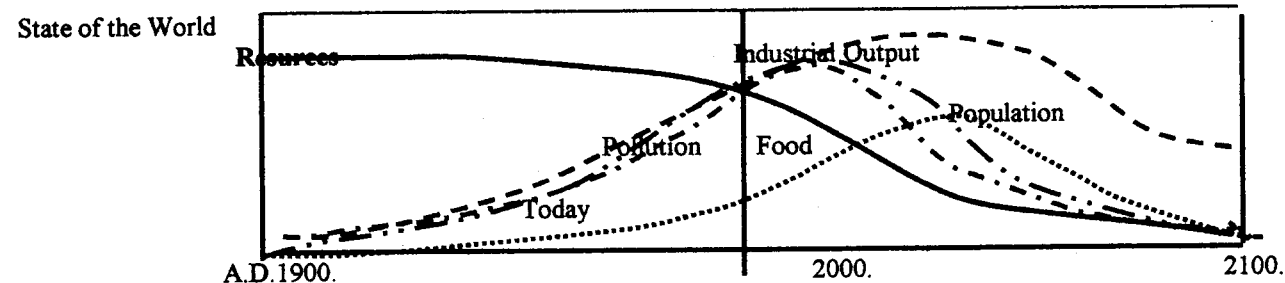


Figure 4; Estimated State of World in the Future (Pessimistic Model)

It can be said that for rather short run, resource and pollution problem are quite important issues at the period of beginning of 21st century.

3.4 Globalization

Trend of 21st century is globalization since the people of the world exposed to common problems which demand cooperation for their solution. Economical, ecological, hygienic, and meteorological developments do not stop at national borders. Coping with the threat of nuclear accident, acid rain, ocean pollution, AIDS, or world-wide recession demands cooperation of many countries.

However, every people of countries carry their patterns of thinking, feeling, and potential acting as their culture. Therefore, trend of globalization become stronger, conflicts between the different cultures become stronger as in the case of the previous terror execute in New York last year.

National culture s are developed for long period of time. Dimension of the differences in the cultures of the nations can be measured by following three items:

1. Relation to authority----Power distance
2. Conception of self, in particular----Individualism
3. Ways of dealing with conflict----Uncertainty avoidance

For the globalization of the world, nature of the relation to authority is important, because relation to authority means strength of tie to nation which become s barrier for the acceptance of sense of globalization. Therefore, the difference of the power distance score, which was studied by Geert Hofstede, shows the difference of the acceptance of globalization. For this purpose, table 2 shows the power distance of the people of the major countries in Asia,

U.S.A. and European countries. There are considerable differences between them. Therefore, the concept of globalization can not be accepted by Asian people as accepted by Western people.

Table 2; Power Distance (PD) Scores

Score Rank	Country or Region	PD Score	Score Rank	Country or Region	PD Score	Score Rank	Country or Region	PD Score
1	Malaysia	104	21/23	Thailand	64	15/16	France	68
4	Philippines	94	27/28	South Korea	60	38	USA	40
8/9	Indonesia	78	29/30	Taiwan	58	39	Canada	39
13	Singapore	74	33	Japan	54	42/44	West Germany	35
15/16	Hong Kong	68				42/44	UK	35
Average of countries in Asia					73	Average of Western countries		43

4. ADDITIONAL REQUIREMENT

4.2 Influence of Emerging China- Will China Catch up Japan ?

As professor Krugman of MIT pointed out in his book , there was influence of emerging economy of China as a background of this recession in Asia. The influence of previous recession on the economy of China and countries that have close relationship in economy with China (Hong Kong & Taiwan) is less than that of other countries. To understand this more easily the size of economy of Japan should be compared with that of China in accordance with the progress of year in future. It shows that the economy of China might be the same in size of Japan within approximately 20years by using data given in Table 3 as shown in Figure 5. This explains that influence of the economy of China on the economies of other Asian countries will increase more in the future.

Table 3; Basic Data of Economy of China & Japan Comparison of GNP as of average '90-'95 in US\$

country	per Capita	Total Amount in million US\$	Growth rate of Economy (%)
Japan	31,470	5,108,540	1.0
China	490	697,647	12.8

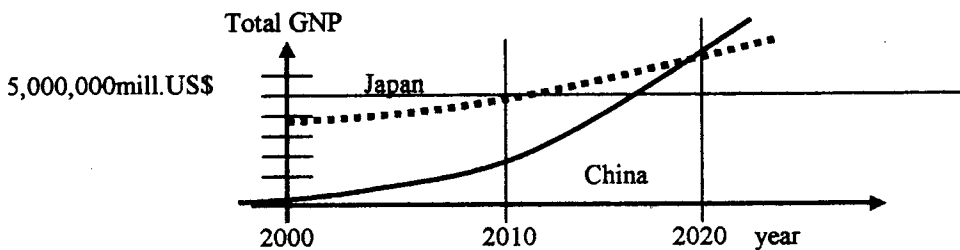


Figure 5: Total GNP of China & Japan

4.3 Changes From Need to Want Economy

It is most important to know the change of the nature of the economy of countries in Asia. Due to the rapid development of the economy of long period after the World War and rapid increase of GNP per capita, the nature of economy of countries shifted from "need" economy to "want" economy. In principle, at need economy marketing is less necessary than "want" economy

