Kansai in the Asia Pacific

Putting Our Knowledge Capital at the Heart of New Growth

ASIA PACIFIC INSTITUTE OF RESEARCH
OSAKA

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The regional division in this book is as follows unless otherwise noted.

Kansai:	prefectures of Fukui, Shiga, Kyoto, Osaka, Hyogo, Nara, and Wakayama
Kanto:	prefectures of Ibaraki, Tochigi, Gunma, Saitama, Chiba, Kanagawa, Yamanashi, and Tokyo Metropolis
Chubu:	prefectures of Nagano, Gifu, Shizuoka, Aichi, and Mie
Japan:	all prefectures including Kansai, Kanto, and Chubu

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Message from the Research Director

Dr. Hideo Miyahara

Our deeply interconnected world continues to experience a period of profound changes and challenges, and the events of recent times seem certain to shape the global order for many years to come. Natural disasters and political unrest have affected countries in the Asia Pacific region and beyond. GDP figures and stock markets suggest that the world economy is returning to a growth path, but with social and economic problems evident in both developed and developing countries, it is more apparent than ever that we need to use knowledge and technology wisely and consider the totality of the complex problems we face in order to achieve sustained prosperity and stability.

Japan has an important role to play in addressing these global issues. While we face uncertain circumstances of our own—including the long-term impact of Abenomics, the effects of the consumption tax increase, and the outcome of the TPP negotiations—we also possess a wealth of practical and technical knowledge and experience that we can share to enhance global wellbeing. In particular, the Kansai region, with more than 1000 years of cultural exchange and trading relations with our Asian neighbors, can have a pivotal role in fostering new knowledge-based growth in the Asia-Pacific.

The mission of the Asia Pacific Institute of Research (APIR) is to work passionately towards finding solutions to the most pressing economic and social issues by drawing together an internationally diverse range of experts from academia, business, bureaucracies, and beyond, to conduct practically-oriented research aimed at increasing the regional and global public welfare.

I invite you to explore some of the highlights of APIR's recent research presented in this year's edition of *Kansai in the Asia Pacific*. The major themes of these chapters include economic and business developments and prospects in Asia-Pacific and innovation and challenges for the coming years. Together, they offer valuable information and practical suggestions for policymakers,

businesspeople, and others with an interest in the future of the world's most dynamic region.

Established in December 2011 as a new-model "neutral" think-tank, APIR moved in spring 2013 to our present home in the "Knowledge Capital" complex in the Ume-kita development in the heart of Osaka city. With this exceptional location as a platform, we are establishing a major new locus for interaction, innovation, and knowledge exchange between Kansai and Japan and the Asia Pacific region as a whole. We encourage you to visit our new website (www.apir.or.jp/en) for more information on our activities, and we warmly welcome enquiries from individuals or organizations interested in participating in our research or partnering with us, as well as any feedback you may have on this publication.

Finally, I wish to express my sincere gratitude to the many individuals who have contributed to the researching, writing, editing, and compilation of this work over the past twelve months. At every level of endeavor, we can surely achieve most when work together and share our knowledge, our experience, and our vision.

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Part I

Asia-Pacific Economic Outlook

Chapter 1 The Asia Pacific Region and Japan

Chapter 1 The Asia Pacific Region and Japan

Section 1 Renewed Relationships among Japan, the U.S., China, and Korea Brought About by Changes of Governments

1. Upheavals in internal affairs and economic cooperation progress in 2012

The year 2012 witnessed important elections and changes of governments in key countries in the Asia Pacific region, hinting at potential future changes in relationships among those countries. Elections were held for leaders in Japan, the U.S., and Korea, while China also had its own leadership change, which happens once every ten years.

It was also a year that witnessed a great many discussions about frameworks of economic cooperation in the Asia Pacific region, partly because a leadership struggle between the "emerging country" of China and the "established superpower" of the U.S. began to come into focus. By providing a general overview of upheavals in internal affairs and economic cooperation progress in the region, this section attempts to raise issues that may be expected in the coming years and present an outlook for the future.

2. Developments in economic cooperation in the Asia Pacific region

2.1. Competition among economic partnership frameworks

Trade liberalization initiatives that countries around the world have painstakingly negotiated under the lead of the World Trade Organization (WTO) have stagnated in recent years, whereas international economic cooperation in the forms of free-trade zones and economic unions are being promoted in larger regional units such as Europe and North America. In the Asia Pacific region, too, there has been much discussion regarding how regional economic partnership should be promoted in that area. It should be noted, however, that economic cooperation in this region is markedly different from its counterparts in other regions.

Usually, economic cooperation takes the form of a single framework that encompasses one entire region, as in the case of the European Union (EU). Generally, if more than one framework exists in the same region, there is no overlapping membership. In the Asia Pacific region, however, negotiations are under way

simultaneously for three such frameworks, namely the Trans-Pacific Partnership (TPP), the Regional Comprehensive Economic Partnership (RCEP), and the Japan-China-South Korea Free Trade Agreement (FTA), and their membership overlaps considerably. Each of these frameworks is aimed at broad-based economic partnership and liberalization of trade and investment, but both the membership and contents of negotiations often overlap, leaving one to wonder exactly how these frameworks relate to one another.

2.2. Enforcement vs. the Asian Way

In the background of this competition among multiple frameworks is the fact that different countries in this region have varying approaches to broad-based economic partnership, in addition to which is a current tug of war among the superpowers. Simply put, the difference in ways of thinking about cooperation involves the question of whether economic partnership should be achieved in a way that is legally binding (enforcement) or consensual (the Asian Way).

The final goal of most multinational negotiations, including the General Agreement on Tariffs and Trade (GATT), the WTO, and the EU, is to sign a mutually binding treaty. As such, the outcome of the negotiations is what counts the most. While such conventional negotiations seek a strictly legally binding outcome, multinational negotiations in the Asia Pacific region look for something completely different: the decision whether or not to participate in liberalization talks is not enforced, but rather relies purely on the volition of each country, and all countries and territories are treated equally in an atmosphere of mutual respect. Hence, the process leading to the agreement is valued most and no instant effects are expected. These distinctive aspects − spontaneous participation and emphasis on the process and consensus − are collectively referred to as the Asian Way or the ASEAN Way.

This difference in approaches has given rise to competition among different frameworks for economic partnership. For example, the TPP follows the conventional Western style and aims to establish a rigid regime, whereas the RCEP's approach is more similar to the Asian Way. It is true that, having engaged in free trade agreement negotiations since the beginning of the 21st century, Asian countries have not necessarily stuck to the Asian Way, but have instead become increasingly admissive of a more rigid legal arrangement, with the result that the RCEP framework does not push the Asian Way as it once did. Nevertheless, countries in the region still insist that their governments be involved in negotiations and the process of deciding the future course of development, and put emphasis on support for developing countries. This sets the RCEP clearly apart from the TPP, which places great value on market dynamism.

Furthermore, underneath this difference in approaches are differences in the way they view both international and domestic political/economic regimes and the struggle for leadership among superpowers. Hoping to make the TPP a rigid regime like the WTO, the U.S. aims to realize a fair and equitable market economy where government intervention in economic activities is kept to a bare minimum. Still allowing its government to extensively intervene in economic activities, China apparently does not like any such regime that puts restrictions on its government.

3. Changes in domestic politics and future outlook

3.1. Waves of change in domestic politics

In 2012, several key countries in the Asia Pacific region experienced leadership changes. In the U.S., President Obama was re-elected, but the Democratic Party lost its majority both in the upper and lower houses, thus creating a "gridlock" situation. China extensively reshuffled its national leadership to change over to the Xi Jinping regime, while Park Geun-hye of the Saenuri Party was elected to the Korean presidency. In Japan, the coalition government between the Liberal Democratic Party (LDP) and New Komeito was reinstated and Shinzō Abe returned to the position of prime minister.

3.2. Short-term impact of the changes in domestic politics

These changes in the landscape of internal politics are likely to have a subtle impact on international relationships. As described earlier, any attempts to form economic partnership in this region eventually became a power game between the U.S. and China, but the country that became the pivotal player in 2012 was none other than Japan, since it was the only economic superpower that might potentially participate in both the TPP and RCEP. Its role was so important that, as soon as Prime Minister Noda of the Democratic Party of Japan made public his positive stance towards participation in the TPP and began preparing the way for joining the negotiations, the negotiations for the RCEP and the Japan-China-South Korea FTA started up, as did negotiations for the Economic Partnership Agreement (EPA) with the EU. The subsequent decision by Prime Minister Abe to join the TPP negotiations has served to further accelerate the move toward trade liberalization.

Meanwhile, there have been developments that run counter to this movement. One such development is the weakening of the Obama Administration's support base. Popular support for the President himself has become a thing of the past, and the American public is not as positive about trade liberalization as they once were. In the U.S. Congress, which plays a critical role in trade policies, the Republican Party maintains dominance. Moreover, it is believed that the recent development of the Tea

Party movement has made it harder to form a consensus within the Congress, since those involved in the movement are on the conservative side of the Republican Party. This being the case, the U.S. government is being forced to lower the policy priority of the TPP. Another such development is China and Korea's strong opposition to Japan's perceptions of history. As of the time of writing, negotiations for the TPP, RCEP, and Japan-China-South Korea FTA are all being conducted independently of this lingering issue. Given that all of these frameworks must eventually gain approval from the respective national assemblies, which must deal with domestic public opinions, there is little choice but to conclude that such issues will exercise a subtle influence on these negotiations.

One point that merits attention is Korea's approach to this issue. Korea has made it clear that it highly values its relationship with China. The alarming issue here is that Korea is calling for a framework that excludes Japan from the solution to security issues, with its problems with North Korea in mind. Under normal circumstances, security and economic partnership are not strongly related to each other. Considering that the general public tends to consider economic partnership along with security, long-term economic cooperation may be negatively affected by any damage to frameworks for partnership among Japan, the U.S., and Korea, which have long played a critical role in security in East Asia. In addition, Japan and Korea's alienation from each other in terms of security issues may disturb the intraregional balance, as it lowers the influence of the U.S. but strengthens that of China in East Asia.

3.3. Structural changes and political dissatisfaction

China and other Asian countries have seen rapid expansion in terms of GDP, but their economic growth has come to a turning point in recent years. Things are especially difficult in countries in East Asia, where growth has started to decline. The factors underlying this are, according to advocates of the "demographic dividend theory," the decrease in the working population and population aging with fewer children. In China, while labor costs continue to rise, the market is not growing as dramatically as it was formerly. What this means is that there are fewer opportunities to make a fortune in business, thus inevitably exposing the country's economic disparities. In fact, this has already become a reality and was made one of the biggest issues during the presidential election in Korea. That said, the problem involves demographic structures and thus is not something that can be changed overnight.

What should be taken note of here is the vulnerability of social infrastructures in Asian countries – they are so fragile that they may not survive against the "survival of the fittest" principle that is part and parcel of liberalized economic activities. In a general

sense and in the mid- and long-term, liberalization serves to enhance the social welfare of the country as a whole. In the short-term, however, it adds to the number of people who suffer, including workers of comparatively disadvantageous industries. Not many Asian countries have a social security system that adequately supports such people. Worse still, the rate of population aging with fewer children is so rapid that there is no time to develop such a system. The consequence is the emergence of increasing numbers of people who are dissatisfied with further liberalization, thus raising the chance of political instability. The anti-globalism movements that are rampant in developed countries outside of Asia may gain ground in Asian countries under a different disguise. It is necessary to urgently consider how this kind of political risk can be dealt with once it emerges.

Section 2 International Trade Systems in the Asia Pacific Region

1. Trade policies of the Obama Administration

1.1. Characteristics

Those who are critical of the TPP in Japan often view the TPP negotiations as a U.S. plot or even conspiracy to force this free trade framework onto Japan in pursuit of its own national interests. As evidenced by the fact that the U.S. took several years to ratify the FTA with Korea, however, U.S. attitudes toward free trade may not be monolithic or based on a plan that is consistent and strategic enough to properly be called a conspiracy or maneuvering.

American trade policies have several characteristics. First, the country has a strong tendency to develop trade policies as part of its political affairs or in its diplomacy in a broad sense. Given the fact that many of the countries with which the U.S. has signed an FTA have small economies, it may not necessarily be correct to say that this series of FTAs has been concluded with the sole goal of export expansion.

The U.S. regards trade policies as a means to establish global trade rules. With a view towards creating a comprehensive legal framework that will govern the entire range of economic affairs, they are making an attempt to raise the level of all sorts of activities and services, including investment, government procurement, protection of intellectual property rights, cross-border service transactions, financial services, telecommunications, and minimum wages.

Moreover, not all stakeholders are in support of promoting free trade. Various interest groups have filed different requests and, in general terms, it is difficult for the Republicans to refuse demands from the industrial sector and for the Democrats to ignore requests from labor organizations and consumer groups.

1.2. Obama Administration's trade policies

1.2.1. Characteristics

It is necessary to take note of three points to understand how the Obama Administration goes about developing its trade policies.

First, the U.S. is increasingly inclined to stand in the way of any recent move in Asia to form an economic bloc that excludes the U.S. The Free Trade Area of the Asia Pacific (FTAAP) is its attempt to achieve a binding FTA in the Asia Pacific region, whereas the TPP is positioned to be a breakthrough point in realizing the FTAAP.

Second, the Obama Administration sees its trade policies as a means to attain economic growth. They have set a goal of doubling exports and creating two million

jobs within the five years leading up to 2014, while also aiming to reduce global imbalances.

Third, the Obama Administration deploys its trade policies mostly in response to movements by China. Because of this, trade imbalances, violations of intellectual property rights, and discussions about state capitalism are often chosen as key issues. In the event that the TPP becomes a framework for international trade in the Asia Pacific region, it is expected that China will have no choice but to join the framework.

1.2.2. Domestic issues for the Obama Administration in its second term

In order to predict the future course of the Obama Administration's trade policies, it is necessary to keep a finger on the pulse of the general public's opinion on free trade and the movements of Congress members who are affiliated with the Tea Party, which is a conservative political force criticizing big government. The U.S. Constitution says that it is not the President, but rather the Congress that is authorized to conduct trade negotiations. Up until 2007, the Congress had granted trade promotion authority (TPA) to the President. After TPA's subsequent expiration, however, the government was forced to address the growing need to deal with congressional affairs more cautiously and stay abreast of the demands of interest groups and public opinion trends.

In recent years, the American public has been less supportive of free trade. In a survey taken in October 2010, 35% of respondents said that free trade is good for the country, while 44% stated their opinion to the contrary.

Interestingly, supporters of the Republican Party, many of whom had traditionally been in favor of free trade, show an increasing opposition to it and advocate it less than the Democratic Party's supporters do. The tendency to object to free trade is particularly apparent among those who sympathized with the Tea Party.

It remains to be seen what voting behavior Congress members affiliated with the Tea Party will take concerning trade issues, but many of the politicians involved in the Tea Party movement are hardliners who will accept no compromise, and thus the political processes may be thrown into confusion.

1.2.3. Changes in the way the government is managed

In recent years, American politics is becoming increasingly polarized. The President will presumably join any bipartisan group to drive movement for the TPP formed by congressional Democrats and Republicans who promote free trade, but the chances of bipartisan legislation are becoming slim. That said, the Congress needs to achieve a measure of success before the midterm election of 2014, and thus it is not outside the realm of possibility that free trade will surface as a key campaign issue.

1.3. Japan's reaction to the U.S.

Today, only 1% of Americans regard Japan as a threat and 60% of them say that the U.S. should expand its trade with the country[1]. Japan's participation in the TPP talks is desirable for the U.S. in light of its sheer economic power as well. It is true that many in American industrial circles insist that Japan still has a long way to go before it has fully opened its automotive and insurance markets, and express concern about Japan's rigorous assertions that agricultural products be excluded from the tariff-free item list. However, the U.S. also seeks exceptions for dairy products and sugar, and it is plain to see that complete removal of tariffs for all items is little more than a pipe dream.

It is thus important to understand that the U.S. is engaged in a variety of discussions about free trade, and thus promote free trade from a political standpoint as well.

2. Trade policies of the new Chinese administration

2.1. Chinese trade policy lines and their development

2.1.1. Strategic goal: Forming a global network of free trade zones

Strictly speaking, it is too early to discuss trade policies of the new administration at this point in time. Since Chinese politics have become heavily institutionalized, however, it is safe to assume that its trade policies will be an extension of what they have pursued so far[2], namely carrying out an FTA strategy of forming a global network of free trade zones with China serving as a hub.

Reportedly, this strategy is founded on the ASEAN-China Free Trade Agreement (ACFTA) and envisions expansion from Asia to Latin America, Africa, and Europe. Successful partners are expected to offer prominent strategic significance both in politics and diplomacy, contribute to a high economic complementarity effect, have a large market or abundant natural resources, and help to effectively promote harmonious development. It can likely be gleaned from just these two points that China's goal is to become the leader of an FTA zone that may share the world with the North American Free Trade Agreement (NAFTA) and the EU.

2.1.2. Trade policies before the Xi Jinping Administration

It has been ten or so years since China became keen on participating in frameworks for economic cooperation and concluding FTAs. This is because the Asian currency/economic crisis between 1997 and 1998 drew renewed attention to the importance of regional stability during the Jiang Zemin regime, and the U.S. and China reached an agreement in the autumn of 1999, thus paving the way for China to gain

[1] "Public Support for Increased Trade, Except With South Korea and China: Fewer See Benefits from Free Trade Agreements," Pew Research Center for the People & the Press, November 9, 2010.

[2] At the National People's Congress of March 2013, Gao Hucheng was appointed Minister of Commerce. Promoted from the position of Vice Minister of Commerce, Gao is an expert in this area, having once held the concurrent position of China International Trade Representative. From this, it may be gathered that policy continuity will be given precedence.

WTO membership (which became effective in December 2001). In addition, after taking into consideration the disadvantages of non-participation, Premier Zhu Rongji took the lead in the process of concluding an FTA with ASEAN.

With the inauguration of the Hu Jintao regime, there was an emphasis on expanding and deepening frameworks for economic cooperation and FTAs, and consistent efforts were made accordingly.

Shown in Table 1-1 are FTAs that China entered into during the Hu Jintao Administration. They began entering into such agreements with Special Administrative Regions within the country, such as Hong Kong and Macau, and then continued on with China's export partners and pioneering FTA countries such as Chile, New Zealand, and Singapore.

Table 1-1 China's FTAs during the Hu Jintao Administration

Partners	Designation	Taking effect in
Hong Kong	Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA)	January 2004
Macau	Mainland and Macau Closer Economic Partnership Arrangement (CEPA)	January 2004
Pakistan	China-Pakistan Free Trade Agreement	January 2006
Chile	China-Chile Free Trade Agreement	October 2006
New Zealand	China-New Zealand Free Trade Agreement	January 2008
Singapore	China-Singapore Free Trade Agreement	January 2009
Peru	China-Peru Free Trade Agreement	March 2010
Taiwan	Economic Cooperation Framework Agreement (ECFA)	September 2010
Costa Rica	China-Costa Rica Free Trade Agreement	August 2011

Compiled by the author from data on the China FTA Network web site (http://fta.mofcom.gov.cn/index.shtml) and JETRO web site (http://www.jetro.go.jp/world/asia/cn/trade_01/).

Listed in Table 1-2 are countries and regions with which China is currently engaged in FTA negotiations.

Table 1-2 Partner countries/regions for FTA talks (as of March 2013)

Countries/Organizations	Commenced in	Countries/Organizations	Commenced in
Southern African Customs Union (SACU)	June 2004	Norway	September 2008
Gulf Cooperation Council	July 2004	Switzerland	January 2011
Australia	May 2005	Korea	May 2012
Columbia	March 2007	Japan and Korea	November 2012
Iceland	April 2007	RCEP	January 2013

Compiled by the author from data on the China FTA Network web site (http://fta.mofcom.gov.cn/index.shtml) and JETRO web site (http://www.jetro.go.jp/world/asia/cn/trade_01/).

At first glance, it may be difficult to determine what these countries/regions have in common, but a closer study of the partner selections will reveal China's intentions. While pursuing multiple goals (expanding space for economic development, ensuring access to natural resources, minimizing disadvantages of non-participation, denying the "China threat," making a strategic move toward Taiwan, having its position in the market economy approved, etc.), they started negotiations with partners with whom it was feasible and easy to reach an agreement, thus "killing several birds with one stone." This is the most distinctive characteristic of China's policies on FTAs.

2.1.3. Issues for the Xi Jinping Administration

No enterprise or government can resist the attraction of the "1.3-billion-strong Chinese market," and the list of China's FTA partner countries will continue to grow. However, its progress may not be going so smoothly. No small number of countries, both signatories of FTAs with China and otherwise, are voicing concerns about the imminent danger of their domestic industries falling by the wayside as their markets are flooded with made-in-China products. Also, it seems that China has so far deliberately chosen importing countries with few political issues as FTA partners, but there will be only a few countries that will be able to meet such conditions going forward.

There is also a natural limit to what China can do to conclude FTAs with developed countries, which are important markets for them. It is true that China has come a long way in its shift to a market economy, but it is still not considered a "country under the rule of law," as the Communist Party is still given precedence over legislation. The way the transition to market economy stands now, China has what Mariko Watanabe of the Institute of Developing Economies terms a "mixed market," and tendencies that go against such a transition are becoming increasingly conspicuous, such as *guo jin min tui* ("the state advances, the private sector retreats")[3]. The fact that China is ridden with various problems, such as human rights violations for the liberal-minded and cyber terrorism for the conservatives, is enough for the leaders of developed countries to hesitate in furthering their relationships with the country.

Moreover, China's stance on the TPP could become the source of another problem. So far, China has been proceeding with FTAs in pursuit of its own strategic interests. In other words, the country has a strong tendency to see frameworks for economic cooperation and FTAs from a strategic point of view. Accordingly, the new administration may wish to leave open the possibility of joining TPP talks, while still remaining alert to the formation of a new framework under U.S. leadership. As the

[3] Kato, H., Watanabe, M., & Ohashi, H. (2013). *21-seiki no Chugoku, Keizai-hen, Kokka shihon shugi no hikari to kage* (China in the 21st century in terms of economy: Light and shadow of national capitalism). Tokyo: Asahi Shimbun Publications.

demands of the TPP are high, they currently seem to be taking a wait-and-see attitude and focusing on research and evaluation. China is also paying close attention to Japan's moves with regard to TPP talks, and thus might aggressively promote the Japan-China-Korea Trilateral Investment Agreement, Japan-China-South Korea FTA, and RCEP in a bid to forestall Japan in this regard[4].

3. International relations in the region and broad-based FTAs

3.1. International relations in the region

Trade relations in the Asia Pacific region are heavily dependent on FTAs that are sought by each country. Particularly in recent years, one country after another is coming up with various schemes and employing complicated tactics in a bid to realize a broad-based FTA that covers much of the region.

It is not just the U.S. and China that are pushing forward a broad-based FTA, but also Japan. India and Australia are also dealing proactively with this issue. Such moves by large countries inevitably exert a measurable influence on ASEAN members and other small countries. Placed between superpowers, ASEAN has thus far endeavored to maintain autonomy while pursuing economic benefits, and is taking an approach similar to that for a broad-based FTA.

3.2. Coexistence of three broad-based FTA schemes

There are three major schemes for such a broad-based FTA. How the TPP, RCEP, and Japan-China-South Korea FTA fit into the enforcement/Asian Way spectrum is shown in Table 1-3.

Table 1-3 Principles and nature of broad-based FTAs

Principles/Philosophy	Asian Way <----> Enforcement
Nature	Loosely binding rules <-----> Strictly binding rules Local circumstances respected Outcome valued
Broad-based FTAs	RCEP … Japan-China-South Korea FTA … (FTAAP) … TPP

3.3. Developments of broad-based FTAs

Multilateral negotiations are underway for these broad-based FTA schemes to decide on concrete measures for free trade and investment and various economic rules. One might wonder what kind of broad-based FTA will be born from these efforts. Before considering this, it is necessary to verify two facts.

[4] The first round of talks for the Japan-China-South Korea FTA began on March 26. Having concluded a customs agreement with China as part of the Asia Pacific Trade Agreement (APTA), Korea does not benefit from Japan's entering into an FTA with China and thus becoming competition. One could thus argue that Korea may have an incentive for intentionally delaying the negotiations. (Suggestion courtesy of Ei Kashiyama of the JETRO Osaka Office.)

The first is the absence of a decisive scheme for a broad-based FTA that every country in the Asia Pacific region can immediately consent to. In other words, different countries give precedence to their preferred schemes and are experiencing feelings of discomfort or antipathy towards other FTA schemes. The availability of common economic benefits is not enough for them to consider inclusion in a broad-based FTA due to material differences within the region: diplomatic relations between countries, political systems (democracy vs. dictatorship), levels of economic development, cultural characteristics, and other factors that vary by country.

The second fact is that countries in the region are taking very different approaches to the issue − enforcement versus the Asian Way, or a combination of both. They are not on the same page as far as the fundamental principles of a broad-based FTA are concerned.

Because of this, it is unlikely that any one of the three schemes will make progress to become an FTAAP. A more realistic scenario is that different broad-based FTA schemes will continue to coexist and change as they affect each other.

At the time of writing, TPP negotiations are taking the lead among those broad-based FTA schemes, but it may be necessary to consider whether advanced liberalization can be maintained as a condition of agreement now that ASEAN may participate en bloc in the future (only Singapore, Malaysia, and Vietnam currently participate) and China and other countries may wish to join. Also, before an FTAAP is to be realized, it will be necessary to coordinate and harmonize the TPP with the RCEP, Japan-China-South Korea FTA, and other similar frameworks at some point. At that time it will be necessary to stop and think about how to arrange and combine elements of both the enforcement approach and the Asian Way.

3.4. Scenarios for regional cooperation in the future

Although the future outlook remains opaque, the history of international cooperation within the Asia Pacific region and theoretical studies of it have hinted at several trends and possible scenarios.

First, the process of forming a broad-based FTA under the lead of the U.S. would be a difficult one. Despite its overwhelming political and economic influence within the region, the U.S. has had a rather poor track record in leading initiatives for interregional cooperation. In the latter half of the 1980s, the U.S. made several proposals on bilateral FTAs, but to no avail. When they attempted to lead talks for Early Voluntary Sectoral Liberalization (EVSL) within the framework of the Asia Pacific Economic Cooperation (APEC), they failed to reach any substantial agreement. If the U.S. should succeed in the TPP negotiations, it would be a rare case.

Secondly, interregional cooperation is difficult when relationships among superpowers in the region are unstable. The region is currently experiencing an unstable period, as the U.S. and Japan are losing their relative influence while China and India are seeing their influence grow. In such a period, it is not easy for any country to foresee how its own interests will change going forward or to have a clear vision. The current liquid situation where several broad-based FTA schemes coexist should continue for some time to come.

Thirdly, in the Asia Pacific region, ASEAN – an assembly of small countries – often serves to balance power among larger countries or take the lead in forming interregional cooperation in a bid to forestall superpowers. When Japan and China once attempted to promote the Comprehensive Economic Partnership for East Asia (CEPEA) and the East Asia Free Trade Area (EAFTA), respectively, ASEAN+6 and ASEAN+3 served as platforms for such discussions. On those occasions, it is believed that ASEAN had the covert intention of bringing China over to their side, while excluding the U.S. from the framework in order to keep them in check. ASEAN is currently taking the lead in the ongoing RCEP negotiations. Therefore, it would be mistaken to jump to the conclusion that the TPP negotiations have made a head start under the lead of the U.S. and that the ASEAN-led RCEP is lagging behind.