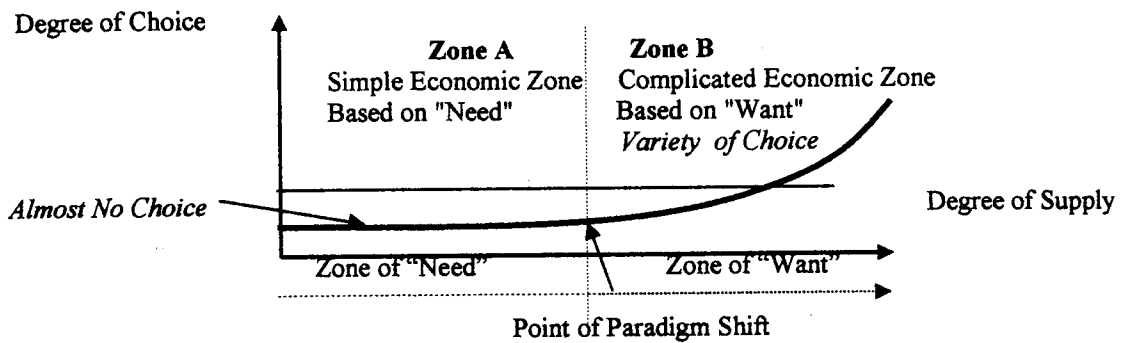


Figure 6: Degree of Supply and Degree of Choice

Economists assume that all goods and services including public works should be considered in term of “wants” and “needs” as discussed by Friedman, D. D. Especially, in the case of large-scale projects they should be evaluated on the basis of need more than want. Want and need are matters of degree in terms of supply, and can be discussed in relationship with degrees of choice as shown in Figure 6.

In any correlation between comparability and non-satiation, the importance of a particular project should be based on evaluation of its value. However, value or valuation means how much we value something, and assessment of value should be based on actions, not words.

This is called the principle of revealed preference. It means that preferences are revealed by action as mentioned by Friedman. Therefore, this theory of value is not according to words the prevailing one; instead the theory of value according to action should be dominant. This ensures that a decision-making system depends on the revealed preference of the people. Therefore, the *raison d'être* of the project is also not completely explained by the theory. This fact bring many discussion on the *raison d'être* of particular project. These situations increase necessity of marketing.

4.4 Required Innovation for Another Development in Asia

Harvard professor Clayton M, Christensen demonstrates in the most revolutionary business book in years why outstanding companies that did everything right ---- were in tune with the competition, listened to customers, and invested aggressively in new technologies ----still lost their market leadership when confronted with disruptive changes in technology and market structure and he tells how to avoid a similar fate as business races online into the twenty-first century.

His *Innovator's Dilemma* eloquently demonstrates a shattering paradox, that the best of conventional good business practices can ultimately weaken a great firm.

There is a certain type of technological innovation that Christensen labels disruptive technology, which mainstream customers initially reject. Following these customers causes well-managed firms to allow strategic innovation to languish.

What is the solution? Create a subsidiary entirely focused on the emerging market, one that is free to be visionary while courting an unorthodox customer base and staying poised to catch the next great wave of industry growth. The concept of this theory should be applied to industries even in Asia for another development.

5. IMPROVEMENT OF CONCEPT OF DEVELOPMENT

Nowadays, it is common sense to the people of developing Asian countries that a major goal of poor countries is to escape from poverty. This concept is supported by Japan's experience of rapid modernization in the previous half century.

However, development and growth of the economy, these two terms are not identical in the strict sense. Economic development is linked with economic growth, accompanied by some changes in output distribution and economic structure of the country. Therefore, the concept of development should be reviewed to establish new concept for second stage of development of Asia after recession. Also, many countries are employing the old model of Japan of manufacturing industries which become obsolete due to the changes in economic conditions. These changes will be accelerated by the shift of economy from old to new economy in the speed people never experienced before.

We Asian people should recognized these changes and establish another new system for the prosperity of us and of the world. In order to do this more careful studies should be done for analyzing the influence of new economy on infrastructure and constructed facilities.

6. CONCLUSION

From the middle of 1997, a quite strong recession spread out all over Asia. Many projects were interrupted and suspended by the big changes in economic conditions. However, after several years of tremendous effort to cope with this situation there will be a revival of the economy, which will bring more projects than before.

However, to make revival of sound economy it is necessary to use lesson that brought through previous recession. Since recession has been caused by bubble economy

At the beginning of this century, a considerable number of construction projects to provide mainly infrastructure will be carried out again in Asia. However, detailed feasibility for the requirement of new economy should be indispensable for steady development of countries in Asia. Moreover not only sustainability and saving resources but also many other factors should be necessary to be considered for another development of countries in Asia, since construction projects in Asia will effect the world environment.

The present adverse economic condition does not mean that the world center of development from the end of this century to the beginning of this century is shifted to any other place than Asia. On the contrary, it can be considered that the fact that the financial crisis of Thailand had a great influence on the world economy showed the increased importance of Thai economy in the world. In the 21 century, Asia will become the dominant region of the world economy again by introducing marketing in the fields of many factors.

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