The fourth and last trend is the continued existence of philosophies unique to each region that are at work in these negotiations. No broad-based FTA can arise ex nihilo. Such frameworks often occur when the FTA philosophy is introduced from other regions and in the course of time transforms itself to assume characteristics unique to the Asia Pacific region so that it becomes more accessible to each country in the region. This process is called "regionalization." Even if the legal enforcement approach is in tune with international currents, the elements of the Asian Way still have meanings that cannot be neglected in the TPP negotiations.

3.5. Japan's choices

The current policy of the Japanese government is to simultaneously promote multiple broad-based FTAs − the TPP, RCEP, Japan-China-South Korea FTA, and other bilateral FTAs − without prioritizing them. The advantage of this approach is the freedom to favor any FTA that may become dominant. In terms of efficiency of diplomatic resources, however, it is not without problems, as it lacks focus and strategy. Japan is the only country that participates in all three key negotiations, and is uniquely positioned to have an understanding of and interest in both legal enforcement and the Asian Way. How will different broad-based FTAs affect each other and induce change? Japan is at the strategic pivot of the process to discuss better ways to reach a more appropriate

FTAAP.

Such a strategic initiative should preferably give consideration to the economic interests and relevant political foundations of Japan and other countries, in addition to economic and diplomatic relations within the Asia Pacific region. This is because FTAs and the political foundations of free trade are being shaken in many countries, thus casting a shadow on the international trade system in the region.

Public opinion in Japan is split concerning the wisdom of participating in the TPP. According to national newspaper The Yomiuri Shimbun, 63% of the survey respondents were in favor in November 2010, but this percentage dropped to 44% in December 2012. Conversely, the disapproval rate increased from 20% to 35% during the same period. Surveys by the Cabinet Office show that the "promotion of free trade" floundered between fourth and fifth place among the top economic diplomacy issues that Japan should focus on, and that there is a strong opposition to liberalizing the trade of agricultural products and other items that lack international competitiveness, even among consumers who are expected to benefit from free trade. There is also a trend in which the more sensitive people are to economic disparity and poverty in the country, concerns over food safety, and other social risks, the more resistant they are to the liberalization of trade.

Any scheme for broad-based FTAs must be combined with measures to revitalize the domestic economy, as well as some mechanism that will work positively across the country in terms of stimulation of businesses for the elderly, stabilization of welfare systems, and so forth, as that will help to reinforce the domestic foundations of free trade.

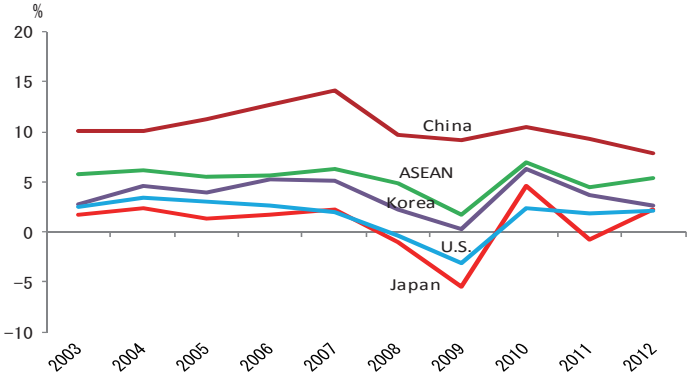
Section 3 Economic Exchange between the Asia Pacific Region and Japan

1. The Asia Pacific economy in 2012

1.1. Growth trends

As shown in Figure 1-1 below, in 2012 the Chinese economy and Korean economy slowed down for the second consecutive year, while the ASEAN economy regained momentum, the U.S. economy registered stable growth, and the Japanese economy turned around from its 2011 negative growth. It was a year that witnessed a slowdown of the Chinese economy and expansion of the ASEAN economy, which both had a major impact on Japan.

Figure 1-1 Economic growth in countries/regions in Asia Pacific



Source: IMF, *World Economic Outlook Database,* October 2012

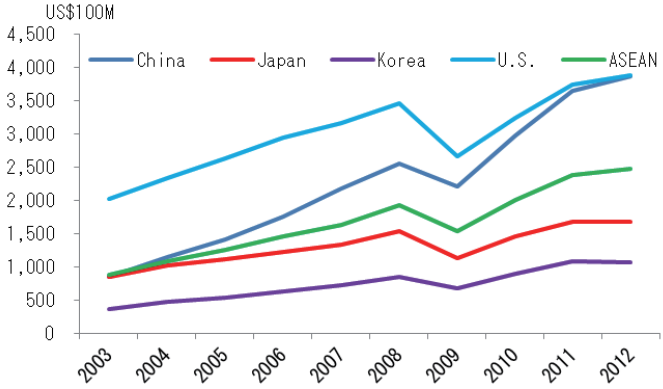
1.2. International trade in the Asia Pacific region in 2012

The year 2012 was also a year in which Japan and Kansai saw their economic relationships deepen with Asian countries as a whole, and trade/investment rankings among Asian countries were changed. Shown in Figure 1-2 are the total trade amounts (the sums of exports and imports) of selected countries and regions in Asia Pacific (Japan, China, Korea, the U.S., and ASEAN) as compiled from WTO data.

The graph indicates that total trade amounts in Asia-Pacific countries and regions dropped in 2009 as a result of the worldwide recession stemming from the U.S. subprime mortgage loan crisis in 2008 and 2009, but that they are now continuing on a growth trend. China's trade has shown particularly high growth, and its total trade compared favorably with that of the U.S. in 2012. ASEAN's total trade is faring better

than that of Japan, which is helping to increase their presence in this geographic region.

Figure 1-2 Trade amounts in countries/regions in Asia Pacific



Source: IMF, *World Economic Outlook Database*, October 2012

1.3. Export partner country ranking

Tables 1-4 and 1-5 show the mutual trade partner relationships among Japan, China, Korea, and the U.S. Plotting exporting countries vertically and export partner countries horizontally, Table 1-4 shows the importance of other countries as export partners for each exporting country. For example, China is Japan's number-one export partner country, followed by the U.S. and then Korea. For China, its number-one export partner country is the U.S., and Japan and Korea come in third and fourth, respectively. Similarly, the leading export partner country for Korea is China, followed by the U.S. and then Japan.

Japan, China, and Korea are mutually important to each other as export partner countries, assuming high positions between first and fourth place.

Table 1-4 Export partner country ranking

		Partner countries			
		Japan	China	Korea	U.S.
Exporting countries	Japan		1st	3rd	2nd
	China	3rd		4th	1st
	Korea	3rd	1st		2nd
	U.S.	4th	3rd	8th	

Data compiled from 2012 goods export trade amounts taken from the UNCTADStat database

1.4. Import partner country ranking

Table 1-5, on the other hand, shows ranking of the amount of imports from each country, with importing countries being plotted horizontally and their partner countries vertically. For instance, Japan's largest import partner country is China, followed by the U.S. Korea is the sixth largest import partner country for Japan. For China, Japan is the largest import partner country, followed by Korea. The U.S. is the fifth largest import partner country. Korea's largest import partner country is China, followed by Japan and then the U.S. It should be noted that largest import partner for the U.S. is China.

Table 1-5 Import partner country ranking

		Import countries			
		Japan	China	Korea	U.S.
Partner	Japan		1st	2nd	4th
	China	1st		1st	1st
	Korea	6th	2nd		6th
	U.S.	2nd	5th	3rd	

Data compiled from 2012 goods import trade amounts taken from the UNCTADStat database

What these data give is a picture of East Asia and the Asia-Pacific region as closely intertwined via trade. In the following paragraphs, the amounts of Japan's mutual trade with China, Korea, and Vietnam will be reviewed.

2. Economic relations between Japan and Korea

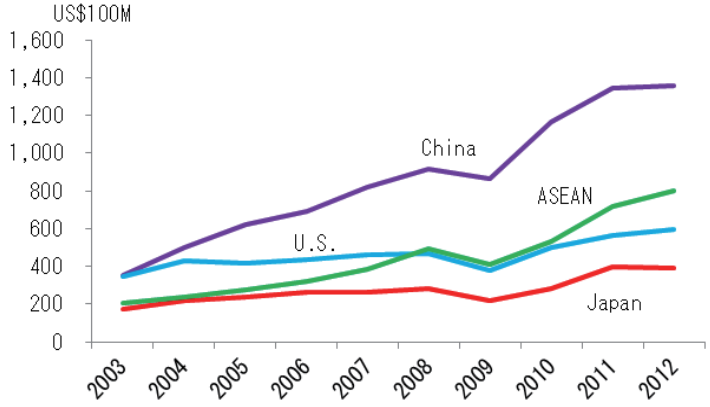
2.1. Korea's export partners

In 1995, Japan was the second largest export partner country for Korea after the U.S. In 2001, however, China became its second largest export partner and topped the U.S. to become Korea's largest export partner country in 2003. Since then, China has remained the single most important market for Korean exporters. In 2012, 25% of all exports from Korea went to China, 15% went to ASEAN, and 10% went to the U.S. The amount of Korea's exports to Japan declined to 7% of the total.

Political friction between the two countries in 2012 led to a slight decline in Korea's exports to Japan. More importantly, Japan's presence in the Korean economy has been trending downwards since 2000. In order to accurately observe economic relations between Japan and Korea, the first thing that must be taken note of is the fact that Korea is becoming increasingly inclined to turn to China and ASEAN for its export markets and that its dependence on the U.S. and Japan is tending to dwindle. In particular, Korea's exports to China are growing the most rapidly, and there is no doubt whatsoever

that this is helping to strengthen political and diplomatic ties between Korea and China.

Figure 1-3 Korea's export partners



Source: UNCTADStat database

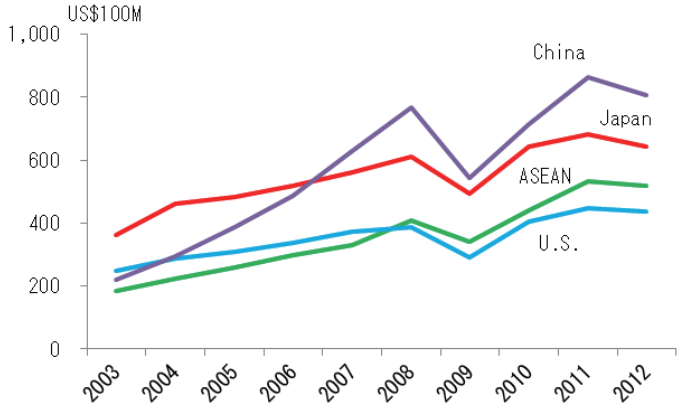
2.2. Korea's import partners

China topped Japan to become Korea's largest import partner country in 2006. Then in 2012, imports from Japan showed a slight decline. Considering that China, the U.S., and ASEAN also registered a decrease in their exports to Korea that year, it may be inferred that the decline had more to do with slowing down of the Korean economy (its real growth rate dropped from 3.64% to 2.0% between 2011 and 2012) and a weaker won than political and diplomatic relations.

In 2012, 15% of Korea's total imports were accounted for by China, 12% by Japan, 10% by ASEAN, and 8% by the U.S. It is true that China is becoming increasingly important as an import partner country for Korea, but Japan is still its second largest import partner.

Given these characteristics of its international trade, it is only natural that Korea also attaches great importance to its political relations with China. To stabilize the political situation between Japan and Korea, it is important for Japan to provide Korea with attractive market opportunities.

Figure 1-4 Korea's import partners



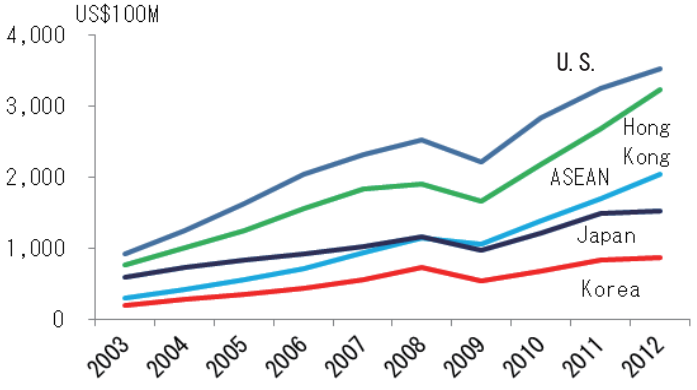
Source: UNCTADStat database

3. Economic relations between Japan and China

3.1. China's export partners

China's exports have grown significantly in recent years. Its largest export destination is the U.S., and a great deal of its exports go to advanced industrial countries such as the 27 EU countries and Hong Kong. Meanwhile, ASEAN is gaining importance as "the third export destination," and exports to ASEAN countries are growing faster than exports to Japan, which are slowing down.

Figure 1-5 China's export partners



Source: CIEC China Customs Statistics

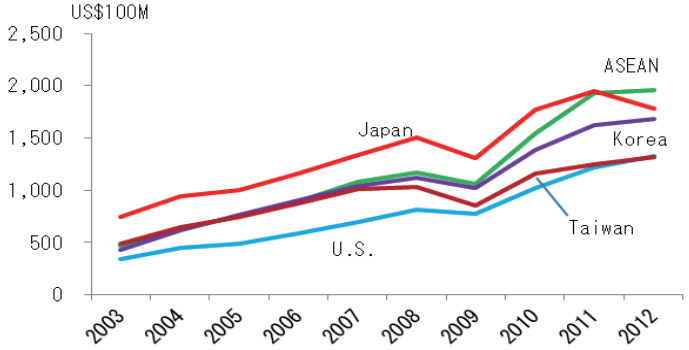
3.2. China's import partners

After a temporary dip in 2009, China's imports have been steadily increasing overall. Four points merit attention here: (1) Japan was replaced by the EU as China's largest import partner in 2010 (not shown in Figure 1-6); (2) imports from ASEAN grew rapidly, and ASEAN became China's second largest import partner after the EU in 2012; (3) imports from Japan decreased year-on-year in 2012, when imports from other regions continued to increase; and (4) imports from Korea are greater than those from the U.S., putting Korea in the position of being China's fourth largest import partner.

Reason dictates that, in addition to slowing down of the Chinese economy and changes in exchange rates, some special factor must have affected imports from Japan. And, it is most natural to assume that this was the icy political relationship between the two countries. A closer look at the by-item trade data compiled by the United Nations Conference on Trade and Development (UNCTAD) reveals that, among all of the items imported from Japan to China, automobiles and special machinery suffered the greatest fall in 2012. It is highly likely that Japanese companies sent these items for production in China. If this is the case, the decline in China's imports from Japan may be attributable to a change on the part of Japanese companies in the selection of overseas business locations.

In terms of statistics, the decline in China's imports from Japan has been made up for by imports from ASEAN, Korea, and Taiwan. Nonetheless, Japan remains the largest import partner country for China. In order to improve political relations between the two countries, Japan needs to make continued efforts to provide producers and consumers in China with the tradable goods necessary to compete with the EU.

Figure 1-6 China's import partners



Source: CIEC China Customs Statistics

4. Economic relations between Japan and Vietnam

Now, let us take a look at Japan's trade relations with Vietnam, an ASEAN member that is attracting growing interest in Japan. As shown in Figure 1-7, exports from Vietnam began growing rapidly from 2010. Its largest export partners are the EU and the U.S., followed by other ASEAN countries. Its exports to Japan, too, are on the rise, making Japan Vietnam's second largest export partner country alongside China.

China is Vietnam's largest import partner, followed by ASEAN, Korea, Japan, and Taiwan in that order. This trade structure for Vietnam is derived from its government's export-led economic development policy. Their strategy is to invite foreign manufacturers to set up production bases there and then export their products to high-income developed countries. At any rate, the Vietnamese economy is strongly connected with other ASEAN countries both in terms of exports and imports. It is clear that the country is an integral part of the supply chains and economic relations within the ASEAN region.

Figure 1-7 Vietnam's export partners

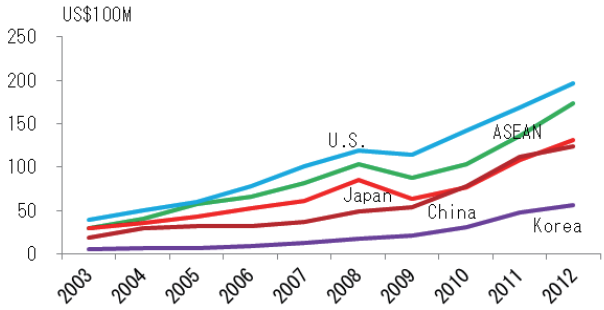
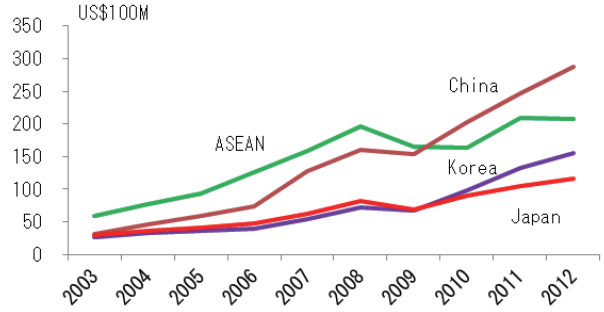


Figure 1-8 Vietnam's import partners



Source: General Statistics Office of Vietnam (1-7 and 1-8)

5. Japan's stance towards the TPP negotiations

Following the official announcement by Prime Minister Abe on March 15, 2013, Japan made its debut as an official member of the TPP negotiations on July 23, which were held in Kota Kinabalu, in Malaysia.

Since no country opposes the doctrine of free trade on general principle, it was only natural that Japan should take part in the TPP negotiations. International negotiations for liberalization of trade and investment require numerous politico-economic and administrative procedures. For example, it is necessary to determine what common ground to search for among various countries, what kind of treaties the agreements should develop into, what domestic political procedures should be followed to ratify such treaties, and what domestic measures are necessary to apply those treaties effectively.

In many cases, however, the development of systems and international frameworks lags behind reality. As the observations of interregional trade relations earlier in this section revealed, countries in the Asia Pacific region are becoming more mutually dependent. In fact, the existence of more than one scheme for economic cooperation in Asia − a very rare situation − is attributable to such relations. What should be noted here is that Japan maintains the very unique position of being involved in almost all of these schemes.

If Japan should, without dwelling on national interests in a narrow sense, decide to take advantage of its unique position to create the TPP anew in a way that is accessible to other Asian countries as well, Japan could make no small contribution to the international trade policies of the 21st century. If Japan succeeds in injecting greater sophistication into the TPP while taking into account the fact that the U.S. is not monolithic in its trade policies and that Asian countries aspire to maintain the Asian Way, then China may eventually wish to participate in the TPP as well. Japan should proactively demonstrate its leadership in building the TPP framework, as success in such an attempt will help Japan to not only coordinate the interests of various individual groups within the country, but also improve its international reputation.

6. Proposal for a Permanent TPP Office

As a latecomer to the TPP negotiations, Japan needs to prepare a positive list that shows the positive contributions that it can make to advance the negotiations overall, in addition to developing a negative list of items that it must protect. Even though the first-round negotiations may reach some form of agreement, this will not mean that all of the practical issues have been resolved. So long as the TPP's core ideology is to liberalize trade and investment in the Asia Pacific region, there remain economic and

diplomatic issues that will continue to occur one after another. To address such imperatives, it is necessary for a permanent office to be established.

There are many examples of permanent offices for economic negotiations: in addition to branches of the U.N., such as the International Labour Organization (ILO) and the International Telecommunication Union (ITU), the WTO has such an office in Geneva, the Organisation for Economic Co-operation and Development (OECD) has one in Paris, ASEAN's permanent office is in Jakarta, and the APEC has one in Singapore. These branches and offices are testimonials to the essential roles of such permanent bodies, where member countries send their ambassadors to conduct regular summit and ministerial-level meetings, working-level negotiations, and research. If such an office for the TPP should be established somewhere, it would be difficult not to consider doing so in Japan, which is at the center of the Asia Pacific region.

It is thus thought to be extremely important that Japan express its readiness to host a permanent TPP office, as this will also serve to clarify Japan's commitment to the TPP. And, if Japan should invite a new international organization, it would be desirable to locate it in a place that is free from the constraints of vested rights and partisan politics. While searching for the optimal location in terms of cosmopolitanism of the community, convenience of international access, availability of necessary infrastructures and capable human resources, responsiveness to natural disasters, and access to academic support from nearby research institutions, it is expected that the Japanese delegation will make clear its intention to host a permanent office in the course of the TPP negotiations.

Part II

China and Southeast Asia: Overseas Expansion and Risk

Chapter 2 Supply Chains in Asia: Problems Revealed by the 2011 Thailand Floods

The characteristics of the export structures of East Asian countries are such that they have comparative advantage in electronics, IT, chemicals and transportation and specialize in parts and components trade within the region and that they export final goods outside the region. These characteristics emerged since Japanese companies started to locate their production bases in East Asian countries by expanding their FDI in order to cope with strong yen after the Plaza Accord in 1985. Japan has contributed substantially to the development of international supply chains in East Asia. Expanded trade within the region and increased exports to the major markets of the world meant that Southeast Asia effectively became the factory of the world.

China's exports to NAFTA have expanded in scale to exceed the EU's exports to NAFTA. If we include other East Asian countries, East Asia's share of the NAFTA market is much larger than that of the EU. To meet the large demand of NAFTA, East Asia must import parts and components from the region to produce final goods; this is one of the reasons why the region's intra-regional parts and components trade has grown substantially[1]. Until 1980 the share of primary products in East Asia's exports was large but it fell substantially in the 1980s. As East Asian countries started to employ export oriented industrialization policies, their export items gradually shifted from primary products to industrial products, and within industrial products, the share of parts and components have been increasing, while the share of final products has been relatively constant.

In East Asia there exists a spectrum of countries from cheap labor abundant countries to technologically advanced countries. Such characteristics have been changing as each country in the region has undergone rapid growth. This fact makes East Asia very dynamic, and a focus of world attention. Multinational companies, including many Japanese companies, have tried to take advantage of these characteristics to locate their factories in a wide range of areas within East Asia. This was also made possible by changes in the production process. Modern modular production contributed to this trend in the manufacturing process. A labor intensive production process can be employed in countries where cheap labor is abundant, while technology intensive production is moved to countries where technology is more advanced. To expand such production

[1] METI *International Trade White Paper 2012*

networks – also known as supply chains – low-cost connectivity is one important requirement. Policies which attract export-oriented FDI – for example allowing the tariff-free importation of parts and components – are another factor that has encouraged production network expansion. Thus, an international division of labor has dynamically developed.

Parts and components trade constituted 17.2% of NAFTA-NAFTA trade, and 16.2% of EU-EU trade, while the corresponding statistic was 32.5% in East Asia-East Asia trade in 2011. East Asia as a whole became the world's largest single factory, where parts and components are heavily traded within the region, and the end products, i.e. final products, are exported to NAFTA and the EU.

1. Supply chain development in East Asia: from the views of FDI firms

The 1985 Plaza Accord caused the yen to appreciate by almost 100 percent against the dollar within a relatively short period. Japanese export-based manufacturing companies intensified their FDI activities particularly in East Asia from this year onward. Japan had accumulated balance of payments surpluses for a long time and U.S. trade deficits with Japan reached a limit; the Plaza Accord was in a way the last resort to reverse these trends. Within a year or so the yen exchange rate appreciated to around 120 yen/dollar from 240 yen/dollar. Naturally a substantial number of manufacturing companies increased their FDI. Many parent companies began expanding abroad, together with their affiliates and subsidiaries. We will explore this fact below using statistics from a number of Japanese firms abroad.

At the end of 2011 Japanese firms abroad numbered 19,250 in the world, out of which manufacturing firms numbered 8,684. The number of Japanese firms in East Asia was 11,227 in total, with 5,911 of these being manufacturing firms. East Asia has a 58% share of global industries as a whole, and 68% of manufacturing industries[2]

Table 2-1 Number of Firms Abroad

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
North America	2,663	2,630	2,743	2,825	2,830	2,826	2,865	2,872	2,860	2,860
Asia	7,009	7,496	8,464	9,174	9,671	9,967	10,712	11,217	11,497	12,089
Europe	2,246	2,332	2,368	2,384	2,405	2,423	2,513	2,522	2,536	2,614
Total	13,322	13,875	14,996	15,850	16,370	16,732	17,658	18,201	18,599	19,250

Source: METI *Kaigai Jigyo Katsudo Kihon Chosa Hokoku 2012 (Basic Survey of Japanese Companies' Overseas Business Activities 2012)*

[2] METI *Kaigai Jigyo Katsudo Kihon Chosa Hokoku 2012 (Basic Survey of Japanese Companies' Overseas Business Activities 2012)*

1.1. Final Goods or Parts and Components

Table 2-2 reports the types of products that Japanese FDI firms produce, i.e., final goods or parts and components. In terms of manufacturing in Asia, the share of final products is 32.3% and that of parts and components 67.7%. Compared with FDI firms in North America and Europe the share of parts and components is respectively 4% points and 11.7% points higher. These figures are based on questionnaire results. We will try to confirm these figures by examining trade data. The share of parts and components is high in the cases of ICT, chemicals, electric machinery, and general machinery. The opposite is true for textiles. The share of final goods was 57.9% in Asia, 28.6% in North America and 20% in the EU.

Table 2-2 Shares of Final Goods vs Parts and Components

	North America					Asia					EU				
	Number of Firms	Final Goods		P&C		Number of Firms	Final Goods		P&C		Number of Firms	Final Goods		P&C	
		Respondent	Share	Respondent	Share		Respondent	Share	Respondent	Share		Respondent	Share	Respondent	Share
Manufacturing	951	346	36.4	605	63.6	5,993	1,938	32.3	4,055	67.7	643	283	44.0	360	56.0
Transportation	287	31	10.8	256	89.2	1,058	133	12.6	925	87.4	140	17	12.1	123	87.9
ICT	70	22	31.4	48	68.6	756	127	16.8	629	83.2	85	32	37.6	53	62.4
Chemicals	137	50	36.5	87	63.5	678	165	24.3	513	75.7	118	60	50.8	58	49.2
Electronics	46	33	71.7	13	28.3	416	195	46.9	221	53.1	38	27	71.1	11	28.9
Machinery	73	50	68.5	23	31.5	393	212	53.9	181	46.1	45	34	75.6	11	24.4
Textile	14	4	28.6	10	71.4	337	1,958	581.0	142	42.1	15	3	20.0	12	80.0
Others	324	156	48.1	168	51.9	2,355	911	38.7	1,444	61.3	202	202	100.0	92	45.5

Source: METI *Kaigai Jigyo Katsudo Kihon Chosa Hokoku 2012 (Basic Survey of Japanese Companies' Overseas Business Activities 2012)*

1.2. International Strategy: Perspectives

Where do Japanese firms plan to expand their activities by setting up new companies abroad or joint ventures five years from now? According to the same survey, the regions in which they planned to invest were as follows: Asia 80.1%, North America 9.5%, and Europe 8.4%. If we take only large companies, the ratio is even more inclined towards Asia: 98.4% of large companies plan investments in Asia, 11.2% in North America, and 10.4% in Europe[3]. For small and medium-sized enterprises, 45.2% of firms plan to expand their business in Asia, while 6.1% plan to invest in North America and 3.2% in Europe. On the other hand, those who responded that they were planning to shrink their

[3] The numbers do not sum up to 100% because multiple choices are allowed.

business abroad were very few in number. In fact, only 2.3% of firms responded so with regard to Asia, 1.0% in regard to North America, and 1.4% in regard to Europe. This implies that more and more firms will set up their business in Asia.

Another interesting question is whether Electric Manufacturing Services (EMS) is the preferred option. The affirmative response shares were 20.5% for Asia, 2.2% for North America, and 1.4% for Europe. For large firms in particular the share is as large as about 60%.

As has been described, East Asia is very important for Japanese manufacturing firms, and for the past 30 years strong linkages have been created in terms of production, sales, and purchases in East Asia.

2. Supply chains seen through trade statistics: Thailand and Vietnam

We will first examine the ten most important trade items at the HS 2 digit level using the UNCOMTRADE database. The following table shows the case of Vietnam. The most important single category is electric machinery (HS85) for both exports and imports, the share of which is a little more than 13%. Light industries also have substantial shares; apparel (HS62), footwear (HS64), and coffee (HS09) are also among the top 10 export items. In the case of Thailand, HS84 and HS85 shares are 15.0% and 13.3% for exports respectively, and for imports 12.4% and 15.4% respectively. Thailand has a larger share in manufacturing trade. General machinery and transport machinery also have large shares. In fact the export share of HS87 is 7.9% and the import share 3.8%.

To see the production network or supply chains clearly, the HS two digit is still a rough measure, and we need to examine at least the HS six digit classification level. The following table lists the top 10 trade items at the HS six digit level. Many of Vietnam's imports are parts and components, such as integrated circuits (IC). The largest single export item is telephone devices (HS851712). Another manufacturing item in the top 10 lists is footwear (HS640399). In the case of Thailand, imports include many parts and components. For exports, hard disk drives (HDD) rank number one and many parts and components show high ranks. pickup trucks (HS870421) are noteworthy. For these items we will explore where Vietnam and Thailand import from and export to.

Table 2-3 Main Traded Commodities: Vietnam and Thailand

Ranking	HS Classification	Description	US$million	Share
<Top10 items at HS 2 digit: manufactured goods>				
Vietnam: Imports				
1	85	electric machinery	1,439	13.5%
2	84	general machinery	1,321	12.4%
6	52	cotton goods	273	2.6%
7	87	transport machinery	244	2.3%
Vietnam: Exports				
1	85	electric machinery	1,285	13.3%
3	62	apparel	691	7.1%
4	64	footwear	672	6.9%
5	61	apparel (excluding HS62)	591	6.1%
7	84	general machinery	417	4.3%
8	40	rubber goods	395	4.1%
Thailand: Imports				
2	85	electric machinery	3,514	15.4%
3	84	general machinery	2,836	12.4%
6	87	transport machinery	865	3.8%
10	90	optical goods	473	2.1%
Thailand: Exports				
1	84	general machinery	3,441	15.0%
2	85	electric machinery	3,047	13.3%
3	40	rubber goods	2,205	9.6%
4	87	transport machinery	1,816	7.9%
<Top10 items at HS 6 digit: manufactured goods>				
Vietnam: Imports				
3	854239	electronic integrated circuits (others)	255	2.4%
5	851770	telephony components	176	1.6%
Vietnam: Exports				
2	851712	telephone devices	570	5.9%
6	640399	footwear	213	2.2%
Thailand: Imports				
3	854290	electronic integrated circuits	385	1.7%
4	847330	parts of data-processing machines	356	1.6%
5	854231	electronic integrated circuits	319	1.4%
7	854239	electronic integrated circuits (others)	284	1.2%
10	852990	parts for TV, video	203	0.9%
Thailand: Exports				
1	847170	hard disk drives	1,044	4.6%
6	870421	pickup trucks	447	2.0%
9	847330	parts of data-processing machines	387	1.7%
10	854231	electronic integrated circuits	310	1.4%

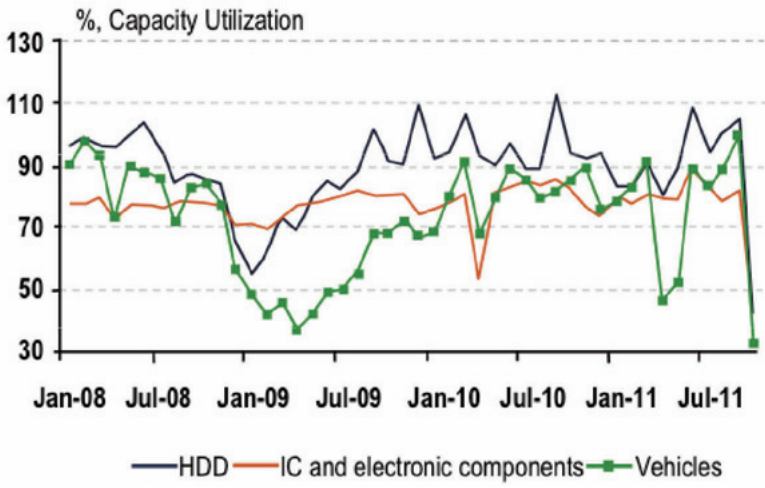
Source: UNCOMTRADE database

In autumn 2011, much of Thailand was inundated by heavy flooding, on a scale that occurs only once every 70 or so years. Figure 2-1 shows how much damage was caused by the Thai floods[4]. Measured in terms of the manufacturing production index,

[4] For further details of these floods and the policy response, see the Special Topic "Natural Disasters in Asia: The Case of the 2011 Thailand Floods", on p. 103.

manufacturing dropped from 190 to 110. This needs to be compared with the impact of the Lehman shock, when the index dropped from 170 to 140. Substantial falls were observed in HDDs, IC and electronics parts and components, and automobiles, where 30% falls were seen toward the end of 2011 (Figure 2-5). Seven industrial zones adjacent to the Chaopraya River were flooded completely for three months.

Figure 2-1 Sectors Most Severely Affected by the Thai Floods



Source: The Office of Industrial Economics

The impact of the floods was not only limited to Thailand, but were felt around the world. Flooding penetrated seven industrial zones, such as Rojana, High Tech, and Nawanakorn. Many automobile manufacturers, parts makers, electric and electronic machinery manufacturers are located in these zones. Among them, 450 companies – more than half of the total - are Japanese affiliates.

As would be expected, factory sites were severely damaged at the seven flooded industrial zones. What is important to note is the fact that many other companies throughout the world were also affected by the Thai flooding. This proves that Thailand is an industrial hub and a very important base for the global supply chain. Hard disk production in Thailand now supplies 30 to 40 percent of the world market. PCs and HDDs were in short supply for three to nine months after the flooding, and prices increased at the same time. Thailand is now a leading production site for digital cameras, and camera production was also affected. Sony, for example, was forced to delay the launch of new camera models.

The seven industrial estates host companies producing electric and electronic machinery, rubber, steel, metal, general machinery, automobile parts, food, and plastics. Some industrial zones have very high Japanese firm ratios, such as Sahara Thanakon (97%) and Rojana (80%). In total 955 firms were flooded and 380,000 workers were affected, around half of them in Japanese-affiliate firms.

The manufacturing production index and factory operating ratio are two statistics which reveal the direct impacts of the flooding, but it is also essential to measure the indirect impacts of this natural disaster on the rest of the world. As noted, Thailand is deeply integrated into the global supply chain. Thailand's major export items include hard disks, pickup trucks, hard disk parts, ICs, automobiles, air conditioners, digital cameras and parts. All these products are produced in these flood-affected industrial zones.

Our analysis is based upon bilateral trade flows in detailed commodity classification. Monthly data were taken from the UNCOMTRADE database at the HS six digit level. We focus on three important export items here: hard disk drives, digital cameras, and one-ton pickup trucks. Close examination of these significant products offers valuable insights into the structure and weaknesses of the supply chains involved.

2.1. Hard Disk Drives (HDD)

Thailand is ranked the 2nd largest producer of HDDs in the world; it accounts for about a quarter of global output. Thailand's HDD exports were seriously impacted during the flooding period (Sept to Nov 2011) and bounced back strongly in the following year, as evidenced in Figure 2-1.

China, the USA, Hong Kong, the Netherlands, and Japan are the major export destinations for Thailand's HDDs. The floods halted HDD production in Thailand and the immediate impact was a drop in exports to China, from US$350 million to US$300m. The recovery took until February 2012. Exports to the USA recovered one month earlier, and by March 2012 the export value had doubled. Figures for Hong Kong showed a similar recovery pattern to that of the USA. Thus, overall, export values dropped initially and bounced back during the recovery process, but in an uneven manner.

Thailand imports HDD parts mostly from China, followed by Malaysia. As HDD production and exports recovered, imports of HDD parts and components increased. Larger imports were recorded for 3-4 months, before tapering back to the pre-flood level. Interestingly, parts imports from the USA did not show recovery to the pre-flood level, while parts imports from Singapore increased substantially with a lag. Here again we can observe that the Thai floods induced uneven changes of exports and imports by destination.

Figure 2-2 Thailand's Exports of Storage Devices

right bar: World

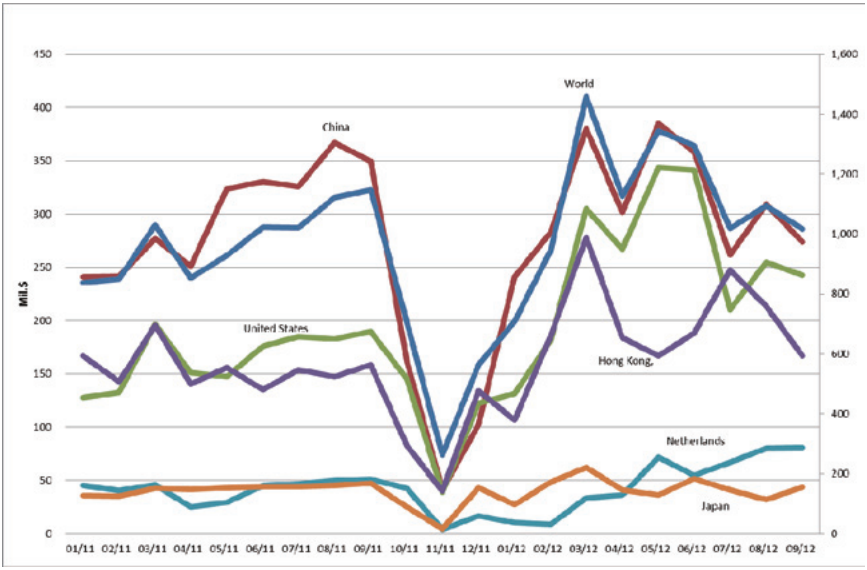
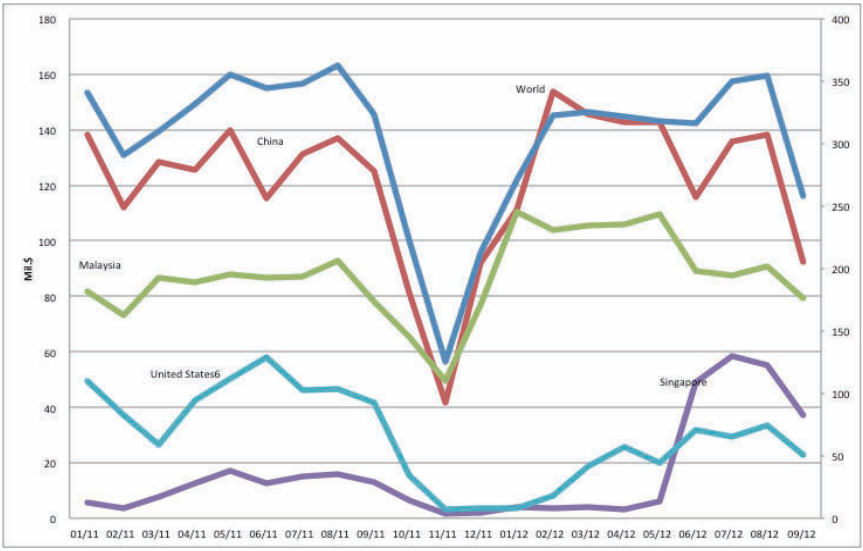


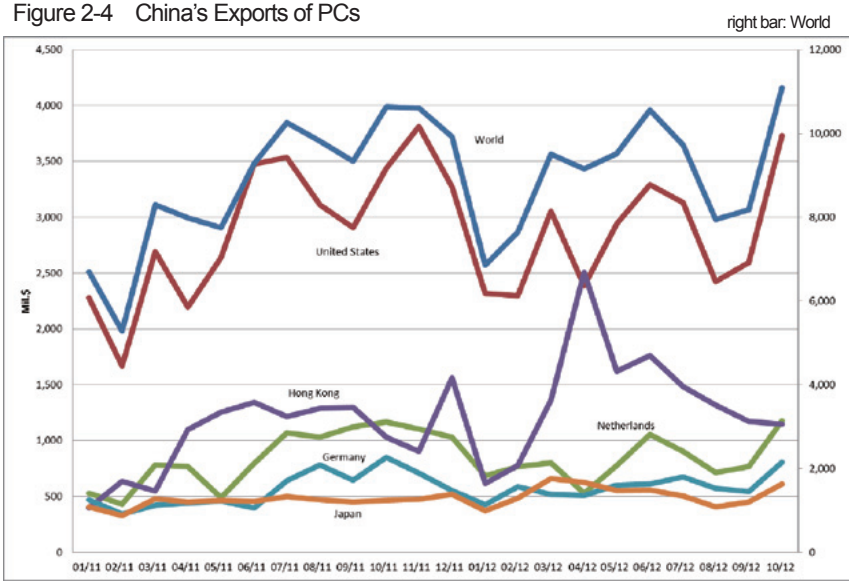
Figure 2-3 Thailand's Imports of HDD Parts and Components

right bar: World



China is the largest export destination for Thailand's HDDs. China uses imported HDDs to assemble PCs. As Figure 2-3 shows, China's PC exports fell after the Thai floods. In order to keep PC production going, China imported more from Malaysia to compensate. The USA, Hong Kong, the Netherlands, and Japan are China's PC export destinations, with the USA by far the largest of these. Despite the stoppage of HDD exports from Thailand, China had restarted its PC exports to the world again by early 2012, as illustrated in Figure 2-4.

Figure 2-4 China's Exports of PCs



2.2. Digital Cameras

A similar pattern can also be seen in the analysis of Digital Cameras and Camera Lenses, shown in Figures 2-5, 2-6 and 2-7. Digital camera production, with an annual global market value of about US$30bn in 2011, reveals another intriguing story. The drop was largest in digital camera exports, which fell almost to zero. Thailand's main export destinations are the Netherlands, the USA, China, and Japan. The drop to all these destinations was abrupt, and yet recovery was also fast, reaching the pre-flood level in half a year.

Thailand imports digital camera parts from Japan and China. These parts imports were affected, but not to the level of digital camera exports. In November 2011 digital camera exports dropped to zero. The recovery took half a year. The export destination

rankings did not change before and after the floods. For parts other than lenses, there was not much difference in the recovery process for China and Japan; however, Taiwan took a longer time to recover, until July 2012. Lenses show an interesting trend. Prior to the flooding lenses were imported from Vietnam, China, the USA, and the Philippines in that order. The level of imports from the Philippines was substantially lower than that of the USA. After the flooding, however, imports from the Philippines increased to a level even higher than that of China. Vietnam, China, the USA, and the Philippines all contributed about the same. As this digital camera market case shows, the flooding has markedly changed the lens import market.

Figure 2-5 Exports of Digital Cameras from Thailand

right bar: World

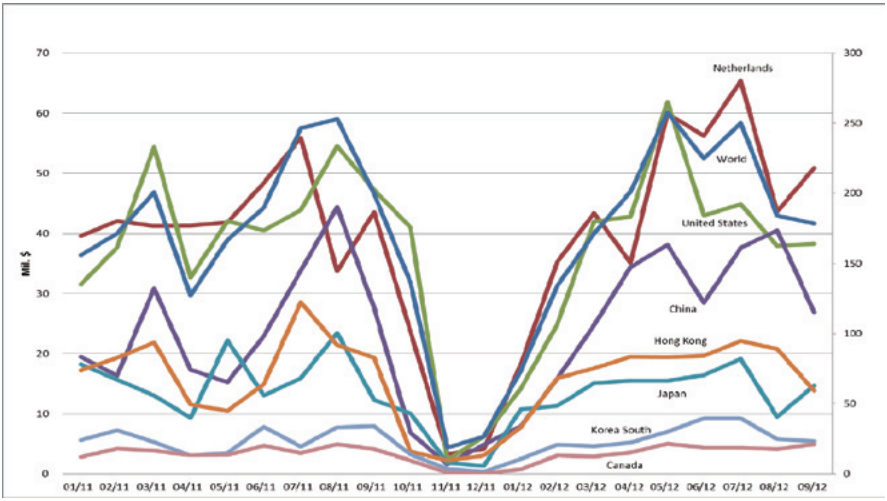


Figure 2-6 Thailand's Imports of Digital Camera Parts and Components

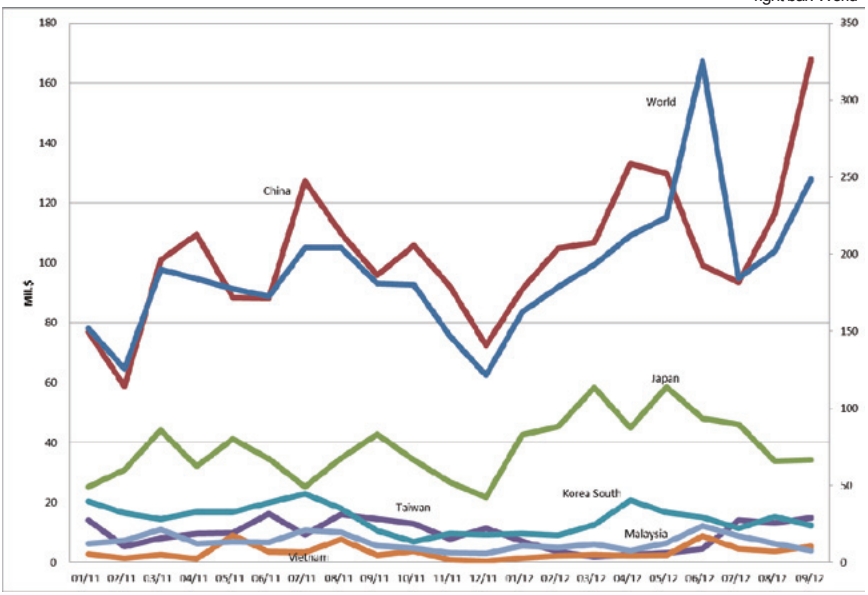
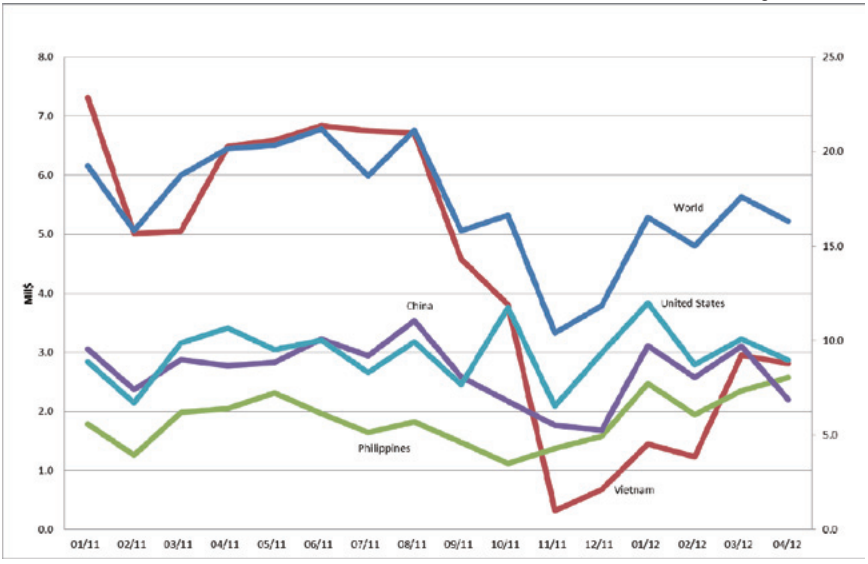


Figure 2-7 Thailand's Imports of Camera Lenses



2.3. Automobile Industry (Pickup Trucks)

Thailand's overall vehicle output fell to 1.4 million units in 2011, compared to 1.6 million units in the previous year. Half of the units and components produced are for export, especially to Japan and Japanese companies' subsidiaries, as Japan maintains a strong presence in Thailand. Considering the scale of the floods, it is surprising to find that only two out of thirteen auto plants in Thailand were directly impacted.

One of these was Honda, which had its large operation in Nikom Rojna Industrial Estate left inaccessible. Several small OEM auto parts suppliers were also badly hit. The global reach of the Thai floods was evident when it caused Honda to cut output at all six plants in the USA and Canada. Furthermore, Toyota reported that it was able to find second and third sources for many electronics parts to fill the gap even though Thailand is Toyota's main production hub in SE Asia. The General Motors assembly lines in Rayong, on the other hand, hundreds of kilometres away from the submerged area, were severely impacted due to parts, goods, and services bottlenecks.

In addition to passenger cars, Thailand is also well known as a major supplier of one-ton pickup trucks. Production of these was also affected by the floods. The largest export market for Thai trucks is Australia. We observed a huge drop in exports following the Thai floods. However the recovery was fast and the pre-flood level was reached in March 2012, i.e. within four months. Other export markets, including Chile, Malaysia, and Russia, also experienced a sudden drop and quick recovery (Figure 2-8).

Japan was affected by these floods in terms of engine exports, as shown in Figure 2-9. The largest drop was in December, rather than November, and it took quite a while to recover to the pre-flood level. It is interesting to observe that Japan also experienced a drop in its engine exports in December, and it took four months for exports to the USA, China, the UK, and Brazil to recover to the pre-flood level. This is because Thailand is already a major parts and components supplier in the world market. The end result was to affect automobile exports at the global level.

Figure 2-8 Thailand's Exports of One Ton Trucks

right bar: World

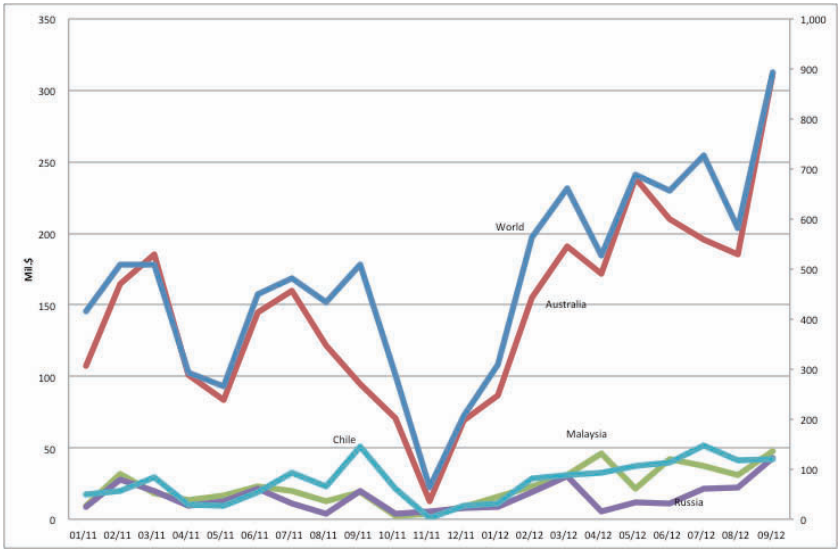


Figure 2-9 Japan's Exports of Automobile Engines

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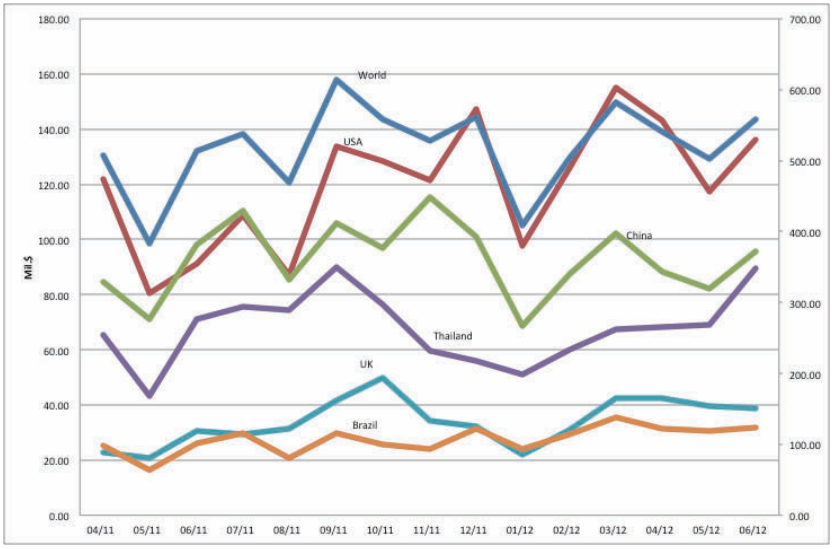

3. Kansai business and the Thailand floods

We visited a number of Japanese factories in the flood-affected industrial zones, and undertook detailed interviews with factory officials. These interviews produced the following findings.

Companies consider insurance to be the most important factor in order to hedge this type of risk. For their own protection, managers started to reconstruct their factories to become two story operations, and placed the most important machinery on the second floor. Construction of a six meter high dyke wall was begun around the industrial zones, to protect from future floods. Roads around the area are to be elevated. Japanese firms started to prepare and collect a database for second- and third-tier suppliers because at the time of the floods, firms only had information on the first-level suppliers, and not of the second- and third -tier suppliers. Since at the emergency more inventories help continue production, firms have begun to reconsider the appropriate level of inventories. Some are considering relocating their factories to other industrial zones. These are the specific issues that they now consider most important.

The focus of our fieldwork was to establish the degree to which Kansai-based companies were affected by the Thai floods. We consider companies to be 'Kansai-based' if their head offices are located in the Kansai region. We counted such companies in the affected industrial zones. As the following table shows, Kansai-based companies' share of output is about 20%. Considering the economic output share of Kansai is about 20% of the total in Japan, the involvement of Kansai-based companies in the supply chain is broadly proportional to Kansai's domestic GDP share.

Table 2-4 Share of Kansai Based Companies in the Thai Floods Affected Zones

Name of Industrial Zone	No. Companies Listed	Japanese Affiliates	Share	Kansai HQ Companies	Share	HQ and/or Member of Kankeiren	Share
Bangkadi Industrial Park	32	28	88%	5	17.9%	6	21.4%
Bangpa-In Industrial Estate	57	21	37%	5	23.8%	6	28.6%
Factory Land Industry Zone	12	3	25%	2	66.7%	0	66.7%
Hi-Tech Industrial Estate	90	62	69%	6	9.7%	7	11.3%
Navanakorn Industrial Zone	161	82	51%	13	15.9%	26	31.7%
Rojana Industrial Park	148	111	75%	19	17.1%	21	18.9%
Saha Rattana Nakorn Industrial	40	31	78%	3	9.7%	4	12.9%
Total	540	338	63%	53	15.7%	70	20.7%

4. Conclusion

In light of the data analyzed here, businesses need to rethink some very basic aspects of their international supply-chain operations. Modern manufacturing is enabled by modern technology, low-cost transportation, and low tariffs. Module production makes it possible to situate the various discrete processes needed to make a product in different locations. Labor-intensive processes are located in countries that are labor-abundant and have low wages. The completed modules are brought together at a final assembly site. This supply chain production is very efficient and substantially lowers the prices of final products. However, we should realize that seeking 'too much' efficiency often leads to the negligence of considerations of safety and reliability. In Thailand – as had also been the case during the 2011 triple disaster in Japan's Tohoku region – core parts production was concentrated in one area, and factories did not store sufficient surplus parts to use in case of disruptions to the supply chains. The result was that the natural disasters which occurred in 2011 severely impacted manufacturing and supplies, not only in the directly-affected areas but also in unaffected areas of Thailand, in Japan, and worldwide.

The solution to this problem extends from the old saying, 'don't put all your eggs in one basket.' In fact, some Japanese multinational manufacturers have already initiated a revised industrial strategy to separate core suppliers into two or more locations, although this does mean having redundant suppliers. Alternatively, maintaining stocks of inventory, although more costly, can help ensure that operations are not disrupted by the sorts of disasters which occur with a higher frequency in Asia.

Chapter 3 The Overseas Expansion of Restaurant Chains into Asia

1. Operation systems of restaurant chains

By the end of 2009 there were at least 361 confirmed cases of Japanese restaurant chains setting up operations overseas, with the prominent destination being Asia, which accounted for 72 %. The food services market in Japan, having peaked in 1997 at approximately 29.7 trillion yen, has been steadily declining and had diminished by 6 trillion yen to approximately 23.5 trillion yen by 2011[1]. Meanwhile, in the emerging markets, including the markets of Asia, the food services market has been burgeoning. For example, in 2011, China's food services-related market increased by 16.9% from the previous year to 2.54 trillion yuan (approximately US$415 billion), and has already surpassed Japan in terms of market size. Additionally, the number of Japanese restaurants has been rising in Thailand and Singapore reflecting the recent growing interest in Japanese food[2].

Nevertheless, even working within a market characterized by widespread acceptance of Japanese food, it would be impossible to establish a system of restaurant chains that assumes multi-store operations simply on the strength of the country's food culture and other elements of the market environment. In this sense, it would be worthwhile to conduct an analysis from the perspective of chain management.

This perspective of chain management specifically refers to the following two perspectives. The first perspective has to do with the perspective of how the chain intends to build an "international franchise system," which is a prerequisite for any restaurant chain setting up operations overseas. The second perspective is the perspective of how the chain intends to build an "operation system" to expand its local chain once it has set up operations overseas. Operation systems refer to the system of procurement, processing and distribution of foodstuffs, store-opening systems, human resources development systems and other systems that underlie the process of generating profit through the operation of the restaurant chain.

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1 Estimates by the Foodservice Industry Research Institute

2 There are approximately 1,600 Japanese restaurants in Thailand, and it is said that the number has more than doubled in the past five years. (Mainichi Shimbun dated September 3, 2012)

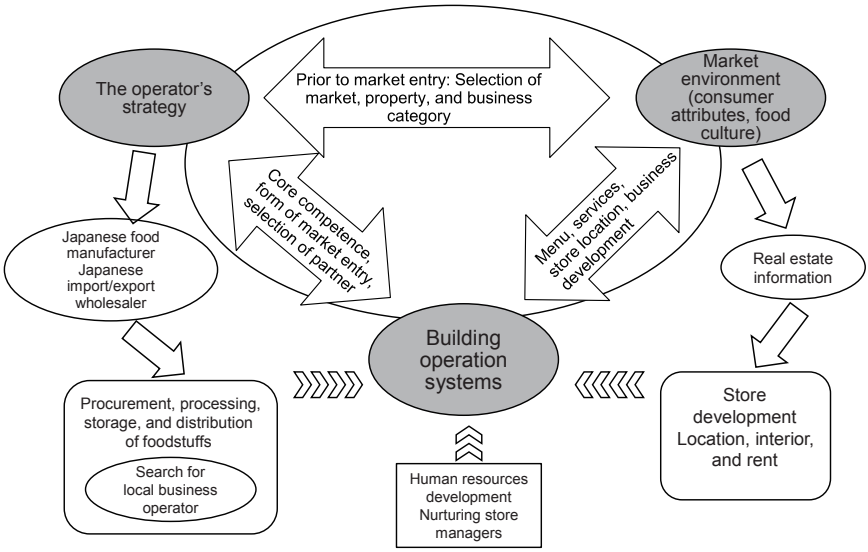
2. Analytical framework of the overseas expansion of the restaurant industry

Conventional analysis of overseas expansion of restaurant operators tended to focus on the two factors of (A) management's willingness and strategic intent toward overseas expansion, and (B) market environment, i.e. increasing income and increasing popularity of Japanese cuisine in the market in which the enterprise was to enter, and to a certain extent the cultural and other attributes of the market environment.

However, it is believed that the key to a restaurant chain's successful overseas expansion hinges on whether the chain is capable of setting up operation systems that will enable local multi-store operations. For example, even if the chain were to attempt the same menu as its menu in Japan, unless it can figure out where and how it can procure similar foodstuffs on a regular basis, where to store them, where to process and cook them, and where and how it can deliver them to each store – in other words, set up an appropriate system – it will not be able to offer such a menu. Additionally, in order for a chain to grow through multi-store operations, it will need a system where it can promptly search for, secure, and develop suitable property. Furthermore, a system for training human resources to maintain, operate and manage the growing number of stores will also become indispensable. These factors were rarely considered under the conventional framework.

From the above, we may conclude that the framework for considering the dynamics of overseas expansion by restaurant chains will require analyses of (A) the operator's strategy, (B) the attributes of the local market, and (C) the establishment of operation systems. In other words, progressive globalization of restaurant chains may be thought to be the outcome of the interaction of these three factors, as illustrated in Figure 3-1. This is what is meant by the dynamics of globalization of the restaurant industry. Therefore, going forward we will need to deliberate the attributes and issues relating to the globalization behavior of individual restaurant chains using a basic framework based on the interaction of these three elements.

Figure 3-1 Framework for the Analysis of Globalization of the Restaurant Industry



2.1. The operator's strategy

Although the operator's strategy includes strategies both before and after market entry, the strategy at the time of market entry becomes an important factor under this framework. In specific terms, strategy refers to the process of first determining the company's core competence (the company's menu, services and expertise that holds a competitive advantage), the selection of the potential market, the selection of the form of market entry (full ownership, joint venture, or FC), the selection of a local partner, the selection of investment/funding methods, the selection of business category and store format, the selection of the site for the first store, the selection of the menu and pricing. These decisions are usually made in Japan by the head office prior to market entry. However, as these decisions could materially impact performance after market entry, it would probably be worthwhile to study this decision-making process. In many cases a restaurant chain will elect to set up overseas operations through an international franchising agreement with a local partner. Generally, such local partners have been understood as agents that execute the strategies dictated by Japanese headquarters locally. However, a recent study has shown that local partners play a vital role in setting up the local operation systems (by offering know-how not available on the Japanese side) and in many cases their presence may impact the cornerstone of the dynamics of

globalization, as shown in Figure 3-1. Therefore, studying the perspective with which a restaurant operator selects its local partner and the terms and conditions under which it subsequently executes a contract with the local partner becomes increasingly important.

2.2. Market environment attributes

As emphasized in conventional studies, the impact of the attributes relating to food culture of the local market on the globalization of restaurant chains is by no means small. In fact, even within the same restaurant chain, popular menus will vary significantly by market, and there are cases where a restaurant chain's market may be limited by its menu or type of business. Nevertheless, menus and tastes are readily changed in order to adapt to local food culture, and in fact, there are numerous restaurant chains that offer menus and tastes that are unique to their host countries.

In this way, each company has been dealing flexibly with the market environment attributes (food culture) overseas, and the impact of food culture has not been a deciding factor on the success of market entry. Rather, the operation systems, described below, have had greater impact on the success or failure of an entity's entry into an overseas market.

2.3. Local operation system

The local operation system is one of the most important factors in this basic framework (Figure 3-1). The local operation system is made up of three subsystems, i.e. the subsystems of (1) foodstuff procurement, processing and distribution, (2) store development and (3) human resources development.

2.3.1. The system of foodstuff procurement, processing and distribution

Being able to steadily offer the same menu of the same quality at all its stores is fundamental to restaurant chains. Consequently, the major issue facing restaurant chains will be how to go about setting up a system for the steady procurement, hygienic processing and storage, and efficient distribution of foodstuffs to each store – in other words, the establishment of a supply chain.

As far as the procurement of foodstuffs is concerned, outside operators from the region such as the food producers (agricultural-, livestock- and fishery-related operators) and food wholesalers (importers and exporters) will hold the key. However, restaurant chains using special seasonings and other foodstuffs that are considered trade secrets will often import them directly from headquarters in Japan.

Food processing refers to the pre-processing of foodstuffs conducted prior to delivery to each store including food prepping, i.e. washing, cutting and defrosting, as well as

stewing and broiling. In developing countries, it is extremely difficult to secure a location where these processes can be conducted hygienically and efficiently. Consequently, it will become necessary to consider the extent to which the processes need to be conducted in a central kitchen and which processes need to be conducted by each store from a different perspective than that of Japan. Additionally, building a distribution system for efficiently and steadily delivering the processed foodstuffs to each store in countries in which logistic infrastructure is lacking becomes another major challenge for businesses considering operating chains.

2.3.2. Store development systems

A store development system is the most basic element of a multi-store operation system. Among them, the store's location will not only affect the store's ability to attract customers but will also be integrally connected to the local brand-building of the chain. Additionally, fluctuating rent after the store opening is another major factor that will affect profitability.

Furthermore, in the store development of restaurant chains, store design (interior) and store layout are equally as important as the location. For example, Yoshinoya, which operates beef bowl chains overseas, first installed their counters in the middle of the store, similar to the stores in Japan, but due to unfavorable reviews from customers and the inability to attract customers, changed them to walk-up and order counters[3] similar to McDonald's and was able to pull in more customers.

2.3.3. Human resources development systems

One of the competitive advantages Japanese restaurant chains have over other chains is their superior hygiene control and advanced customer service. Whether a restaurant chain can realize these qualities is inextricably linked to the quality of its human resources development system. The major challenge in human resources development has to do with the difficulty of nurturing store manager candidates. It goes without saying that for restaurant chains targeting multi-store operations, efficiently nurturing store managers is the key to corporate growth. However, the job-hopping rate is generally high in Asia, which tends to inhibit the time-consuming process of human resources development, and particularly the development of store manager-level employees. This has become a major obstacle for multi-store operations. Thus, taking measures to raise the retention rate is another challenge that needs to be addressed.

[3] System in which customers place orders at the counter, pay and receive their food, which is consumed at the in-store tables

Moreover, in markets such as Singapore, labor shortages and shortages in human resources have become the norm, which has led them to depend on foreign laborers. Consequently, the way in which a business builds a human resources development system that takes into account foreign laborers will significantly impact local growth and the speed at which the business will grow.

3. Challenges in building a local operation system

3.1. Challenges in building a system for the procurement, processing and distribution of foodstuffs: Procurement of "core foodstuffs"

It goes without saying that for restaurant chains the ingredients that are the backbones of their signature menu (rice, noodles, meat, fish, vegetables, etc.) and the seasoning ingredients that flavor them (seasonings, soup, sauces, etc.) are of paramount importance. These foodstuffs are referred to as "core foodstuffs" in this context. For example, for "Ramen" chains the core foodstuffs comprise the noodles and the soup; for hamburger chains the buns, the meat patties and the various sauces; and for beef bowl chains the beef and the sauces used to stew the ingredients.

Among these core foodstuffs, seasoning ingredients are particularly important as they determine that taste of the dish and keeping the recipes a secret will become a major challenge for the restaurant operator. Consequently, in many cases the seasoning ingredients are manufactured in Japan and shipped overseas. However, importing these seasoning ingredients from Japan leads to higher procurement costs as it entails customs duties and transportation costs, and lowers price competitiveness of the menu and profitability.

In light of these circumstances, Japanese restaurant chains have begun to reexamine their dependence on Japan for core foodstuffs. Especially among enterprises that maintain stores of a certain size in the overseas markets, the major challenge has become cutting back costs through local production and reducing the risks of import restrictions while maintaining the standardized (uniform and stable) taste of its signature menus. The key to achieving this challenge lies in the overseas expansion of Japanese food manufacturers, especially the manufacturers of commercial sauces and seasonings. For the restaurant operator, the local plants of these manufacturers have become reliable partners with whom their secret recipes are safe. Because of their superior quality, these plants also function as vital infrastructure for the Japanese restaurant operators' food supply chain. Going forward we will also need to keep a close eye on the trends of these food manufacturers.

3.2. Challenges in building a store development system

For all practical purposes, establishing a store development system must be the most difficult challenge a restaurant operator faces. As described above, store development systems involve not only the development of the site (securing property for the store) but also the development of the store design and store layout. Among them, store design and store layout initially go through a phase of trial and error but, in most cases, seem to work itself out and eventually develop its own system according to each market.

Meanwhile, very little progress has been made in terms of the systemization of store site development. Site development begins with the gathering of information on suitable properties. However, many of the Japanese restaurant operators have limited access to such information, a phenomenon which is particularly salient in mainland China. Consequently, many restaurant chains must entrust their local staff to collect real estate information and conduct rent negotiations.

3.3. Challenges in building a human resources development system

Although this system, as mentioned earlier, can affect that speed of store expansion, few restaurant operators have actually built up an efficient human resources development system, the reason for this being the high level of job hopping and the perennial labor shortage in the restaurant industry.

While job turnover varies by market, it has been said that in the case of Japanese restaurant operators in Hong Kong, one quarter of all full-time employees and one half of all part-time employees are replaced during the year. In particular the low retention rate of new employees recruited as store staff is a common trend among the Asian markets.

Consequently, in the overseas markets with high job-hopping rates, efficiently nurturing store manager candidates has become a major challenge. In order to nurture the candidates in as little time as possible, it may become necessary to take such measures as presenting the store-front know-how in the simplest possible form.

4. Unique features of the restaurant industry supply chain

Certain parts of the overseas expansion of restaurant chains covered in this chapter overlap with the overseas expansion of the manufacturing industry while certain parts are unique to the restaurant industry. The common factor to both of these industries is the need to build an efficient supply chain (food procurement system) overseas. Another common factor is that in many cases, a system for supplying the core foodstuffs, particularly the seasonings that determine the taste of the menu (equivalent to the main parts and materials in the manufacturing industry), from Japan has been incorporated

into such a supply chain. On the other hand, the unique features of the restaurant industry include the fact that the production site of the end product, the processing site and the market (point of consumption) are all the same, i.e. within the store; and that demand is impacted by the network of store locations. Consequently, the importance placed on the systems of local store development and human resources development necessary for multi-store operations may also be said to be another unique feature of the restaurant chains.

However, the current state of affairs seem to indicate that the supply chains for food procurement have basically been established and are functioning at each point of consumption, in other words, in a way that suggests local production for local consumption, with little evidence of cross-border networking. Nevertheless, going forward with the development of transport infrastructure, wide geographical distribution of food culture, and the growth of the middle class in various countries, we may witness "trans-national" expansion of restaurant chains across multiple borders. If such a phenomenon should come to pass, then the growth of trans-national enterprises similar to the U.S. hamburger and coffee chains could become a reality. In order to also explore such possibilities, we will need to continue to focus on the overseas expansion of Japanese restaurant chains.

Chapter 4 Has China been Short of Labor?

China has been an important contributor to the economy of the Asia Pacific region, due to its high levels of economic growth, overseas trade and inward investment. With a population exceeding 1.3 billion, the Chinese economy has benefited greatly from an abundance of cheap labor. However, in recent years, difficulties in securing sufficient labor have become a widespread problem for enterprises in China, not only for foreign enterprises but also for many domestic enterprises.

Has China, the world's most populous country, really been short of labor? If not, how can we explain the difficulties of enterprises in securing sufficient labor? This chapter is designed to answer those two questions, by examining recent developments in China's labor market, the changes in the actual number of labor force, labor market efficiency, and rural-urban migration.

1. Recent development in China's labor market

China's high economic growth till now has been supported by its abundance of cheap labor resources. The rich labor supply enabled the continuous expansion of production activities of enterprises, both domestic firms and foreign firms. Furthermore, low labor costs strengthened the international competitiveness of Chinese products, which allows "made in China" goods to spread all over the world. Moreover, the high quality of human resources in China attracted a large number of foreign enterprises. The technology transfers from these foreign firms contributed to economic growth in China.

However in recent years, changes in the Chinese labor market have been observed. Many enterprises, especially those located in coastal areas, reported a serious labor shortage in China. An official report by the Ministry of Human Resources and Social Security of the PRC, reported that 70% of enterprises said that they have found difficulties in hiring enough workers, based on a survey of 13 provinces and 26 cities[1]. Further, profits in those firms have been reduced by the increase in wage costs. As a result, the investment strategies of Japanese enterprises, which are an important partner for China, have been greatly changed

[1] Cai, F., and Y. Du. 2007. *Green book of population and labor no. 8: The coming Lewisian turning point and its policy implications* [in Chinese]. China: Social Science Academic Press.

by this situation. In 2004, 52% of foreign enterprises considered the high quality and abundance of labor resources in China as an important determinant in their investment decisions. However by 2010, this percentage had decreased to 27.9%[2]. The period in which workers were easy to find and hire has passed. Today it is difficult to secure sufficient labor if enterprises continue offering the same wage levels and recruiting routes as before.

After the fourth quarter of 2010, the economic growth in China has slowed down. Some have suggested that China could be short of labor. Indeed, if China really has run out of the abundant cheap labor that supported high economic growth, hopes for recovering to the previous level of economic growth would disappear. However, there could be many other reasons for this situation of wage growth and recruitment difficulties, especially with regard to the function of resource distribution in the labor market. If there are some problems with the efficiency of the functioning of the labor market, the situation of wage growth and difficulties in the hiring process could also appear even if there are plenty of labor resources available.

Because a shortage of labor usually occurs when a country experiences a population decrease, in the next section we will examine recent trends in population and the labor force.

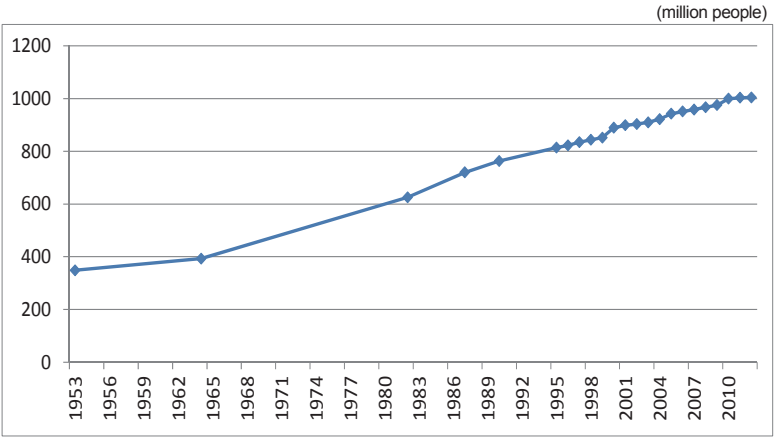
2. Labor force in China

As noted above, some enterprises have been experiencing a shortage of labor in recent years: the standard wages and recruitment methods no longer attract sufficient workers. However, is it in fact the case that the labor force in China has shrunk in recent years?

Certainly, the birth rate and the population growth rate have decreased since the 1980s, due to the one-child policy. However, as shown in Figure 4-2-1, the working age population, referring to people aged 15-64, kept on growing.

[2] Basic Survey of Overseas Business Activities (Ministry of Economy, Trade and Industry)

Figure 4-1 Working age population of 16-64 in China, 1953-2012



Source: CEIC database

Some consider that the working age population merely represents the *potential* labor supply, but that not all of these potential workers participate in the labor market. However in practice in China, the real labor supply – the number of people of working age who are willing to work - is great. For instance, the number of unemployed workers, i.e. people who are willing to work while are not able to find jobs, is large in China. The official unemployment rate in urban China is 4.1% in 2010. However, many doubt the reliability of this statistic. One unemployment adjustment study reported that the real urban unemployment rate is much higher than the official rate – 7.0% in 2010 for instance, (Liu 2011)[3]. For example, the capital, Beijing, has the lowest unemployment, at 4.3%, while the unemployment rates in Heilongjiang Province and Liaoning Province, which lie in Northeast China, are as high as 10.5% and 11.0% respectively. Note that this unemployment rate is limited to the cohort of permanent urban residents who own an urban *hukou* (household registration); therefore the large number of rural-urban temporary migrants is ignored. Thus the real unemployment rate should be even higher than those adjusted numbers.

As a result, although the rates of birth and population growth have dropped since the 1980s, the total population is still growing, in addition to the growth in the working age population. Furthermore, the high unemployment rate indicates that an abundance of labor still exists in China.

[3] Liu, Yang. 2011. "An econometric model of disequilibrium unemployment in urban China". Statistics (*Tokeigaku*), 101: 17–29.

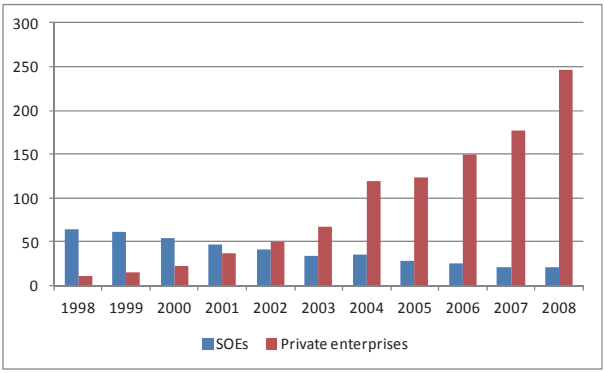
3. Efficiency of the Chinese labor market

As mentioned in Section 2, the unemployment rate is high among urban residents in China. The coexistence of a high unemployment rate and a high vacancy rate seems to be a little surprising; however, this is a usual phenomenon caused by low efficiency in the labor market, which has been examined in many countries. What is the efficiency of the labor market in China?

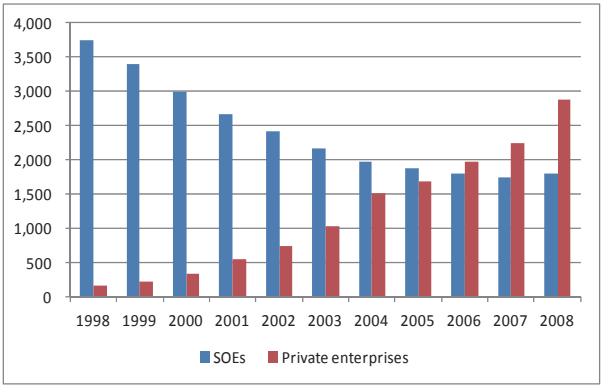
In urban areas of China, there were large-scale enterprise reforms from the mid- 1990s until 2000s. As shown in Figure 4-3-1, the number of state-owned enterprises (SOEs) decreased greatly, while private enterprises increased more than tenfold. As a result, a large number of workers were laid off from SOEs, and had to search for jobs in the private sector. In this situation, a high-efficiency labor market became necessary.

Figure 4-2 Changes in SOEs and Private enterprises

(a) Number of enterprises (unit: thousand)



(b) Number of workers (unit: ten thousand)

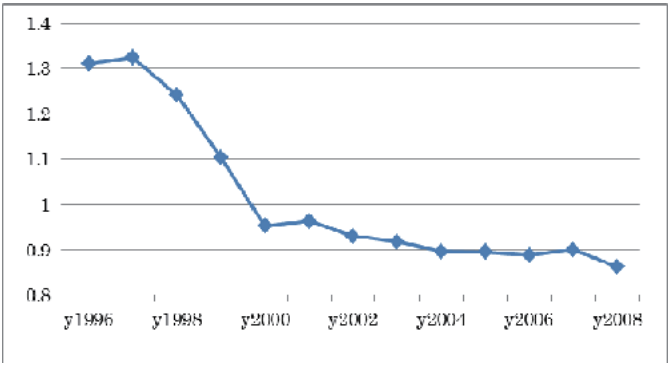


Source: Liu, Yang. 2013."Labor market matching and unemployment in urban China". *China Economic Review*, 24: 108-128.

However, in practice the Chinese labor market may not have been efficient enough to meet this high job and labor rotation rate. In order for large-scale job rotation to take place smoothly, information about job vacancies should be widely advertised by companies and easily accessible to job-seekers. In most countries, this takes place through job agencies. However, in China, job agencies have not been greatly developed. The ratio of job agencies to workers decreased continuously from the mid-1990s to 2000s[4]. Furthermore, as mentioned in other studies, the quality of job search services is still poor in most job agencies. Therefore, job and labor may not be efficiently matched in China so that a shortage of labor occurs even though the unemployment rate is high.

We surmise that the efficiency of job-labor matching could be low in China. To prove that, Liu (2013) quantitatively estimated matching efficiency of the urban labor market in China, using data for new hires, the number of job seekers, and the number of job vacancies. As shown in Figure 4-3-2, from the mid-1990s to 2000s, matching efficiency in China declined greatly.

Figure 4-3 Efficiency of the Chinese labor market



Source: Liu, Yang. 2013."Labor market matching and unemployment in urban China". *China Economic Review*, 24: 108-128.

Consequently, this analysis offers one important reason for the shortage of labor, namely is the low efficiency of the labor market. Even if there is an abundant labor supply, if the labor market is not efficient, the phenomenon of labor shortages will appear. The Chinese labor market has improved from the

[4] Liu, Yang. 2013, *China's Urban Labor Market: a Structural Econometric Approach*, Kyoto University Press & Hong Kong University Press

previous era of being a planned economy; however, the improvement has not been sufficient enough to meet the large scale of job and worker rotations. Furthermore, geographic mismatches, which arise from the restriction of labor movement, have also been serious in China. Therefore, difficulties in securing sufficient labor are observed even though there is a sufficent labor supply and high unemployment rate in China.

It is important to note that one of the most important low-wage labor resources for enterprises in eastern China is rural-urban migrant workers. Thus it is possible that the difficulties in recruitment may be related to this particular segment of the labor force, these workers are temporary workers, because of restrictions on internal migration within China. In the subsequent section, we will examine recent rural-urban migration in China.

4. Temporary rural-urban migrants

The development of the secondary and tertiary industries have benefited from the abundant labor force in urban areas, comprising not only permanent urban residents but also the large number of rural-urban temporary migrants. Those rural-urban migrants have played an important role in urban industries. A national survey shows that in 2003, 2005, 2007, and 2009, there were, respectively, 108.9 million, 117.9 million, 132.3 million, and 146.9 million rural migrants working in urban areas[5]. Moreover, according to the latest National Bureau of Statistics of China (NBS) data, in 2012 there were in total over 262 million temporary rural-migrant workers in China, among whom 163 million people were located in cities outside their residential province and 99 million were located in cities inside their residential province.

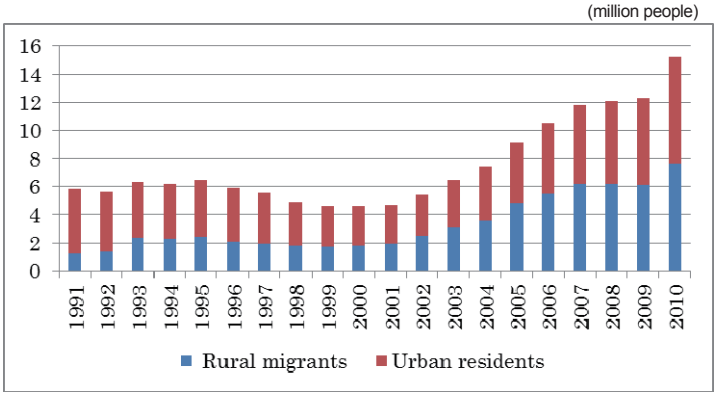
The education and skill level of migrant workers are generally lower than urban resident workers. However, most of them are young and hard-working, and thus valued especially in physically demanding jobs. For example, it is reported that 83.3% of rural migrants are educated to the middle school level or below. Further, a survey conducted in 6 large cities also reported that the average years of education and working experience of rural migrants are much shorter than urban residents. However, according to a 2009 national survey, 83.9% of rural migrants are below 40, and 61.6% of them are below 30. Moreover, Zhao (2009)[6]

[5] Cai, F., Y. Du, and M. Wang. 2010. *Green book of population and labor no. 11: Labor market challenges in the post-crisis era* [in Chinese]. China: Social Sciences Academic Press.

[6] *Zhao, Y. 2009. Chengxiang Hexie Jiuye Lilun [Harmonious Employment: Theory of Urban and Rural Areas]. China: Jiangsu People's Press.*

and ROSC (2006)[7] found that most rural migrant workers are more diligent than urban residents in physical jobs.

Figure 4-4 New hires of rural migrants and urban residents



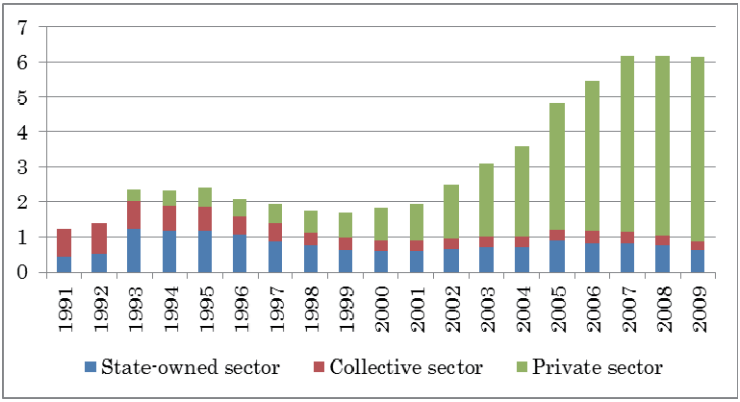
Note: This statistic is from large and medium enterprises, thus the actual number should be larger than that.
Source: China Labor Statistics Yearbook 1992-2011

As a result, rural migrant labor has played an important role in the economic development of urban China. Much work in manufacture industries, construction industries, and service industries are done by rural migrants. Further, as shown in Figure 4-4-1, new hires of rural migrants have grown rapidly since 2000, and have been almost equal in number to new hires of urban residents since 2003 in formal sectors. Moreover, most rural migrants move into private sector jobs (including foreign enterprises). As shown in Figure 4-4-2, in 2009 nearly 90% of rural migrants work in the private sector.

[7] Research Office of the State Council (ROSC). 2006. Zhongguo Nongmingong Diaoyan Baogao [Research Report on the Rural–Urban Migrant Workers of China]. China: China Yanshi Press.

Figure 4-5 Rural migrants in different sectors

(million people)



Source: China Labor Statistics Yearbook, 1992-2010

Labor force transformation from primary to secondary and tertiary industries is a common phenomenon during the economic growth process. However, unlike most other countries, in China most rural migrants have to leave their families in rural areas and only stay temporarily in cities. A 2012 NBS report found that 87.1% of rural migrants who go to cities for jobs leave their families in rural areas. Therefore, rural migrant labor is actually an unstable labor supply for enterprises.

The background for this practice of temporary stays in cities is a policy for strictly restricting internal migration known as the *hukou* (household registration) system in China. People are segmented into urban *hukou* and rural *hukou* , according to the *hukou* classification of their parents. If a worker holds a rural *hukou*, it is difficult to join health insurance and unemployment insurance schemes; moreover, the chances for their children to go to local urban schools are quite limited. Due to these restrictions, most rural migrants are unable to reside in cities with their families, which means that they have to work temporarily in urban areas.

Many people believe that the most important justification for this strict internal migration policy is a concern for urban unemployment[8]. However, in practice the rural labor force has also contributed significantly to urban economic growth, which could be creating net employment. One quantitative study[9] found that there are two opposite effects of rural migrants on urban economies: one is

[8] Knight and Song, Towards a Labour Market in China, 2005, P.128.

[9] Liu, Yang. 2012. "Does internal immigration always lead to urban unemployment in emerging economies? : a structural approach based on data from China". *Hitotsubashi Journal of Economics*, 53(1): 85-105.

negative, known as the substitution effect, which is the competition with urban residents for existing jobs; the other is positive, through the contribution to urban economic growth and job creation. Furthermore, that study estimated the total size of the effect by simulation, finding that the positive effect exceeded the negative effect, and the total effect was that migrant labor contributed to urban employment. It was found that if migrant labor increases by 13.4%, employment of urban workers will increase by 0.8%. The reason for is that the 13.4% migrant labor growth increases the output level by 8.6%, the positive effect of which on employment exceeds the negative substitution effect. As a result, rural migrants in cities would not worsen urban unemployment; rather, they could contribute to the urban economy and increase employment opportunities for urban residents.

Restrictions on rural-urban migration lead to temporary stays of rural migrants in cities, which could be the major cause for the shortage of labor in urban areas, and further becomes an obstacle for economic development. First, the transition of labor from the primary industry to the secondary and tertiary industries is essential in China's current stage of economic development, and exogenous restrictions on this could hurt economic growth. Second, the temporary stay of rural migrants leads to an unstable labor supply for enterprises. For instance, firms are not able to be sure how many of their workers will return to work after their spring festival vacations. Thus it becomes difficult for firms to plan their production and capital investment. Furthermore, the temporary stay of rural migrants is also contributing to the high job quitting rate, which is harmful for both enterprises and workers: enterprises are unable to implement job training for long-term productivity growth because of the risk of cost loss from job quitting, thus are suffered from lack of skilled workers; for rural workers, meanwhile, few job training opportunities and high job-quitting rates become obstacles for their wage growth and career development. This high job-quitting rate further reduces enterprises' incentives for skill training. As a result, restrictions on internal migration lead to a lack of workers, and also become an obstacle for skill improvements.

Furthermore, the restrictions on labor movement also negatively impact production efficiency growth in the agricultural sector. The efficiency of agriculture in China is much lower than that in developed countries such as the U.S.. One important reason is that farmland in China is divided into small plots among the large number of families in rural areas, so that large-scale mechanized farming is impossible, and investment in mechanization is limited. Because of the restriction on rural-urban migration, rural migrants are unable to move to cities

with their families and give their farmland to other rural families, so that a concentration of farmland and large-scale mechanized farming cannot be realized.

There are some concerns that the large outflows of people could lead to a depopulation of rural areas. Indeed, it was reported that some cultivated land was being abandoned because men went to cities for jobs and the female and elderly relatives they left behind were unable to undertake farm work. However, this is not evidence of excessive migration of rural people, but rather evidence for migration biases due to the *hukou* restriction. The logic is that if there were no restrictions, rural migrant workers would be able to live in cities permanently with their families, so that farmland would become concentrated among remaining rural families. In this case, the efficiency of agriculture would improve and rural income levels would increase. Fewer rural families would migrate to cities when rural income increases to a level close to urban income, which would result from the concentration of farmland and progress of large-scale mechanized farming. That is the usual case in the economic development process; however, as noted, it is not the reality in China because of the restriction on migration. This restriction might lead to a worst-case scenario in which men go to cities for temporary work and farmland is divided among less efficient farmers (female and elderly relatives), which would lead to long-term agricultural and abandonment of cultivated land.

In short, restrictions on rural-urban migration lead to the temporary stay of rural workers in cities, which becomes an obstacle for the development of both urban and rural economies. This is a particular problem for urban enterprises: even though a large potential labor force in rural areas exists in rural areas, urban enterprises are experiencing labor shortages because of the restrictions on rural-urban migration.

5. Will China's apparent labor shortage disappear in future?

This chapter has examined the labor force and labor market in China, finding that the shortage of labor mainly arises from two causes: low efficiency of the labor market, and the restriction of rural-urban migration. The shortage of labor has been a serious problem for many domestic and foreign enterprises. However, in reality, the labor supply is still sufficient in China.

As has been analyzed in Section 2, even though the birth rate in China has declined greatly, the total population has been increasing continously, and the labor-age population also has not decreased. Furthermore, there is a large number

of unemployed workers in China. According to Liu (2011)[10], the adjusted unemployment rate was about 7% in 2010, which is much larger than the official rate of 4%.

This coexistence of a lack of labor and a high unemployment rate arises from the low matching-efficiency of the labor market. The enterprise reform led to large-scale unemployed workers looking for new jobs, and many newly-established firms looking for workers, which requires a highly efficent labor market. However, the ratio of number of job agencies to employment decreased in China during the last ten years. Furthermore, a geographic mismatch also arises due to restrictions on labor movement. Besides, although not analyzed in this chapter, the working attitudes of young workers and a skills mismatch among regions also could be important reasons for the coexistence of high job vacancy and high unemployment rate.

Moreover, there is a great number of workers from rural areas, which is one of the imporant labor sources in firms, not only in eastern China which hosts most enterprises, especially foreign enterprises, but also in central and western regions of China. However, because of restrictions arising from the special household registration system in China, most rural migrant labors who work in urban areas are not able to bring their families with them, so that they have to work temporarily in cities. Therefore, employment in enterprises is quite unstable, which also leads to the situation that job-training opportunities for those temporary workers are limited. As a result, limitations on labor movement is also one of the important reasons for lack of both the quantity of workers and the skill-level of workers.

In conclusion, although China has been facing a labor shortage problem, the cause is not the quantity of the labor supply, but the labor policy and the underdevelopment of the labor market. To solve this problem, a correction of labor policy and an increase in labor market efficiency are necessary. For enterprises, to ensure sufficient labor, effective strategic approaches could include locating their operations in central and western China, and making more efforts to advertise job vacancies. Because China has a large population, the consumption market could grow rapidly based on the expansion of middle-income class. Foreign enterprises could achieve further development in China by adopting suitable strategies.

[10] Liu, Yang. 2011. "An econometric model of disequilibrium unemployment in urban China". *Tokeigaku* (*Statistics*), 101: 17–29.

Part III

Prospects for the Kansai and Japanese Economies

Chapter 5 Recent Developments in and Forecasts for the Kansai and Japanese Economies

Chapter 5 Recent Developments in and Forecasts for the Kansai and Japanese Economies

This chapter shows the current conditions of the economy in the Kansai region and forecasts for fiscal years 2013 to 2015. One year has passed since the start of Abenomics, and the speed of recovery was high in the first half of the year, but it slowed down slightly in the second half. The reason is that the amount of net exports is deteriorating at an accelerated rate, despite stable domestic demand. Private-sector demand is not expected to contribute to economic growth in fiscal 2014 due partly to a consumption tax hike, and therefore, overseas economic trends are extremely important. In the final section, effects of the consumption tax hike are analyzed, and at the same time, effects of policies to alleviate major impacts from the consumption tax hike (supplementary budgets) are evaluated.

1. Recent Development in the Kansai economy

1.1. Recent development in the Japanese economy

According to the first preliminary report on the Japanese economy, the real gross domestic product growth rate in the quarter between October and December 2013 was 1.0% on an annualized quarter-on-quarter basis. Real GDP posted growth for the fourth consecutive quarter, but the speed of growth has slowed down from the first half of the year. The real GDP growth rate in the quarter between October and December was almost unchanged from the quarter between July and September (1.1%), in comparison with 4.8% in the quarter between January and March and 3.9% in the quarter between April and June. The real GDP growth rate in the quarter between October and December was far worse than market consensus and high frequency model forecasts. The main reason was that the amount of net exports was worse than expected. As a result, the real GDP growth rate for 2013 was 1.6%, slightly higher than the previous year's 1.4%.

As for real GDP growth by component (on an annualized quarter-on-quarter basis) for the quarter between October and December, domestic demand was stable and increased for the fifth consecutive quarter (up 3.2 percentage points), but net exports decreased for the second consecutive quarter (down 2.2 percentage points). For 2013, domestic demand was stable in each quarter, posting growth of over 3%, and net exports were strong in the first half (up 1.7

percentage points in the quarter between January and March, and up 0.5 percentage point in the quarter between April and June), but net exports pushed down real GDP in the second half (down 2.0 percentage points in the quarter between July and September). A negative factor for the future is that exports are showing slower growth, despite the weaker yen, and imports are accelerating.

1.2. Recent development in the Kansai economy by sector

1.2.1. Household sector

Consumer sentiment is slightly weak in Kansai ahead of the consumption tax hike. The consumer confidence index (seasonally unadjusted) for January in Kansai decreased 0.4 points from the previous month to 39.9, declining for the second consecutive month. Three indicators constituting the index, excluding the employment environment indicator, deteriorated from the previous month. Consumption generally increased in December, and there was a surge in last-minute demand for passenger cars and other products. The sales volume of new passenger cars posted a year-on-year increase of 24.6%, showing a yearly increase for the fourth consecutive month. On the other hand, the value of sales of home electronics increased year-on-year in October and November, but showed a slight decline of 1.3% in December due to sluggish sales of mobile phones (a decline of 20.3%) and other factors.

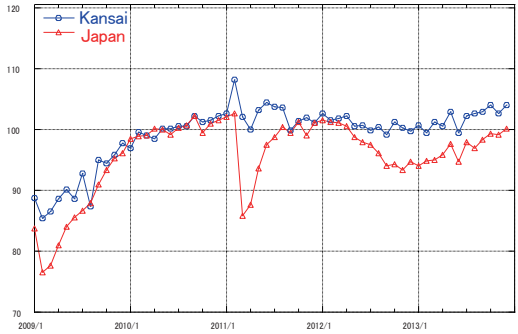
The housing market in Kansai remains strong. New housing starts in December stood at 14,737, up 33.1% year-on-year, increasing for the fourth consecutive month. The deadline to sign a contract to be able to buy a custom-built home at a consumption tax rate of 5% has passed, but there is a tax reduction following revision of the inheritance tax system. The housing market, mainly rental housing, remains strong.

The income environment remains sluggish, but the labor market is improving. As for employment conditions in Kansai, the seasonally-adjusted unemployment rate for December (which serves as a lagging indicator of the economy and was estimated by the Asia Pacific Institute of Research) was 3.9%, which remained unchanged from the previous month, but at a low level. The seasonally-adjusted effective ratio of job offers to applicants (which serves as a coincident indicator) in Kansai for December rose 0.02 points from the previous month to 0.96, improving for the third consecutive month. The labor market in Kansai is improving. On the other hand, in terms of the income environment, the wage index for the core prefectures of Kansai (which is the weighted average of cash wages in Kyoto, Osaka, and Hyogo that was estimated by APIR and can be

reported promptly) showed a year-on-year decline of 0.2% in November, falling for the seventh consecutive month. The wage index for the entire country (final estimates) increased 0.5% in November and 0.6% in December, improving for the third consecutive month. Recovery in the level of wages in Kansai is slower than the national average.

1.2.2. Corporate sector

Figure 5-1 Industrial production indices for Kansai and Japan



Note: The base year is 2010, and the base value is 100. The index is seasonally adjusted. Kansai includes Fukui Prefecture.

Production in Kansai is recovering moderately. According to the seasonally-adjusted industrial production index in Kansai for December (preliminary estimates), production increased 1.3% from the previous month, rising for the first time in two months (Figure 5-1). On a quarterly basis, the industrial production index for the quarter between October and December increased 1.0% from the previous quarter, rising for the fifth consecutive quarter (an increase of 1.6% in the quarter between July and September, an increase of 0.6% in the quarter between April and June, an increase of 0.1% in the quarter between January and March, and an increase of 0.6% in the quarter between October and December 2012). As a result, the production index for 2013 stood at 101.9, a slight increase of 0.4% from the previous year.

Capital investment plans in Kansai increased from the previous year, following improvements in corporate earnings. Capital investment plans in Kansai in fiscal 2013 were slightly stronger in comparison with nationwide levels partly because they were weak in the previous year. According to the Bank of Japan's "Tankan" survey (December 2013), all-industry capital investment plans in Kansai for fiscal 2013 increased 6.7% from the previous fiscal year (an increase of 4.5% on a nationwide basis). This was an improvement of 1.3 points from the previous survey (an improvement of 1.2 points on a nationwide basis), showing that companies plan to increase capital investment from the previous fiscal year's level. When broken

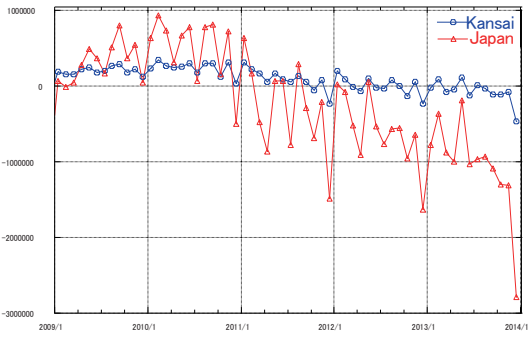
down by manufacturing and non-manufacturing industries, capital investment plans in manufacturing industry in Kansai increased 5.4%, showing signs of recovery, and capital investment plans in non-manufacturing industry in Kansai rose 7.6%, showing signs of stability.

1.2.3. External sector

Exports on a yen basis in Kansai seem to be increasing, but in real terms, no major recovery is seen. The value of exports in January (preliminary estimates) increased 10.3% year-on-year, rising for the 11th consecutive month (the yen depreciated 16.5% year-on-year against the dollar). Exports of mineral fuel, steel, and electronic parts, including semiconductors, are mainly increasing. By region, exports to Asia from Kansai increased 4.0%, and exports to China rose 9.6%. Furthermore, exports to the E.U. showed a major increase of 29.8%, and exports to the U.S. also showed a major rise of 21.4%.

The value of imports in Kansai hit a record high. The value of imports in Kansai in January (preliminary estimate) increased 26.8% year-on-year, rising for the 13th consecutive month and hitting a record high. Imports of crude oil and raw oil (a record high), clothing and clothing accessories (a record high for January), natural gas and manufactured gas (a record high for January), and other products are increasing sharply. By region, imports from Asia to Kansai (up 29.5%), imports from China (up 31.2%), imports from the U.S. (up 24.6%), and imports from the E.U. (up 15.0%) are increasing sharply.

Figure 5-2 Net exports



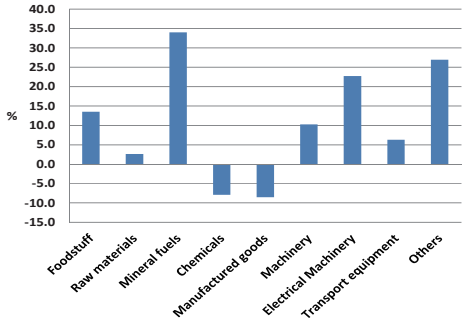
Note: unit = million yen Source: Osaka Customs (preliminary estimates)

As a result, the trade balance of Kansai and the trade balance of Japan are both deteriorating sharply. The trade balance of Kansai in January stood at minus 459.8 billion yen, posting a deficit for the fifth consecutive month (Figure 5-2). Exports are increasing because of the weaker yen, but imports are increasing at a higher pace.

The trade balance of Kansai in 2013 stood at minus 612.7 billion yen, posting a deficit for the first time since record keeping began in 1979. Figure 5-3 shows

the rate of contribution to change in the value of net exports (trade balance) between 2012 and 2013 for each item. Items showing plus figures contributed to the expansion of the deficit in 2013.

Figure 5-3 Factors contributing to change in trade deficit in 2013/2012 (Kansai)



Source: Osaka Customs (Preliminary trade statistics by the Osaka Customs: Kinki area)

Figure 5-3 shows that the trade deficit in Kansai in 2013 was caused by not only a deterioration of the trade balance for mineral fuel (up 34.0%) but also a deterioration of the trade balance for electrical equipment (up 22.7%) and other items (up 27.0%). This indicates that the trade structure of Kansai is changing. In the period between 2000 and the Lehman Brothers shock, exports frequently increased together with the depreciation of the yen. On the other hand, after the end of 2012, there is no major increase in exports in spite of the depreciation of the yen. Following the appreciation of the yen after the Lehman Brothers shock, companies have been changing their activities by, for example, moving production to overseas locations. Therefore, the trade structure may have started to change.

2. Forecasts for the Kansai and Japanese economies for fiscal years 2013 to 2015

The economic forecasts for Kansai for fiscal years 2013 to 2015 have been revised by incorporating the first preliminary report on the GDP growth rate in the quarter between October and December 2013, the latest data in and outside Kansai, and other data.

2.1. Baseline forecasts: Kansai's real growth rate at 2.2% in fiscal 2013, 0.5% in fiscal 2014, and 1.7% in fiscal 2015

The forecasts of economic trends outside Kansai are based on the results of quarterly estimates of the Japanese economy by the APIR, estimates of the overseas economy, and other factors. As for the future outlook of the Japanese economy, the real GDP growth rate is forecast at 2.2% in fiscal 2013, 0.5% in fiscal 2014, and 1.1% in fiscal 2015 (Table 5-1).

Table 5-1 Forecasts for the Japanese and Kansai economies

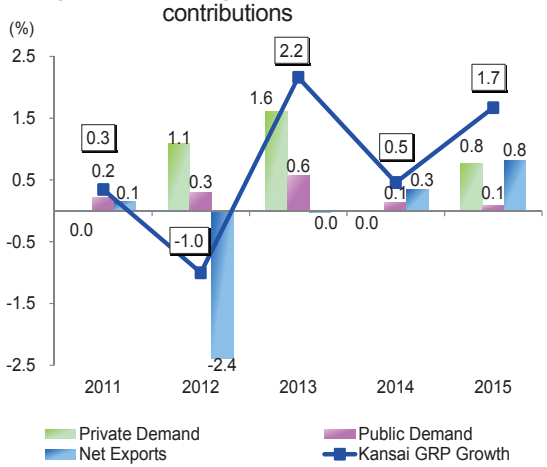
	Kansai(2014/2/27)					Japan(2014/2/27)				
fiscal year	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Household Consumption	0.3	1.4	1.8	▲ 0.4	0.7	1.4	1.5	2.4	▲ 0.5	0.5
Private Residential Investment	▲ 0.6	3.7	8.8	▲ 5.0	2.3	3.2	5.3	8.0	▲ 7.3	2.0
Private Non-Res. Investment	▲ 4.7	4.4	2.3	2.7	2.3	4.8	0.7	0.3	1.9	2.0
Government Consumption	3.8	1.4	1.5	0.6	0.5	1.2	1.5	2.1	0.9	0.5
Public Investment	▲ 14.1	1.3	10.8	0.7	0.0	▲ 3.2	1.3	15.9	2.0	0.0
Exports	▲ 0.3	▲ 3.4	▲ 0.2	2.5	3.8	▲ 1.6	▲ 1.2	3.7	4.1	3.6
Imports	2.0	2.7	▲ 0.0	1.3	1.4	5.3	3.7	5.4	2.0	2.1
Real GRP or GDP	0.3	▲ 1.0	2.2	0.5	1.7	0.3	0.6	2.2	0.5	1.1
Private Demand (Contrib.)	▲ 0.0	1.1	1.6	▲ 0.0	0.8	1.2	1.0	1.4	▲ 0.1	0.7
Public Demand (Contrib.)	0.2	0.3	0.6	0.1	0.1	0.1	0.3	1.0	0.2	0.1
Foreign Demand (Contrib.)	0.1	▲ 2.4	▲ 0.0	0.3	0.8	▲ 1.0	▲ 0.7	▲ 0.2	0.4	0.3
Nominal GRP or GDP	▲ 0.5	▲ 1.9	2.1	1.9	2.8	▲ 1.4	▲ 0.2	1.9	2.5	2.6
GRP or GDP Deflator	▲ 0.7	▲ 0.9	▲ 0.1	1.5	1.1	▲ 1.7	▲ 0.9	▲ 0.3	2.0	1.5
Consumption Price Index	▲ 0.2	▲ 0.5	0.8	2.9	1.2	▲ 0.0	▲ 0.2	0.9	3.2	1.3
Indices of Industrial Production	0.9	▲ 2.2	2.9	1.4	1.8	▲ 0.7	▲ 2.9	3.5	2.0	2.2
Unemployment rate	5.0	5.0	4.0	3.9	3.8	4.5	4.3	3.9	3.8	3.7

Note: Unit = %

Figures for items other than "Unemployment Rate" show growth rates from the previous fiscal year. Figures for the Japanese economy for fiscal 2011 and fiscal 2012 are actual results, and figures for fiscal 2013, fiscal 2014, and fiscal 2015 are excerpted from the 98th Report on Economic Trend Analysis and Forecasts.

As for the rate of contribution of demand-related items to economic growth for fiscal 2013, private-sector demand (up 1.4 percentage points), centered on a last-minute surge in demand, and public-sector demand (up 1.0 percentage points), based on effects from supplementary budgets, will serve as engines for economic growth. On the other hand, net exports (down 0.2 percentage points) will slow down economic growth. For fiscal 2014, net exports (up 0.4 percentage points) will accelerate economic growth, but private-sector demand (down 0.1 percentage points) will slow down economic growth due to a downturn from the last-minute surge in demand and a decline in real disposable income. For fiscal 2015, private-sector demand (up 0.7 percentage points), public-sector demand (up 0.1 percentage points), and net exports (up 0.3 percentage points) will prop up the economy in a balanced manner.

Figure 5-4 GRP growth rate forecast and relative contributions



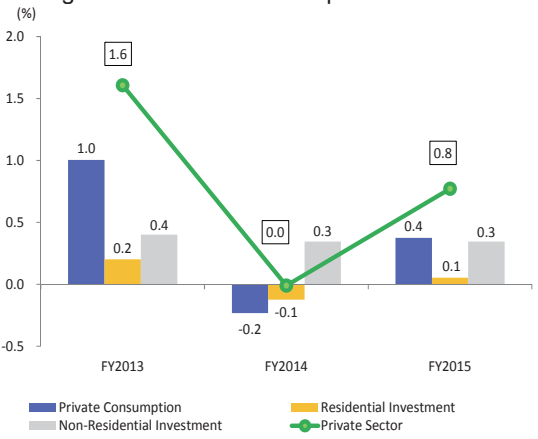
Based on the above preconditions, the real gross regional product (GRP) growth rate in Kansai is forecast at 2.2% in fiscal 2013, 0.5% in fiscal 2014, and 1.7% in fiscal 2015 (Figure 5-4). The real GRP growth rate on an actual performance basis is expected to be 0.3% in fiscal 2011 and minus 1.0% in fiscal 2012.

The economy in Kansai in and after fiscal 2013 is expected to be basically on the same path as the Japanese economy (Table 5-1). The growth rate of the economy in Kansai for fiscal 2015 is slightly higher than that of the Japanese economy. The main reason for this is that external demand is expected to contribute more to the economy in Kansai than to the Japanese economy.

The rates of contribution of domestic demand and external demand to the real GRP growth rate in and after fiscal 2013 are reviewed in this paragraph. The rate of contribution of private-sector demand for fiscal 2013 is forecast at 1.6 percentage points, and the rate of contribution of public-sector demand is forecast at 0.6 percentage points. Private-sector demand and public-sector demand are expected to contribute steadily to economic growth. On the other hand, the rate of contribution of external demand is expected to be zero. In fiscal 2014, the rate of contribution of private-sector demand is expected to be zero due partly to a downturn from the last-minute surge in demand before the consumption tax hike. The rate of contribution of public-sector demand is forecast at 0.1 percentage points, and the rate of contribution of external demand is forecast at 0.3 percentage points. Public-sector demand and external demand are expected to contribute slightly to economic growth in fiscal 2014. In fiscal 2015, the rate of contribution of private-sector demand is forecast at 0.8 percentage points, the rate of contribution of public-sector demand is forecast at 0.1 percentage points, and the rate of contribution of external demand is forecast at 0.8 percentage points. The three demand items are expected to contribute to economic growth in a balanced manner in fiscal 2015.

2.2. Forecasts for GRP components

Figure 5-5 Contribution of private demand



The items constituting GRP are reviewed below.

As for the household sector, the growth rate of private final consumption expenditure in real terms is forecast at 1.8% in fiscal 2013, minus 0.4% in fiscal 2014, and 0.7% in fiscal 2015. The growth rate of private housing investment in real terms is forecast at 8.8% in fiscal 2013, minus 5.0% in fiscal 2014, and 2.3% in fiscal 2015. As a result, the rate of contribution of the household sector (private final consumption expenditure in real terms and private housing investment in real terms) to economic growth is forecast at 1.2 percentage points in fiscal 2013, minus 0.3 percentage points in fiscal 2014, and 0.5 percentage points in fiscal 2015. The household sector is expected to contribute steadily to economic growth, except in fiscal 2014, when there is likely to be a downturn from the last-minute surge in demand before the consumption tax hike.

As for the corporate sector, inclusive of the fact that business sentiment among companies in Kansai is improving gradually, the growth rate of private corporate capital investment in real terms is forecast at 2.3% in fiscal 2013, 2.7% in fiscal 2014, and 2.3% in fiscal 2015. As a result, the rate of contribution of private corporate capital investment to the real GRP growth rate is forecast at 0.4 percentage points in fiscal 2013, 0.3 percentage points in fiscal 2014, and 0.3 percentage points in fiscal 2015. Corporate capital investment is expected to prop up the economy in Kansai.

The rate of contribution of the private sector, which combines the household sector and the corporate sector, to the growth rate is forecast at 1.6 percentage points in fiscal 2013, minus 0.0 percentage points in fiscal 2014, and 0.8 percentage points in fiscal 2015 (Figure 5-5).

Forecasts of the economy in the public sector in Kansai are similar to those of the Japanese economy. The growth rate of government final consumption expenditure in real terms is forecast at 1.5% in fiscal 2013, 0.6% in fiscal 2014,

and 0.5% in fiscal 2015. The growth rate of public-sector fixed capital formation in real terms is forecast at 10.8% in fiscal 2013, 0.7% in fiscal 2014, and 0.0% in fiscal 2015. Based on these estimates, the rate of contribution of public-sector demand to the real GRP growth rate is forecast at 0.6 percentage points in fiscal 2013, 0.1 percentage points in fiscal 2014, and 0.1 percentage points in fiscal 2015. Public-sector demand is expected to contribute slightly to economic growth.

The external sector consists of overseas economies (net exports, which are obtained by subtracting imports from exports) and economies outside the region (net domestic trade, which are obtained by subtracting domestic imports from domestic exports). The growth rate of exports in real terms in Kansai is forecast at minus 0.2% in fiscal 2013, 2.5% in fiscal 2014, and 3.8% in fiscal 2015. The growth rate of imports in real terms is forecast at minus 0.0% in fiscal 2013, 1.3% in fiscal 2014, and 1.4% in fiscal 2015. As a result, the rate of contribution of net exports in real terms, which are obtained by subtracting imports in real terms from exports in real terms, to the real GRP growth rate is forecast at minus 0.0 percentage points in fiscal 2013, 0.3 percentage points in fiscal 2014, and 0.8 percentage points in fiscal 2015. Net exports are expected to gradually contribute more to economic growth, reflecting gradual improvement in exports. The rate of contribution of net shipments in real terms, which are economic transactions with other domestic regions, is forecast at 0.0 percentage points in fiscal 2013, 0.0 percentage points in fiscal 2014, and 0.2 percentage points in fiscal 2015. Net shipments are expected to contribute only slightly to the economy in Kansai.

As a result, the rate of contribution of external demand to the real GRP growth rate is forecast at minus 0.0 percentage points in fiscal 2013, 0.3 percentage points in fiscal 2014, and 0.8 percentage points in fiscal 2015.

3. Effects of the consumption tax hike and supplementary budget policies to alleviate major impacts from the hike on the Kansai economy

Simulations to examine effects of the consumption tax hike and policies to alleviate major impacts from the consumption tax hike on the economy in Kansai are provided in this section.

If the consumption tax is raised, private final consumption expenditure will decline due mainly to a fall in real disposable income, curbing economic growth. Through this path, the economy is adversely affected. Real GRP in Kansai is expected to decline by about 0.16% to 0.25%.

At an extraordinary Cabinet meeting on 5 December 2013, the government

adopted economic measures for the purpose of alleviating major impacts from the April 2014 consumption tax hike. The total value of the economic measures, which aim to "achieve a virtuous cycle" of the economy, is 5.5 trillion yen, and the total value of the supplementary budgets is 7 trillion yen. Among the supplementary budgets, those related to Kansai are estimated by multiplying Kansai's share in the economic indicator corresponding to each supplementary budget item. As a result, among the supplementary budgets, worth about 7 trillion yen, 570.2 billion yen is expected to directly affect the economy in Kansai. But even if these budgets are allocated, their execution may be delayed, or they may not be used. Therefore, in addition to cases where budgets are used entirely, separate calculations are made for cases that take into account the rates of budget execution. To be more precise, the rate of budget execution is assumed to be 50% for government final consumption expenditure and public-sector fixed capital formation, and 27% for private corporate capital investment. A large portion of public works budgets is carried over from one year to the next or is not used. In the general account budget for fiscal 2012, about 40% of public works budgets were carried over or were not used. These were taken into consideration. In addition, the rate of induction of capital investment for economic measures is determined by referring to the results of surveys by the Kansai Economic Federation. In the cases that take into account the rates of budget execution, among the supplementary budgets, worth about 7 trillion yen, 324.8 billion yen is expected to directly affect the economy in Kansai. Based on the above assumptions, simulations were carried out. The supplementary budgets are expected to push up real GRP in Kansai by about 0.71% in the cases that take into account the rates of budget execution.

Based on the results of the above two simulations, a 1% hike in the consumption tax is expected to push down real GRP in Kansai by about 0.16% in fiscal 2014. This implies that a 3% hike in the consumption tax will push down real GRP in Kansai by about 0.5%. On the other hand, the supplementary budgets for fiscal 2013 are expected to push up real GRP by about 0.71% in the cases that take into account the rates of budget execution. Therefore, the supplementary budgets may be praised because they can alleviate major impacts from the consumption tax hike. The point is whether or not measures are implemented in a timely manner to deal with a downturn from the last-minute surge in demand before the consumption tax hike and a decline in real disposable income in the quarter between April and June 2014. In addition, it is necessary to pay attention to the fact that if the execution of public works budgets is delayed due to supply

restrictions on human resources and materials, economic recovery will be delayed further, and the downside risk will be increased.

Part IV

New Growth Opportunities in Kansai

Chapter 6 Kansai's Knowledge and Challenges for Innovation

Initiatives to Revitalize the Kansai Economy

Playing host to the world-renowned cosmopolitan cities of Osaka, Kyoto, and Kobe, the Kansai region is witnessing a variety of projects that are geared to further advance its regional economy into the future.

In the Kansai Innovation International Strategic Comprehensive Special Zone ("Innovation Special Zone"), which was established in 2011, a number of projects are well under way to accelerate innovations in the life sciences field (pharmaceuticals, medical devices, etc.) and 'green' field (batteries and smart communities).

The city of Osaka is actively promoting its tourism sector. While Kyoto and other areas are well-known international tourist destinations in Kansai, Osaka is also working to regenerate itself and become an international tourist city by leveraging its powerful tourist attractions, including shopping and gourmet cuisine.

Kansai is also witnessing active research on induced pluripotent stem (iPS) cell research, and is on its way toward establishing itself as a hub for iPS cell research and regenerative medicine in Japan and the entire world.

Discussed in Chapter 6 are detailed descriptions of these unique initiatives and the directions they will take in the future.

Section 1 Innovation Special Zone

In November 2013, the Japanese Government designated seven international strategic comprehensive special zones around the country, including the Kansai Innovation International Strategic Comprehensive Special Zone.

Compared to other regions in Japan, the Kansai region's component areas have been known to have a high degree of independence from each other, and rarely has the region been united as one for the sake of such national programs. The fact that they have decided to act in concert this time shows how enthusiastic the entire Kansai region is about this government-led special zoning scheme.

Target businesses in this Innovation Special Zone include pharmaceuticals, medical devices, regenerative medicine, and other cutting-edge medical technologies in the life

sciences field, and batteries and smart communities in the green field.

Projects in these fields that meet the requirements stipulated in the Comprehensive Special Zones Act are entitled to various economic advantages, which include subsidies for project financing, reduced corporate taxes, and special treatment with regard to various regulations. This has attracted much publicity, since the regulations covered include the Building Standards Act and those on employment of human resources and, as such, it is expected that freedom in investment and employment practices will be significantly increased.

Thanks to Kansai's high concentration of universities and other research institutions and international businesses both in the life sciences and green fields, projects in this Innovation Special Zone are moving forward smoothly. By the eighth designation round, which came about two years after the zone's establishment in Kansai, the number of projects there had reached a total of 43, thus ranking Kansai at the top among the country's seven international strategic comprehensive special zones (see Table 6-1).

Table 6-1 Number of Designated Projects (at the 8th designation round)

Special Zones	Number of projects
Hokkaido Food Complex	9
Tsukuba International Strategic Zone	7
Tokyo's Special Zone for Asia Headquarters	4
Keihin Coastal Area Life Innovation	7
Special Zone to Create Asia's No. 1 Aerospace Industrial Cluster	5
Kansai Innovation Special Zone	43
Green Asia International Strategic Comprehensive Special Zone	11

It can be said that the aforementioned high potential and research/industrial clusters in Kansai are a large part of the reasons why the Innovation Special Zone in Kansai has been so successful. In other words, it is safe to say that the probability of success is high in Kansai, in contrast to some other regions where it is necessary to start from scratch in the green field. The wealth of high potential described in Table 6-2 is made available in Kansai's Innovation Special Zone.

Table 6-2 Kansai's potential for the Innovation Special Zone

Businesses	Pharmaceuticals	Takeda Pharmaceutical, Mitsubishi Tanabe Pharma, Shionogi, Asbio Pharma, etc.
	Electronics	Panasonic, Sharp, Umicore, Sumitomo Electric Industries, etc.
Research institutions, etc.	Universities	Kyoto University, Osaka University, Kobe University
	Research institutions	Research Institute of Innovative Technology for the Earth, National Institute of Biomedical Innovation, RIKEN, etc.
	Scientific infrastructure	Spring-8, "K" supercomputer, etc.

Section 2 Revitalizing Kansai through the iPS Cell Business

1. iPS cells and the regenerative medicine market

In December 2012, the Nobel Prize in Medicine was awarded to Professor Shinya Yamanaka, Director of the Kyoto University Center for iPS Cell Research and Application (CiRA). This outstanding achievement not only stimulated even greater interest in iPS cells among the general public, but also increased expectations for their future application to medical treatments and their expanded business opportunities in Japan and in Kansai.

In the field of regenerative medicine, it is expected that iPS cells will play a vital role in the determination of disease causes, the development of new drugs, treatment by cell transplantation, etc. (Quoted from CiRA's Japanese web site)

Driven by rapid progress in iPS cell research and other areas, the regenerative medicine market is expected to experience rapid expansion. The Ministry of Economy, Trade and Industry (METI) estimates that it will top 1 trillion yen in 2030, from 9.1 billion yen in 2012.

METI also expects the industry related to regenerative medicine in Japan to expand from its 2012 figure of 17.0 billion yen to 550.0 billion yen by 2030, and then to 1.3 trillion yen by 2050. Its global market is also expected to rise, reaching 5.2 trillion yen by 2030 and 15 trillion yen by 2050.

Although there is a growing amount of interest in the iPS cell-related business, such cells are still in the laboratory stages and thus it is necessary to smoothly and quickly convert scientific results into industrial technology.

In doing so, much is expected from small and medium enterprises (SMEs) that possess advanced technologies.

To cause cells to differentiate, chemical materials and three-dimensional precision

machining technology are essential, and it can reasonably be assumed that Kansai-based SMEs excel in such areas.

Some universities in Kansai, most notably Kyoto University and Osaka University, are seeking collaboration with businesses by establishing platforms for regenerative medicine, healthcare robotics design, and other topics. The way things stand now, however, it is difficult to say that any of them has outperformed its expectations.

Interviews by APIR have discovered that, even when they have technological potential, large enterprises are often reluctant to make headway because none of those markets are large enough for them to enter. In the case of SMEs, on the other hand, quantitative restrictions on human resources often prevent them from responding actively to proposals made by universities, even if they wish to.

It has been said that the one aspect of iPS research that offers the most imminent business opportunities is the process of inducing iPS cells from patients' bodies and reproducing their own livers and nerves. In particular, the liver plays an important role as it serves to detoxify drugs used in treatments, and thus the demand for patient-derived livers is believed to be high. Usually, drugs are first tested on animals and then on humans. Since human livers and animal livers metabolize substances differently from each other, it can happen that a development project will come to a standstill if animal experiments are successful but strong toxicity is observed in humans, with the result that a presumably huge amount of development costs would go down the drain. If iPS cells are used from the very beginning of this process, such risks can be minimized.

In Japan, human hepatocytes (liver cells) have thus far been 100% imported. The National Institute of Biomedical Innovation and a team of researchers at Osaka University, however, have successfully induced differentiation of human hepatocytes derived from iPS cells for practical applications. Their achievements are expected to accelerate the drug development process going forward.

As far as research and experiments are concerned, approval by the Ministry of Health, Labour and Welfare (MHLW) is rarely required. What this means is that any good product from the laboratory may be brought to the market without having to wait for MHLW approval. One example in this regard is the laboratory dishes for culturing iPS cells, which need to be replaced every day. This market is worth several billion yen annually. Once such high performance equipment and materials are offered, they can conceivably be adopted on the spot and research will then gain additional momentum in turn.

As described so far, Kansai's business circle, which is led by SMEs, has much to offer at the times when "science" is converted into "technology." During such transitional periods, an important role is played by partnerships and platforms that have

been formed in various places. Furthermore, project leaders are required to have a good understanding of both research and business. One option is to create a system or arrangement in order to fulfill this requirement, i.e., encouraging researchers to put forward more concrete requests and convincing businesspeople to transfer their proprietary technologies to the medical sector, which may be different in nature from the traditional sectors they are used to. Many have voiced their approval of what the METI Kansai Bureau of Economy, Trade and Industry is doing in this regard, and expectations are running high for their continued efforts.

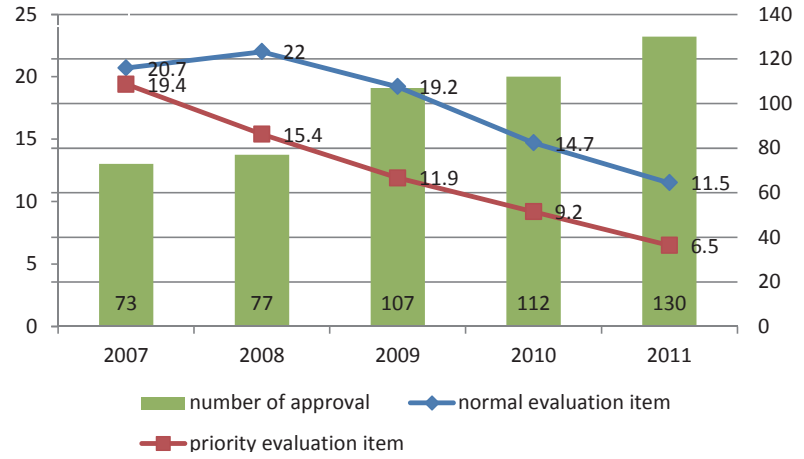
2. Kansai Innovation Special Zone and iPS cells

In response to a request from the local community to establish a branch within the Kansai Innovation Special Zone, the Pharmaceuticals and Medical Devices Agency Kansai Branch (PMDA-WEST) was opened at the Knowledge Capital in Osaka's Umeda area in October 2013. PMDA-WEST offers pharmaceutical affairs consultations on R&D strategies and inspects pharmaceutical manufacturing sites (GMP on-site inspection). They also offer visiting consultation services at the Cooperation Center for Pharmaceutical Affairs Consultation on R&D Strategy, which will be established by Kobe City.

Brought into reality to meet the strong demands from related industries in Kansai, PMDA-WEST is expected to narrow device and drug lags. Although PMDA-WEST offers consultations only and does not conduct reviews, those in industrial circles say that its consultation services alone are highly beneficial. In the past, for instance, members of those circles traveled all the way to Tokyo for consultations with the authorities once every few months; however, they can shorten the overall time required now that it has become easier to make frequent visits.

In fact, PMDA says that their efforts in recent years have almost completely eliminated review lags for both drugs and devices, and now all that is left is to address development lags (See Figure 6-1). Such being the case, pharmaceutical affairs consultations on R&D strategies are highly significant, as the authorities can be contacted from early on in the development process. It is little wonder that expectations for PMDA-WEST only continue to grow.

Figure 6-1 Review period for new drugs



Source: PMDA

Although PMDA-WEST came about in a context that is unconnected to recent iPS cell developments, it is expected that the two will generate a synergy effect. At present, iPS cell research is conducted mainly in Kansai, and it seems that PMDA still has a limited amount of knowledge on iPS. If iPS research and development can be further intensified in Kansai, it will be possible to accumulate knowledge at PMDA-WEST, which will in turn enhance its uniqueness. Not only Kansai industrial circles, but PMDA in its capacity as a review organization would also greatly benefit from this. After all, since the review organization aims to rank among the top organizations in the world, it would help them to enhance their brand if they deal with the world's most advanced technologies such as iPS cells. When that happens, it would not be unrealistic to assume that they will be entrusted with more projects from overseas and elsewhere.

The Kansai Innovation International Strategic Comprehensive Special Zone is unique in that it is a broad-based effort carried out by the entire region. Although this creates some of its own problems, the zone offers high potential for success.

When the Innovation Special Zone was established, APIR conducted interviews with those involved, and they mentioned several points about the life sciences field that should be considered. For example, there is the problem of regulations on numbers of beds under the Medical Practitioners' Act. A city may wish to make medicine its core industry, but the existence of regulations on numbers of beds makes it difficult or impossible for related hospitals to be opened within the city. Someone who wishes to promote the development of medical devices commented that, when satellite hospitals

are built around a core hospital, the speed of clinical performance testing is accelerated. Such regulations were made to ensure fairness in provision of medical services, but this comment was made from someone involved in medical research. As such, it is apparent that this proposal should be considered in the Innovation Special Zone. In fact, the Innovation Special Zone made a strong request in this regard to the national government, which then decided to make an exception in its favor.

Basic patents on iPS cells possessed by Kyoto University have been registered not only in Japan, but also in Europe and North America, and there is little likelihood of any international conflicts over patents, which often occur in cases of this nature. That said, the current patents expire within twenty years, and so the general trend of the iPS-related business for the remainder of the 21st century will be determined by what Japan can and will do in the upcoming two decades while it retains an advantage over other countries.

Section 3 Battery Business

1. Goals and current progress in the battery business: solar cells and lithium-ion batteries

In the Innovation Special Zone, numerical targets have been set for solar cell production in Kansai to increase output 4.5 times by 2025 compared to 2010, as shown in Figure 6-2.

Similarly, there is a target to make lithium-ion battery (LIB) production in Kansai 16.9 times greater during the same period, as shown in Figure 6-3.

Figure 6-2 Solar cell production in Kansai

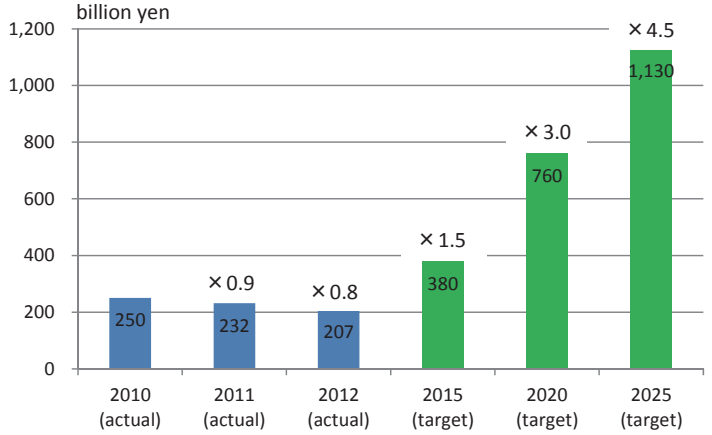
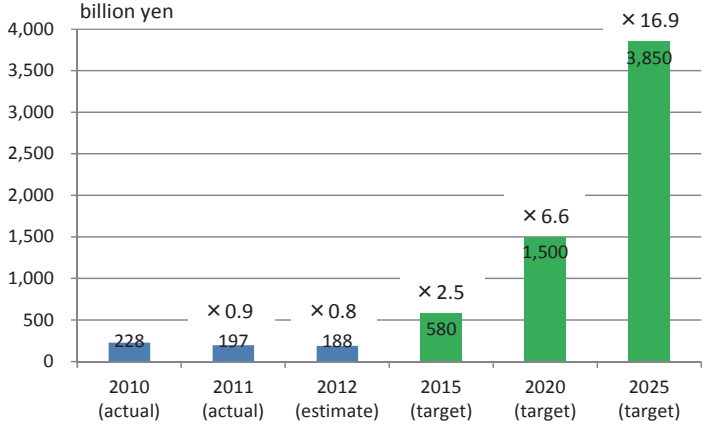


Figure 6-3 LIB production in Kansai



2. Present state of the LIB industry in Kansai

2.1. Production

In 2008, Kansai accounted for 75.0% of the LIB market in Japan (yearly average, excluding automotive), after which the percentage grew yearly to reach 86.8% in 2011 (yearly average) and then 88.7% in January 2013.

However, its volume (excluding automotive) fell into a relative slump after peaking in mid-2011. In the global LIB market, Korean manufacturers topped the combined share of production by all Japanese manufacturers (excluding automotive) in 2011.

Also, Japanese manufacturers' production values remain flat in the four key components of LIBs, namely, cathode materials, anode materials, electrolytic solutions, and separators, with the result that their penetration in the global market is decreasing.

2.2. Trends in LIB exports

Export values of LIBs from Kansai are also on the decline after peaking in 2008. Given that Kansai's LIB export shares are trending in the 60% range, it would seem that total export values from Japan are on a downward spiral.

Analysis of data on volumes has confirmed that erosion of the average selling price, as well as the decrease in export volumes, are responsible for the decline in export values. Production shifts to China and other countries are also playing a role in this.

Such evidence shows that Japanese manufacturers based in Kansai and elsewhere are witnessing a steady decrease in both production and export values, with Korean and Chinese competitors hot on their heels. Furthermore, while not to the extent of the finished-product market, the competition has been intensifying in the market for key components and materials, in which Japanese players have been known to have a

competitive edge.

If the trend of establishing automotive LIB plants outside of Kansai or even outside of Japan continues, the manufacturers of materials, components, and production equipment in the Osaka Bay area – once hailed as "Panel Bay" or "Battery Bay" – will lose the strength, profits, and jobs that were rendered to them by the integrated concentration of related industries. This will be discussed in detail below.

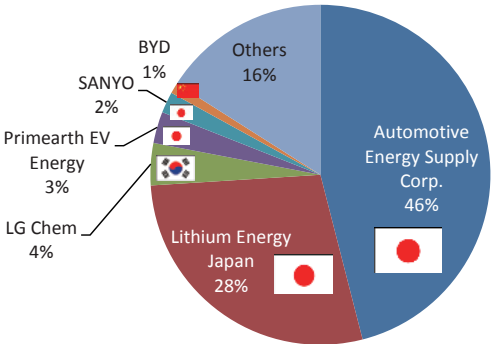
3. Future of the LIB industry in Kansai

Suggested below are strategies and ideas that Kansai will need to revive its LIB industry during the period up to 2030 and beyond.

3.1. Joint creation and competition with automobile manufacturers capable of taking the lead in the automotive LIB business

While it is expected that the market for large-sized LIBs for housing and industrial use will grow over time, the percentage of automotive LIBs out of the total LIB production should continue to rise. It is thus natural to assume that the main battlefield for LIB production will be in the arena of automotive applications, where average selling prices are trending downward due to technological development and large-scale production. Since production of small-sized LIBs for consumer products, such as PCs and mobile phones, is expected to remain sluggish on account of pricing competition with Korean and Chinese players, such as global market leader Samsung SDI, LG Chem, and BYD, the fate of Kansai-based manufacturers will be determined by LIBs for electric vehicles (EVs), plug-in hybrid vehicles (PHVs), and hybrid vehicles (HVs). What this means is that the success or failure of the LIB sector and its participating firms in Kansai up to around the year 2030 will depend on whether or not firms can successfully partner with automobile manufacturers, and how they will go about doing so.

Figure 6-4 Automotive LIB Global Market (2011)



Source: Ministry of Economics, Trade and Industry of Japan

The Research & Development Initiative for Scientific Innovation of New Generation Batteries (RISING) project, which is promoted jointly by the New Energy and Industrial Technology Development Organization (NEDO) and Kyoto University, and other projects are inviting battery manufacturers, as well as automobile, electrical machinery, and materials manufacturers, universities, and research institutions to join together to promote R&D of advanced LIBs, innovative LIBs, and innovative storage batteries. One drawback of Kansai is, however, that the region has only a few automobile assembly plants. When automobile manufacturers begin to play a leading role in the supply chain and it becomes necessary to establish new LIB mass-production plants near automobile assembly plants, it will be difficult for production of automotive LIBs in Kansai to grow substantially.

Shown in Figure 6-4 is a breakdown of the global automotive LIB market. The Nissan Motor Company has accumulated technologies for EVs, HVs, and PHVs (Leaf, Fuga, etc.) through the Automotive Energy Supply joint venture (Nissan Motor: 51%; NEC Group [HQ: Zama, Kanagawa]: 49%), and such technologies will be transferred to their plant in Tennessee, U.S., to begin production of automotive LIBs. Their plan is to work closely with a nearby motor manufacturing plant to perform start-to-finish production from batteries to motors and cars. Toyota, meanwhile, has decided to make an all-out effort to equip the next HV model (Prius) with LIBs and establish a new production line at the Kosai Plant of the Prime Earth EV Energy joint venture (Toyota Motor: 80.5%; Panasonic [HQ: Kosai, Shizuoka]: 19.5%). The current bestselling Prius HV model chiefly uses nickel-hydrogen batteries, but if and when Toyota should decide to switch to LIBs, the distribution of power among the various LIB producing areas may be redefined overnight.

At present, LIB manufacturers are busy forming partnerships with automobile manufacturers for development and practical application of technology. In the next phase after this initial stage, however, it would not be impossible for a battery manufacturer that has established a strong market position to convince automobile manufacturers from Japan, Europe, and the U.S. to use their standardized LIBs, and thus benefit tremendously from the resultant industry structure, in much the same way as Intel sells their semiconductors to a number of different PC manufacturers. This is especially true in the case of EVs because, unlike engine cars, which use a large variety of components that need to be "reconciled" with each other, EVs are assembled by putting together modules, which makes it easier for business from other industrial sectors and venture businesses to enter the market. Furthermore, it is a distinct possibility that battery manufacturers could take the lead in designing and manufacturing EVs.

On the other hand, there is no denying that battery manufacturers will be trapped in a place where they must be satisfied with the less profitable business of producing

customized LIBs for different automobile manufacturers, similar to what Renesas Electronics (microcontroller/microprocessor manufacturer) is doing. It is not only intra-sector competition, but also inter-sector competition that regulates mid- and long-term growth. There is thus a requirement for proper balance between joint creation and competition, so that strategies and systems that maximize margins can be mapped out. One example of success can be found in the transportation machine business – Shimano (Sakai) distributes common parts of their own design and development to many different bicycle assemblers.

As in the cases of DRAM, LCD panels, and solar cells, it is true that production sites will move over time. The ideal scenario would be for LIB production to remain in Kansai and continue generating jobs and paying taxes. Realistically speaking, the aim should be to create a system that continues to bring high earnings to Kansai-based automotive LIB manufacturers, regardless of where production moves and no matter what changes occur in their business.

3.2. Clusters of production plants for the post-LIB era and creation of a comprehensive business model including intellectual property strategies, etc.

In addition to the aforementioned RISING project by Kyoto University, the Cabinet Office's Funding Program for World-Leading Innovative R&D on Science and Technology (FIRST Program) and the University of Tokyo's Innovative Basic Research Toward Creation of High-performance Battery are engaged in R&D of higher-performance LIBs and post-LIBs, including all-solid-state rechargeable LIBs, metal-air batteries, polyvalent-cation batteries, sodium-ion rechargeable batteries, and organic rechargeable batteries. Early versions of these batteries may hit the market around 2020, but it is believed that their full-scale diffusion will not occur before 2030.

Table 6-3 Patent Application (2006-2010)

Technology employed	Cases	%
All-solid-state lithium rechargeable batteries	1,559	–
High molecule solid electrolyte type	459	29.4%
Inorganic solid electrolyte type	1,100	70.6%
Metal-air batteries	778	–
Li air batteries	319	41.0%
Zn air batteries	288	37.0%
Al air batteries	23	3.0%
Fe air batteries	8	1.0%
Mg air batteries	21	2.7%
Others	12	1.5%
Anode not specified	107	13.8%

Table 6-4 Papers Published (2009-2011)

Technology employed	Cases	%
Inorganic solid electrolyte type	132	–
Japanese nationalities	79	59.8%
U.S.	19	14.4%
Europe	18	13.6%
Chinese	8	6.1%
Korea	5	2.8%
Others	3	2.3%
Li-air batteries	102	–
Japanese nationalities	24	23.5%
U.S.	53	52.0%
Europe	8	7.8%
Chinese	5	4.9%
Others	12	11.8%

Source: Japan Patent Office (Table 6-3, 6-4)

Table 6-3 shows the number of patent applications for all-solid-state lithium rechargeable batteries and metal-air batteries. Among the different types of all-solid-state lithium rechargeable batteries, the number of applications is highest for the inorganic solid electrolyte type, while lithium-air batteries have the highest among metal-air batteries. Table 6-4 shows the number of published academic papers on the inorganic solid electrolyte type and lithium air batteries by country of author's research institution. Japan stands at the top at 59.8% for the inorganic solid electrolyte type, and ranks second at 23.5% after the U.S. (52.0%) for lithium-air batteries. It often happens in the realm of advanced technology that patent acquisition takes precedence over the publication of papers, and thus it is difficult to say which country is the most advanced in research (by-nationality patent data is not published). Nonetheless, it is fair to say that Japanese research institutions are among the leaders in post-LIB research.

In anticipation of a full-fledged commercial debut beyond 2030, these post-LIBs must first be developed through an open innovation approach that invites businesses and research institutions outside of Kansai as well. At the same time, Kansai must immediately start studying ways of monetizing its position by, for example, promoting clusters of post-LIB production plants and intellectual property strategies, rather than merely being content with its current role as a research hub. This may be achieved by simply replacing equipment at existing LIB production plants; however, what is really needed is the creation of a business model that will allow Kansai-based businesses to continuously turn a profit, while bearing in mind the more immediate goals of generating jobs and earnings in Kansai.

Section 4 Tourism in Osaka: Initiatives in the "Leading Industry"

Tourism is currently drawing much attention as one of the leading industries in the 21st century, and Japan's tourism market has grown to reach 20 trillion yen. The Osaka City Government identifies this industry as one of the sources of its growth, and is expediting a diverse range of programs through cooperation with the Osaka Prefectural Government and the private sector. In April 2013, Osaka City established an Economic Strategy Bureau in an effort to reinforce its programs aimed at sustainable economic growth in Osaka by inviting people, goods, and investments from around the world.

1. Tourism in Japan and Kansai

1.1. National government initiatives and foreign visitors

Having taken note of tourism for its extensive economic ripple effects, the Japanese

Government drew up its tourism strategies in 2002 and in the following year kicked off the "Visit Japan Campaign" in order to increase the number of foreign visitors to Japan. Then in 2006, they established the Tourism Nation Promotion Basic Act, followed by the Cabinet decision of the Tourism Nation Promotion Basic Plan in 2007. In its 2010 "New Growth Strategy," a target was set to boost the number of foreign visitors to 25 million by the early 2020s, and to 30 million thereafter.

Partly due to the easing of the requirements for issuing visas to Chinese citizens in response to these initiatives, the number of foreign visitors began surging to reach a record high of 8.61 million in 2010.

In the wake of the Great East Japan Earthquake in March 2011, however, the number of foreign visitors dropped sharply. As a result of subsequent efforts to recover numbers and improve infrastructure to accommodate foreign visitors, the number of foreign visitors rose close to its former level in 2012. After the beginning of 2013, backed by the expanded supply of flights offered by low-cost carriers (LCCs) and the easing of the high yen, the number of tourists from Korea, Taiwan, Hong Kong, Thailand, and other Southeast Asian countries showed a major increase. July 2013, in particular, saw the number of foreign visitors to Japan top the one million mark for the first time in any single month, and the total number between January and July of that year registered more than 20% year-on-year growth.

Similarly, the number of foreign passengers at Kansai International Airport reached a record high of 3.82 million in fiscal 2012. The momentum has since been maintained, with the monthly number showing a positive year-on-year growth for 17 consecutive months up to July 2013.

1.2. Joint overseas promotions between Osaka City and Kansai municipalities

Made up of governments of seven prefectures and four ordinance-designated cities including Osaka City, the Union of Kansai Governments takes proactive measures to invite foreign tourists by strategically communicating Kansai's diverse and distinctive attractions, such as its time-honored traditions and history, creation of new culture, and industrial clusters, in a bid to make Kansai the "capital of Asian culture and tourism." Soon after the Great East Japan Earthquake, heads of member governments were sent to East Asia, Europe, and North America to promote tourism in Kansai and assure them of the region's safety. To address the decrease in Korean tourists, on the other hand, the Union appointed influential Korean power bloggers as "Kansai Tourism Ambassadors," thus successfully promoting the merits of Kansai.

The City of Osaka also formed a Foreign Tourist Invitation Executive Committee with the Cities of Kyoto, Kobe, and Sakai in a joint effort to disseminate domestically

and abroad the colorful appeal of the four adjacent cities. Some of its concrete programs include incentive promotions for the Visit Japan Central-Local Government Collaboration Project, which is targeted at the wealthy populations in Singapore, Hong Kong, and other cities, invitations to travel agencies and the media, and compilation of materials on tourist attractions for the foreign independent travel (FIT[1]) market and incentive market through collaborations with Universal Studios Japan (USJ), Kansai International Airport, and other parties.

Another Visit Japan Central-Local Government Collaboration Project, the "Kansai Mega Sale" was offered during the period between the year-end and the Lunar New Year when the number of Chinese tourists from China and elsewhere increases. Local commercial, tourism, and lodging facilities were invited to offer incentives to foreign tourists through collaborations with Kyoto, Kobe, Sakai, and other municipalities, Kansai International Airport, and private businesses, in order to make the entire Kansai region a place for enjoyable shopping.

2. Formulation of strategies for enhancing Osaka's urban attractions and tourism and leading programs for them

2.1. Strategy to create urban attractions in Osaka

Cities around the world are engaged in heavy competition in the broad area of "urban attractions," which includes culture and sports, as well as tourism. For Osaka to make its presence felt in this area, it is necessary that all organizations concerned be aligned to draw up and implement strategies in order to maximize synergies.

Accordingly, in December 2012, Osaka City together with Osaka Prefecture mapped out an "Osaka Urban Attraction Creation Strategy" as a new shared scheme to be placed above the individual programs for tourism, culture, sports, and international exchange. Through this strategy, both the prefectural and city governments of Osaka are combining their projects to enhance the global urban appeal of Osaka in order to realize a "competitive Osaka" where people, goods, and investments are gathered together from around the world. The strategy has selected key programs, which include 1) three priority initiatives, 2) management of five priority areas, and 3) the symbolic year of 2015.

2.1.1. Three priority initiatives

The three priority initiatives that have been chosen are the realization of "Osaka – the capital of water and light," development of frameworks for evaluation/planning and a

[1]Private travel where individuals design their own itinerary and choose hotels, etc., rather than taking a packaged tour created by travel agencies

think tank function for cultural programs, and making Osaka a destination that tourists around the world yearn for. In early fiscal 2013, organizations for promoting each of these three were set up.

The first such organization is the "Promotional Setup for Water and Light Town Development," which is comprised of the "Partners," a private-led general promotional organization and the "Authority," an administrative organization that supports private-sector activities. The second is the "Osaka Arts Council," which aims to establish a new framework for government subsidies while drastically reviewing conventional cultural development programs. The third is the "Osaka Government Tourism Bureau," a strategic group of professionals under strong management leadership that is comparable to similar tourism organizations among the world's leading metropolises. These organizations will be responsible for promoting the priority projects from now into the future.

2.1.2. Management of priority areas

Five priority areas have been selected toward the goal of developing a global first-class hub of culture and tourism, and different management approaches are taken to match the unique characteristics of each.

In the "Osaka Castle Area," a variety of measures are being implemented to make the Osaka Castle Park district a world-class tourist destination, such as utilization of private-sector initiatives to enhance the area's appeal, the introduction of Japan's first tourist spot park management organization (PMO), and the creation of new tourist areas by tapping into historical resources in the district. For the "Nakanoshima Area," which is the priority area for culture and art, discussions are under way concerning new directions for art galleries. In the "Tennoji and Abeno Area," measures are being taken to enhance the ability to attract tourists to Tennoji Zoo and other attractions. In the "Midosuji Boulevard Area," there are plans to accelerate moves for creation of a "Festival Mall" there by, for example, generating high-quality crowds that will draw considerable attention to Midosuji Boulevard and its adjacent areas. And in the "Chikko and Bay Area," plans are under way to create a tourist destination that will attract tourists from across the globe, including the enhancement of its ability to draw people in by making the area a home port for cruise ships and the creation of a new community on the waterfront.

2.1.3. The symbolic year of 2015

The year 2015 is the "symbolic year" for the attempt to establish Osaka as a popular tourist destination, as it marks both the 400th anniversary of the winter and summer campaigns of the Siege of Osaka and the completion of the Dotonbori canal and the 100th anniversary of the opening of Tennoji Zoo. In support of various private-sector

events, local governments are becoming actively involved in this historical celebration through deregulation and public relations activities.

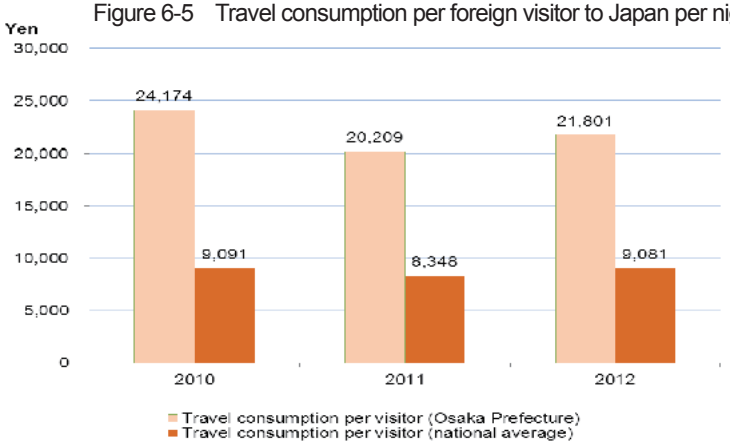
2.2. Osaka's tourism strategy

Playing host to two major gateways for foreign visitors – Kansai International Airport and the Port of Osaka – Osaka is brimming with attractive tourism facilities, unique culture, restaurants, shopping areas, and accommodations. In the vicinity are the popular tourist destinations of Kyoto and Nara, which abound in UNESCO World Heritage Sites. Its geographical proximity to and historical connections with Asia, a region that is experiencing rapid economic growth, make Osaka a prime starting point for the "golden route" of foreign tourists visiting Japan. Furthermore, the average amount of travel consumption by foreign visitors to Osaka is among the highest in this country, which seems to offer the promise that tourism promotion will lead to a sizable economic ripple effect throughout the region (Figure 6-5).

Because of this, Osaka City has identified tourism as one of the priority strategic areas that should drive economic growth in Osaka, and has promoted a series of programs that are designed to increase the number of foreign visitors staying in the city.

After the aforementioned "Osaka Urban Attraction Creation Strategy" was created together with the Osaka Prefectural Government, the two governments' tourism strategies were unified in December 2012 to determine the course of projects to be taken as a part of the overall strategy, which serves as a master plan for tourism promotion on the Prefectural and City government levels. Going forward, all of the municipalities in Osaka Prefecture will unite as one to promote tourism through closer mutual collaboration.

Figure 6-5 Travel consumption per foreign visitor to Japan per night



Source: Consumption trends of foreign visitors to Japan (Japan Tourism Agency)

2.2.1. Aims and objectives of the strategy

The tourism strategy aims to revitalize the regional economy and improve residents' quality of life. Toward this goal, a variety of programs are being carried out to make Osaka the center of in-bound tourism in Kansai by tapping into its prime accessibility and hospitable climate and the wealth of tourism resources in the region, thereby attracting tourists and investments from Asia and other parts of the world, while at the same time enhancing the economic benefits of the programs by honing the city's urban appeal to increase the number of staying tourists.

The strategy covers the period from 2012 to 2020 and has the following numerical targets (Table 6-5).

Table 6-5 Targets of the tourism strategy

	Number of foreign travelers to Osaka	Total number of foreign travelers staying in Osaka
2011	1.58 million	2.37 million
Interim target (2016)	4.5 million	6.0 million
2020	6.5 million	9.0 million

It is expected that the consumption effect of foreign visitors staying in Osaka will amount to 1.82 billion yen in 2020.

3. Increasing Osaka's competitive edge

It has been almost twenty years since the Osaka City Government took notice of tourism as a means of revitalizing its economy and began working on its promotion in earnest.

During that period, a number of attractive tourist destinations, such as the Osaka Aquarium Kaiyukan and Universal Studios Japan, and transportation infrastructure have been developed, and events for drawing visitors have made steady progress. The "Osaka Hikari-Renaissance" has become a special attraction on winter nights in Osaka, attracting over three million visitors in one year. This past year, it was held under the renewed framework of "The Festival of the Light in Osaka," which was made possible through joint efforts between the government and the private sector. Historically, rivers and waterfront areas have played a pivotal role in Osaka's development, and as they transform they continue to enhance the appeal of Osaka as an "aquapolis."

Osaka is accumulating a high concentration of facilities for dining, shopping, and other tourist attractions on a scale that only a large city could achieve.

With a view toward increasing "Osaka's competitive edge" as a tourist destination, a number of programs are being implemented to ensure that the city can successfully compete against other major cities around the world.

Chapter 7 Establishing Integrated Resorts in Japan

1. The growing movement towards building Integrated Resorts

Recently, so-called "Integrated Resort" (IR) commercial facilities are attracting public attention in Japan, not only for the expectation of increased tax revenue through attracting customers from overseas but also for the creation of domestic employment. An IR is a large-scale facility that brings economic spillover effects to neighboring regions by attracting large number of tourists, such as "MICE" business travelers[1].

Generally, an IR has a casino at its heart, but at present it is illegal to provide casino gaming services in Japan. However, after the awarding of the 2020 summer Olympic games to Tokyo, several Diet members put forward a legislative bill to consider establishing an IR including a casino as a bargaining chip for collecting the infrastructural investment to be spent in preparation for the Olympics. The bill had already passed the Diet by December 2013.

As described above, the introduction of casinos into Japan seems to have begun smoothly but it will not be easy to complete, due to difficulties in overcoming the negative images associated with casinos, such as gambling addiction, money laundering, the deterioration of public order, adverse effects on young people, and the collapse of the virtue of work, which contrast with the positive image of the economic effect. Given the fact that many neighboring countries are planning to open new IRs, advocates of establishing IRs in Japan will have to start engaging in public debate immediately if we wish to recommend IRs as a pillar on which to build Japan as a tourism-oriented nation.

1.1. The trend of IR establishment in East Asia

The IRs that are already established or will be opening in the near future in the East Asia region are shown in Table 7-1. In China, IRs have been introduced and are operating with great success in Macau[2], a special administrative region (SAR), since 2002. Another gambling experiment has started in Hainan Island in 2012. In

[1] The acronym "MICE" stands for travelers on **M**eeting and **I**ncentive travel of the firms, those attending **C**onvention and conferences held by international organization, and also those attending big **E**vents and exhibitions.

[2] Gambling sales in Macau were USD 45 billion in 2013.

the Philippines, an IR named "Entertainment City Manila" consisting of 4 casino hotels opened its first phase in March 2013 in Manila Bay and is due for completion by 2015[3]. Also, Russia is now constructing a new designated gambling zone near Vladivostok, as a special administrative district. The project development will be divided into 3 stages and Stage 1 will be complete by 2016, with final completion by 2022[4]. South Korea has presented a plan for a new IR called "Paradise City" that will be opening in 2017. Also in Taiwan, there are ongoing efforts to construct an IR in the Matsu Islands, following an affirmative vote in a national referendum for introducing casinos to Taiwan, and the project is expected to be completed by 2019.

Why are so many countries around East Asia region so eager to construct IRs recently? The answer is the success of Singapore, which opened two IRs in 2010, after legalizing casino gaming.

Table 7-1 IR opening schedule in East Asia region in 2010s

Opening Year	Place	Name
2010	Singapore	"Resorts World Sentosa" "Marina Bay Sands"
2012	Hainan Island (China)	"Mangrove Tree Resort World Sanya Bay"
2015 (first phase completion scheduled March 2013)	Manila (Philippine)	"Entertainment City Manila"
2016 (first phase completion)	Vladivostok (Russia)	"Primorye Integrated Entertainment Zone"
2017 (Scheduled)	Incheon (South Korea)	"Paradise City"
2019 (Scheduled)	Matsu Islands (Taiwan)	

1.2. The transition to IR and the Success of Singapore

To begin with, the concept of an IR has been used broadly after Singapore government planned in 2006 and built a commercial complex including casinos in 2010, a model which has been imitated by many countries. Although it looks like a new concept, the original model of an IR is that of Las Vegas, USA.

[3] For details, see the website. http://www.pagcor.ph/
[4] For details, see the website. http://en.primdevelop.ru/projects/03/ http://www.iezprimorye.com/

Two casino resort hotels on Las Vegas Boulevard South (often called "the Strip") – Caesar's Palace (opened in 1966), and Mirage (opened in 1989) – have been frequently refurbished and continue to attract many visitors, and are essential elements when one talks about the economic success of modern Las Vegas. Especially after the entrance into the market of Steve Wynn, who established the popular Mirage, Bellagio, and Wynn hotels, Las Vegas has changed its style rapidly from a gambling town to that of a center of entertainment, in which many people regardless of age or gender can safely enjoy.

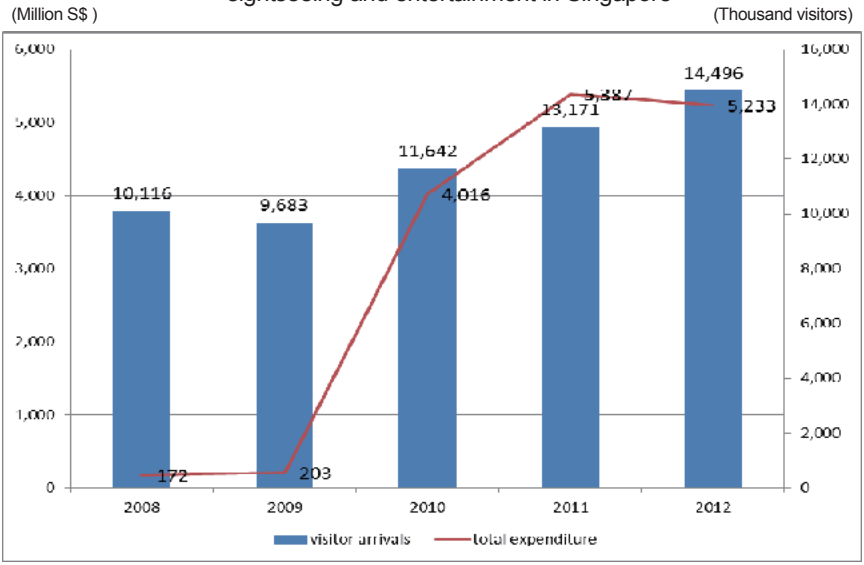
Wynn's enthusiasm spread to China, and Wynn Macau opened in 2006, following an international bid held in 2002 to gain the management rights of a casino hotel in Macau. Furthermore, the Las Vegas Sands Corporation, led by Sheldon Adelson, built The Venetian Macao in 2007. Since then Macau has also turned into an entertainment city. In 2010, after a competitive bid in Singapore, the Las Vegas Sands Corporation won the management rights and built the Marina Bay Sands, which consists of three hotel towers that support a ship-shaped pool above them. The resort includes a convention center, restaurants, food courts, shopping malls, theaters, an art museum, and casino.

In Singapore, an IR named Resorts World Sentosa operated by the Genting Group of Malaysia also opened in 2010. Although it includes a casino, Sentosa Island is oriented primarily for family entertainment, and has many family-use facilities such as Universal Studios Singapore, an aquarium, beach, show-theater, and restaurants, with several hotels. It also has a convention hall that can be used for international conferences. MICE tourists take their families to such leisure facilities while attending their meetings.

The IR mentioned above certainly contributed to the recovery of the Singaporean economy. Numbers of visitors to Singapore and their expenditure for sightseeing and entertainment are shown in Figure 7-1. Of course, while the total number of tourists who visit Singapore has been steadily increasing, it is also seen that they spent much more than before for entertainment services such as gaming at casinos after 2010, when the IR opened.

Following such success in Singapore, there is currently a growing interest in building a new IR in Japan. In the next section, we will show the results of our survey of Japanese demand for casinos.

Figure 7-1 Number of visitors and their total expenditure for sightseeing and entertainment in Singapore



Source: Annual Report on TOURISM STATISTICS 2012 (Singapore Tourism Board)

2. Survey of Japanese demand for casinos

As shown in Section 1, an Integrated Resort including a casino has a certain power to boost an economy if they are successful. Here in Japan, we have the Pachinko industry[5], the scale of which is an estimated 19 trillion Japanese yen, corresponding to almost 180 billion US dollars. Therefore, it would seem that there is enough domestic demand for a casino. In fact, when the Las Vegas Sands Corporation withdrew from the "Euro Vegas" it was planning to build in Spain in 2017, it expressed an expectation for the development of an IR in Asian countries such as Japan and Korea[6].

Here we introduce part of the results of a survey on casino demand in Japan by Hayashi and Mori (2012). The details of the survey are as follows.

[5] Strictly, Pachinko is a legal amusement, not a form of gambling, since the customer who wins the game is not able to change the ball to cash directly. Instead, they exchange the ball for a special prize first, then sell the prize to a purchase-store next to the Pachinko parlor for cash.

[6] For details, see the following website:
http://sands.synapticdigital.com/GLOBAL/PRESS-RELEASES/las-vegas-sands-no-longer-pursuing-spain-development-will-continue-aggressive-pursuit-of-/s/0bb378fd-f75e-4829-b775-c4f0160ff575

Survey theme:	"A Survey and Analysis of Tourism and Medical Demand with Consumption Behavior"
Period of survey:	September 14-20, 2012.
Scope of survey:	Over 20 years of age, living all over Japan
Total respondents:	1,352 (Male: 565, Female: 787).
Survey method:	Internet questionnaire.

First, we asked whether respondents were for or against introducing a casino to Japan. The results are shown in Figure 7-2. We found that 412 people (31%) were in favor and 367 (27%) against the proposal, while 573 (42%) were neither for nor against.

Figure 7-2 Attitudes towards Introducing Casinos to Japan (Total)

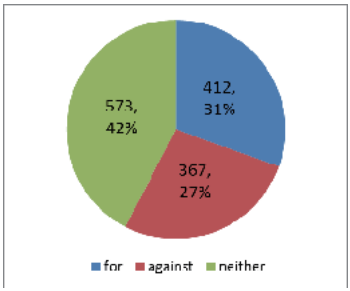
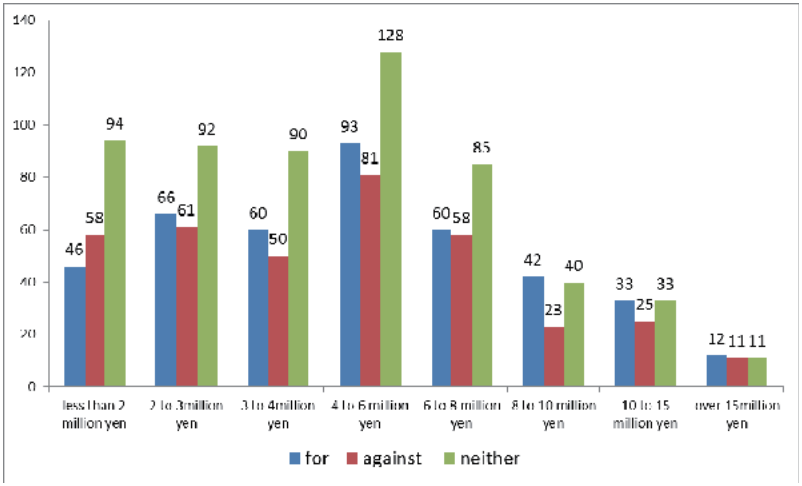


Figure 7-3 Attitudes towards Introducing Casinos to Japan (Income Differentiated)



Looking at answers to the same question differentiated by income, "for" exceeds "against" in all categories except for those with an income of less than 2 million yen. It is not surprising that the majority is "neither", when one considers that there are not so many people who have experienced casino gaming abroad[7].

How does an individual's answer change if they have had an experience of casino gaming, Pachinko or other forms of public gambling such as horse races, bicycle races, speedboat races, or the national lottery? The answer to this question is shown in Figure 7-4[8]. Looking once more at "for" and "against", a positive response is seen in all categories. In particular, among those classified as "casino experienced", almost twice as many responded in favour of opening a casino as against. This shows that the importance of experience can be a means to mitigate the negative images associated with casinos.

Figure 7-4 Attitudes towards Introducing Casinos to Japan among gambling experienced people

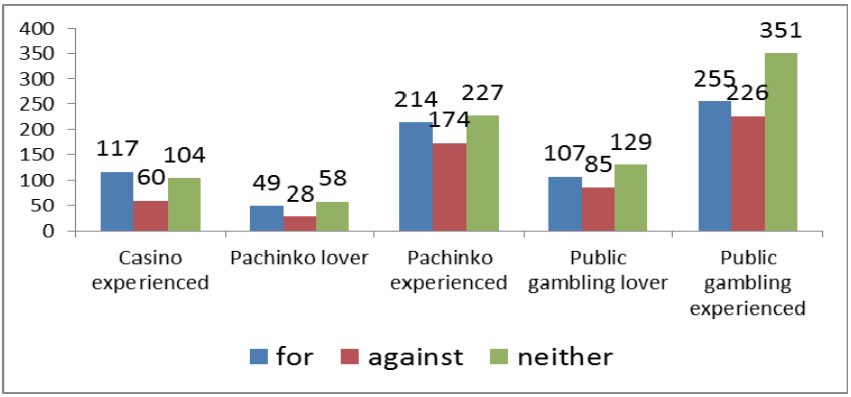
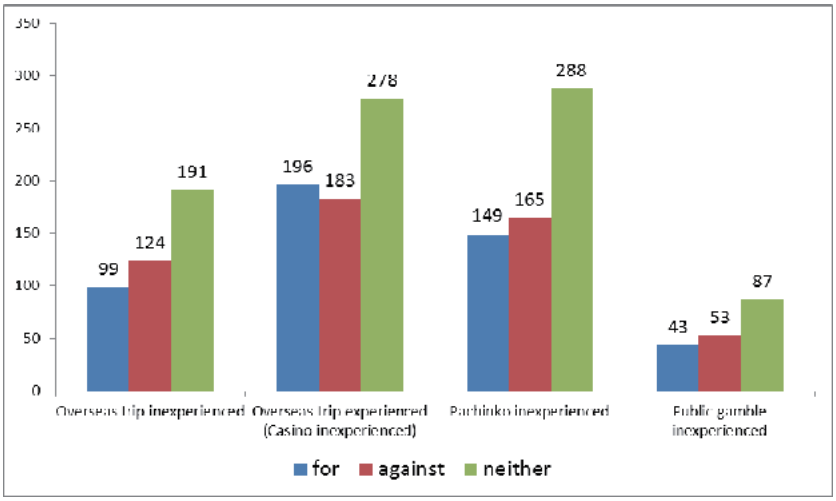


Figure 7-5 shows the responses of people who had not had an experience of overseas trips, casino gaming, Pachinko, or public gambling. Among these people, who are thought to have a negative opinion towards gambling as well as casinos in particular, negative responses exceeded positive ones, as expected. However, among people had not had an experience of casino gaming but had had an opportunity to go abroad, the response was slightly more positive. This also shows that it is important to persuade people with disposable income to spend but who do not have a good image of casinos of the attractions of IRs before introducing them to Japan.

[7] In our survey, 281 of 1,352 people (21%) answered that they have a casino experience.

[8] We distinct the people who went to Pachinko parlor more than once in a year as a Pachinko lover, and who has an experience in the past and not doing now as a Pachinko experienced. Also we express the people who bet on a public gamble more than once in a month as a Public gambling lover, and who has an experience in the past as a Public gambling experienced.

Figure 7-5 Attitudes towards Introducing Casinos to Japan among gambling-inexperienced people



Concerning spending, the average expenditure per day in a casino by the 281 tourists who had had a casino experience, as is shown in Table 7-2. The largest percentage spent under 5,000 yen, followed by 10,001 to 30,000 yen, and then 5,001 to 10,000 yen. We did not find evidence in our survey of anyone who had spent over 500,000 yen, let alone any so-called 'high-rollers' [9].

Table 7-2 Average Expenditure per day in a Casino

	Numbers	Percentage
5,000 yen and under	128	45.6
5,001 to 10,000 yen	57	20.3
10,001 to 30,000 yen	62	22.1
30,001 to 50,000 yen	16	5.7
50,001 to 100,000 yen	11	3.9
100,001 to 200,000 yen	5	1.8
200,001 to 300,000 yen	1	0.4
300,001 to 500,000 yen	1	0.4
over 500,000 yen	0	0.0
total	281	100.0

[9] Generally, a person who deposits around 10 million yen at one stay is called a 'high-roller'.

According to the above results, the introduction of casinos to Japan is mostly welcomed by a plurality, but more than 40 % of people remain unsure about it. In fact, there were only 281 casino experienced respondents (20.8%), and the respondents who intend to go to a casino when he or she goes abroad numbered just 15 (1.1%) in the survey.

People who had had an experience of Pachinko and public gambling were more willing to establish a casino in Japan compared to those who had not had such experience, but their maximum average expenditure per day was 300,000 yen. Therefore, expectations of visitors spending very high amounts of money in casinos would be misplaced.

If we wish to stimulate demand, casino operators must make clear the difference between casinos and other forms of public gambling including Pachinko. Public gambling in Japan is in under the control of the ministries, with the results that their house edges are at extremely high levels[10]. On the other hand, the house edge of casino gaming is at most 5 %, which would be attractive to potential players at the casino if the operator advertised the fact appropriately. Our survey produced many opinions that desired cleanliness, safety, and elimination of illegal activities. We must recognize that the most important thing is not only to respond to their wishes thoroughly and incorporate the domestic demand, but also to attract inbound tourists from overseas.

3. Leisure or MICE

One of the main purposes of establishing an IR is to attract MICE tourists. In this section, we will examine how much MICE demand is there in Singapore and Las Vegas.

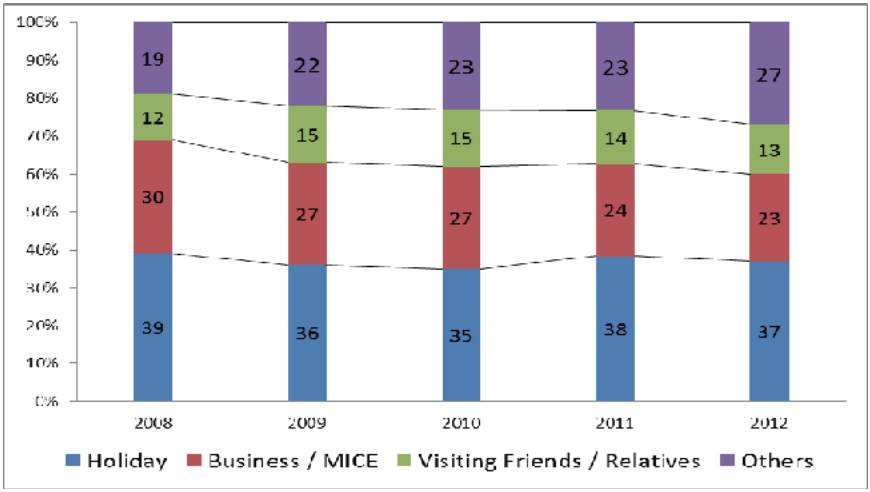
As seen in Figure 7-6, the main purpose of visiting Singapore is holiday/leisure; MICE demand, taken as the sum of convention and corporate meetings, other business, and special events, is almost 10 percentage points lower than that, and decreasing year by year. As seen in Figure 7-7[11], the primary purpose of visitors to Las Vegas is vacation or pleasure, and MICE demand is approximately half that of vacation or pleasure in the last 3 years. From these figures, we should not have excessive expectations with respect to MICE. Rather, MICE offer a complementary demand in the tourism sector to sustain business during the off-season. We must not forget the most important thing, namely to

[10] "House edge" refers to the ratio of total money lost by all players to the total money wagered. The house edge of horse racing is about 25%, the lottery is 50%. Pachinko is estimated to be 60-70%.

[11] Expressing as "Other" in Figure 7-7 is the sum of the following: Friends / relatives, Passing through, Wedding, Casino tournament, and Other, shown in original survey. For details, see page 17 in *Las Vegas Visitor Profile Study 2012*.

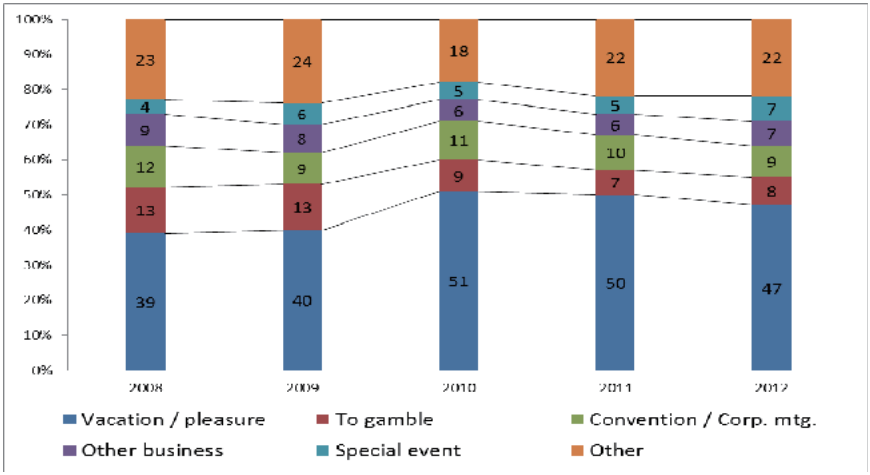
increase the number of inbound tourists.

Figure 7-6 Main Purpose of Visit to Singapore



Source: Annual Report on TOURISM STATISTICS 2012 (Singapore Tourism Board)

Figure 7-7 Primary Purpose of Current Visit to Las Vegas



Source: Las Vegas Visitor Profile Study 2012 (GLS Research)

Should we then focus on overseas tourists whose purpose is casino gaming? As seen in Figure 7-7, the number of people who visit Las Vegas for gambling has

been shrinking recently. This means that the existing IRs especially in Macau and Singapore are already competing for the business demand levels provided by gambling-lovers, and that market has been largely catered for. As described in Table 7-1, there are several IRs opening within 5 years in the East Asia region, and the competition to attract high-rollers will become more intense. From the above, we should think to focus on the general tourist first, as well as considering the domestic demand.

4. Establishing casinos in Japan

4.1. Where to build the casinos

The establishment of an IR in Japan is an ongoing matter of public debate. It seems that there is a high probability that a decision in favour will be made, since Prime Minister Abe is one of the supreme advisors of the parliamentary caucus that promotes IR businesses. It has not been determined yet, but it is planned that the locations for two or three casinos will be settled in a near future[12], at the first stage.

The question then arises: where to build the casinos? We asked 412 people from the previous survey who were in favor of the introduction of casinos to Japan. The results are shown in Table 7-3.

Table7-3 Where to build casinos

	within 30 min.	within 1 hour	within 2 hours	within 3 hours	within 4 hours	over 4 hours	neither	Total
Hokkaido	3	3	4	2	1	5	6	24
	12.5%	12.5%	16.7%	8.3%	4.2%	20.8%	25.0%	100.0%
Tohoku	1	3	5	3	0	3	3	18
	5.6%	16.7%	27.8%	16.7%	0.0%	16.7%	16.7%	100.0%
Kanto	12	47	36	8	1	16	39	159
	7.5%	29.6%	22.6%	5.0%	0.6%	10.1%	24.5%	100.0%
Hokuriku	2	1	0	2	0	3	1	9
	22.2%	11.1%	0.0%	22.2%	0.0%	33.3%	11.1%	100.0%
Tokai	3	14	9	5	0	12	15	58
	5.2%	24.1%	15.5%	8.6%	0.0%	20.7%	25.9%	100.0%
Kansai	3	24	23	7	3	8	22	90
	3.3%	26.7%	25.6%	7.8%	3.3%	8.9%	24.4%	100.0%
Chugoku	0	5	5	0	0	3	4	17
	0.0%	29.4%	29.4%	0.0%	0.0%	17.6%	23.5%	100.0%
Shikoku	1	3	1	0	0	1	4	10
	10.0%	30.0%	10.0%	0.0%	0.0%	10.0%	40.0%	100.0%
Kyushu	0	9	5	1	0	4	7	26
	0.0%	34.6%	19.2%	3.8%	0.0%	15.4%	26.9%	100.0%
Okinawa		1						1
	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
Total	25	110	88	28	5	55	101	412

[12] The first casinos are planned to be located with one in each of a rural and an urban area. Therefore it will not be the case that there will be casinos in both Tokyo and Osaka in the early stage. The choice will be between Tokyo "or" Osaka, and also in a rural area like Nagasaki or Okinawa .

The largest number of answers were in favour of building a casino within 1 hour from their place of residence in the Kanto region, which includes Tokyo and Yokohama. The second largest number of responses was for building within 2 hours of Kanto region. These occurred because the majority of respondents live in Kanto. The next preferred choice was in the Kansai region, which includes Osaka, Kobe and Kyoto, within 1 to 2 hours from where they live. Comparing Kanto and Kansai, both are urban centers but the population of Kanto is twice that of Kansai. In addition, the Olympic games will be held in Tokyo in 2020, which would suggest a reason to build the IR to collect the expected infrastructure investment. Certainly Kansai has an advantage in terms of having Kansai International Airport, which is the only airport that operates 24 hours a day in Japan. But other than that factor, it is difficult to make a strong case for establishing an IR in Kansai in the early stage.

In other rural sites, such as in the Kyushu region, there is a possibility to establish a casino, and there are several existing large facilities that have recently purchased by companies which aim to operate a casino[13]. These sites do not need to build new IR facilities, so they have a strong case to host the first casino in Japan, since Kanto or Kansai may take many years to build a new IR.

The Tohoku region, which suffered an earthquake and tsunami in 2011, and Okinawa are also being considered as a location for a new IR. As with Kanto or Kansai, if a new IR will be built in these sites, it will take a long time to complete the project.

In Hokkaido and the Hokuriku region, more than 20% of respondents living there are not willing to build the casino nearby even though they are positive towards the introduction of casinos to Japan.

4.2. In order to establish IR

In the past, it was critical to lock in the customers inside the casino and entice them to spend as much as possible in Las Vegas. But nowadays, convenience, safety and entertainment are desirable from the viewpoint of customers, and Las Vegas has developed in response to these demands[14]. When establishing IRs in Japan, we must imitate this attitude, and not plan only inside the IR. Instead, we should aim to actively facilitate tourists to travel outside the IR and transport them to existing tourist attractions near the IR, wherever they are built. This is an

[13] Such as “Huis ten Bosch” in Nagasaki and “Phoenix Seagaia Resort” in Miyazaki.

[14] 94% of visitors reported being “very satisfied” with their trip to Las Vegas, up from 92% in 2011. Also, 84% of 2012 visitors were repeat visitors, up from 82% in 2010. For details, see page 6 and page 12 in *Las Vegas Visitor Profile Study 2012*.

effective way to transform visitors into repeat visitors.

Integrated Resorts have ceased to be something unusual and are becoming difficult to differentiate, just as Japanese foods can be eaten all over the world nowadays. We must think of the strong points that Japan can offer in relation to the IR. It is also important to combine the IR and the surrounding regions with developing the infrastructure to welcome the tourists from overseas.

The overseas tourists who came to Japan topped 10 million for the first time in 2013, but Singapore has more visitors. The casino is a core facility to attract tourists to the IR, but it must be an engine to spread the economic effects out to the neighboring regions. We should aim to develop Japanese IRs as centers of tourism, responding to the various needs of "MICES"[15].

[15] MICE and Sightseeing / Scenery.

Special Topic

Chapter 8 Natural Disasters in Asia: the Case of the 2011 Thailand Floods

Chapter 8 Natural Disasters in Asia: the Case of the 2011 Thailand Floods

1. The risk of natural disasters and social vulnerability

Natural disasters have increasingly come to be seen as posing major risks for loss of human lives and properties in our society, and we have been exposed to these risks more than ever. EM-DAT[1] statistics show that the number of natural disasters occurring globally has been rising. In particular, the Asia region is the most natural disaster prone area in the world. About 47% of all natural disasters that occurred during the period 1970 to 2011 occurred in Asia. These include such devastating disasters as the 2004 Indian Ocean Tsunami and the 2011 Great East Japan Earthquake.

Because of the magnitude of the death tolls and economic losses of natural disasters, building disaster resilient societies is a priority issue in Asian countries.

Some recent literature has shed light on the importance of social vulnerability in disaster mitigation policy. Studies show that the extent of the damage depends on the level of economic and social factors, in addition to the scale of the natural disaster. For instance, Kahn (2005)[2] and Toya and Skidmore (2007)[3] have done international comparative analyses and found that countries with lower national income level and less developed institutions are more vulnerable to natural disasters. This result explains why developing countries are more likely to have high death tolls and capital stick losses, in particular at the time of massive natural disasters.

In this section, we see how such social vulnerability contributes to the damage caused by a large-scale disaster occurred in a developing country. As a case study, we take the 2011 Thailand Floods. The flood is known as the worst to have occurred in Thailand for more than seventy years. We survey how the flood occurred, how well prevention policies worked, and what the consequences were.

In the next part, we summarize the damage situation of the 2011 floods. After that, we first study Thailand's environmental features and disaster prevention policy, and subsequently observe how the heavy rain developed into massive

[1] Center of Research on the Epidemiology of Disasters (CRED), EM-DAT database.
[2] Kahn, M.E., "The Death Toll from Natural Disasters: The Role of Income, Geography, and Institutions," The Review of Economics and Statistics, May 2005, 87(2), 271-284.
[3] Toya, H. and M. Skidmore, "Economic Development and the Impacts of Natural Disasters," Economic Letters, 2007, 94, 20-25.

flooding. Then, we review Thailand's master plan for flood prevention and the recovery plan after the 2011 floods, and giving concluding remarks and policy suggestions in the final section.

2. Damage situation of the 2011 Thai Floods

According to the World Bank (2012)[4], the 2011 floods were the most devastating flooding to have occurred in Thailand since 1942. Flooding continuously affected Thailand from late July to mid-December. Sixty-nine of seventy-seven provinces were affected and in particular the lower part of the Chao Phraya River basin, where Bangkok and Ayutthaya are located, was seriously damaged.

Table 8-1 Economic damage caused by 2011 Thailand Floods in Thai Baht, millions

Sub Sector	Disaster Effects			Ownership	
	Damage	Losses	Total	Public	Private
Infrastructure					
Water Resources Management	8,715	–	8,715	8,715	–
Transport	23,538	6,938	30,476	30,326	150
Telecommunication	1,290	2,558	3,848	1,597	2,251
Electricity	3,186	5,716	8,901	5,385	3,517
Water Supply and Sanitation	3,497	1,984	5,481	5,481	
Production					
Agriculture, Livestock and Fishery	5,666	34,715	40,381	–	40,381
Manufacturing	513,881	493,258	1,007,139	–	1,007,139
Tourism	5,134	89,673	94,808	403	94,405
Finance & Banking	–	115,276	115,276	74,076	41,200
Social					
Health	1,684	2,133	3,817	1,627	2,190
Education	13,051	1,798	14,849	10,614	4,235
Housing	45,908	37,889	83,797	–	83,797
Cultural Heritage	4,429	3,076	7,505	3,041	4,463
Cross Cutting					
Environment	375	176	551	212	339
TOTAL	630,354	795,191	1,425,544	141,477	1,284,066

Source: World Bank, "Rapid Assessment for Resilient Recovery and Reconstruction Planning," 2012, p.3

The damage to human lives, capital stocks and economic activity were immense. The death toll was 813 as of January 2012, and about 13 million people were affected. The economic damage was at about 1.43 trillion Thai Baht (almost 46.5 billion US dollars), about 56% of which was caused by opportunity loss. About 16,669km^2 of farmland and 9,859 factories were inundated. In particular, Japanese firms' facilities, which contribute significantly to the manufacturing sector, were seriously damaged. As a result, the real GDP growth rate plunged to

[4] World Bank, "Thai Flood 2011. Rapid Assessment for Resilient Recovery and Reconstruction Planning," 2012

0.1% in 2011. The World Bank estimated that the amount of government expenditure that would be necessary for the recovery plan would be at least 1.49 trillion Baht. Detailed figures for the economic damage are listed in Table 8-1. In the next section, we study the environmental features of Thailand and the country's flood prevention policy.

3. The environment of Thailand's rivers and the flood mitigation policy

3.1. The environment of the Chao Phraya river basin

In Thailand, most of the habitation areas including the capital city are located downstream of the country's largest river, the Chao Phraya river. The entire Chao Phraya river watershed is about 160,00km^2, covering about 32% of Thailand's total land area.

The watershed is normally classified into upstream and downstream at the middle of the basin. Upstream, there are four major rivers: the Ping, Wang, Yom and Nan rivers. The confluence of those rivers is in middle of the basin near Nakhon Sawan city located, around 200km north of Bangkok. The river running through Ayutthaya city and Bangkok city to the Gulf of Thailand is called the Chao Phraya river. A map of the Chao Phraya river basin is shown in Figure 8-1.

3.2. The watershed characteristics of the Chao Phraya river

Thailand is a flood-prone country and the floods are likely to occur downstream of the Chao Phraya river. The downstream section of the Chao Phraya river basin has less discharge capacity[5] than the upstream section. The discharge capacity of the river around Nakhon Sawan city, the Chao Phraya Dam constructed below Nakhon Sawan city, and at Ayutthaya city are 3590m^3/s, 2840m^3/s and 1155m^3/s, respectively (Komori 2012[6]). This is because rivers in Thailand are gently sloped, particularly at the lower part of the Chao Phraya river.

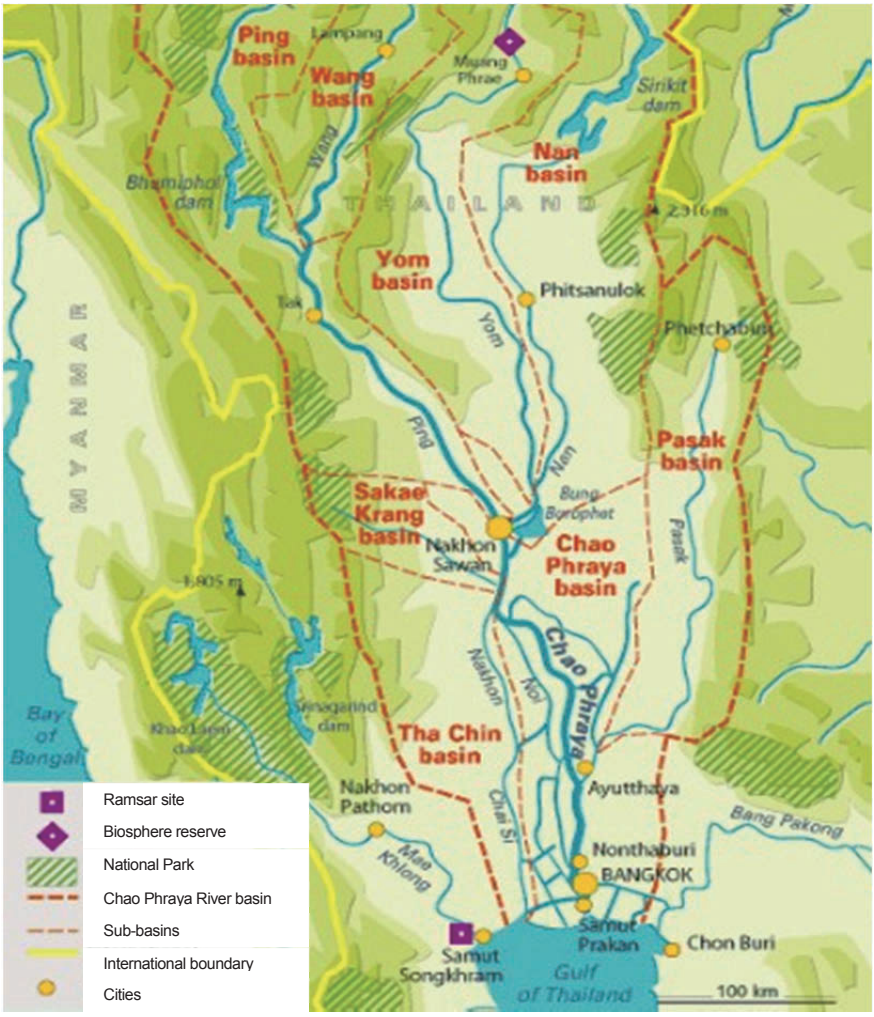
Under such conditions, flooding from upstream raises the water level downstream so that tributaries cannot flow into the main river and the waters inundate the neighboring regions (Komori et al 2012)[7]. The 2011 floods were exactly this case.

[5] Flooding occurs when water flow surpasses the river's discharge capacity, and generally the discharge capacity of the river is higher downstream.

[6] Komori D., "Why 2011 Thailand Floods occurred?" Report of Japanese Chamber of Commerce,Bangkok, pp.2-10, February, 2012

[7] Komori, D., Nakamura, S., Kiguchi, M., Nishijima, A., Yamazaki, D., Suzuki, S., Kawasaki, A., Oki, K., and T. Oki, "Characteristics of the 2011 Chao Phraya River Flood in Central Thailand," Hydrological Research Letters, 6, pp.41-46, 2012

Figure 8-1 Chao Phraya river basin map



Source: Rivers of the World, (URL: http://www.riversoftheworld.org/11664)

3.3. Flood prevention policy of the Chao Phraya River basin

Given the experiences of massive floods in 1942, 1983 and 1995, Thailand established a flood prevention policy mainly focused on three points listed below.

Firstly, large dams were constructed for flood control. There are two major

dams upstream of the Chao Phraya river, the Bhumibol dam and the Sirikit dam. The total water storage capacity of both dams is about 23 billion m^3, which is about 93% of the total capacity of dams located in the Chao Phraya River basin. Tebakari and Furuya (2005)[8] found that the maximum and minimum water outflow just below both dams decreased after the construction, meaning constructing those dams has been effective for mitigating flood impacts.

Secondly, floodgates and levees are situated around the middle of the basin to prevent floods flowing into cities or industrial parks, and also flood control basins were set at the right bank of the river for use in times of flooding to help lower the water level of the main river and to effectively evaporate the water.

Thirdly, flood prevention infrastructure has been constructed around Bangkok city. The King's Dike, a 50cm-high dike which is also used as an urban beltway, was constructed to avert floods to the eastern area of Bangkok city. The eastern area is called "Green belt", and the government regulated land use in this area for flood control.

Despite the prevention policies outlined above, the 2011 floods affected many industrial parks and cities, including Ayutthaya, Bangkok, and Nakhon Sawan, and brought tremendous damage to people and economic activity. In the following section, we observe the development process of the floods and how well the policies worked.

4. The development process of the 2011 floods and the failures of the policy

4.1. Fundamental cause of the flood in 2011: record rain levels

The fundamental cause of the 2011 Thailand floods was the heavy rains that fell continuously throughout the rainy season, which lasts from May to October. These rains were in part due to the arrival of typhoons Haima, Nok Ten, Hai Tang, Nsard, and Nalkae, from June to October.

The amount of precipitation in 2011 around the Chao Phraya river basin broke various statistical records. The mean rainfall of the season was about 1,439mm, about 143% of its average during 1982 to 2002. Furthermore, monthly mean precipitation had continuously exceeded the historical average throughout the rainy season. The figures for monthly mean rainfall from May to October in 2011 were 161%, 134%, 178%, 132%, 144%, 111% of past monthly averages, respectively (Komori 2011[9]).

[8] Tebakari, T. and J. Furuya, "The impact for the stream regime by building large dam in Thailand – the case of Chao Phraya river-," Hydrological research letters, vol.18, No.3, pp.281-292, 2005

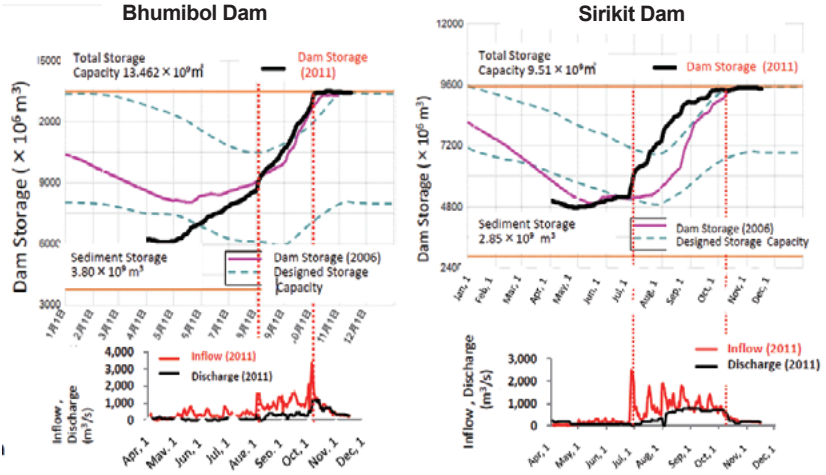
[9] Komori, D., "Preliminary Report on Field Survey of 2011 Chao Phraya River Flood," Symposium "How can we save our society by science and technology from water related disaster?" 1st December 2011

4.2. Water storage at the Bhumibol and Sirikit dams during the flood period

Here, we examine the water storage situation of the Bhuimbol and Sirikit dams, since upstream water management is a primary measure to mitigate floods in Thailand. Komori (2011) showed the detailed transition of their water inflows, outflows, and storage levels (Figure 8-2).

The situation at the Bhumibol Dam was straightforward, in that the amount of stored water had been continuously increased from the beginning of the rainy season. The water storage described by the bold line in Figure 8-2 had constantly increased from early May and surpassed the lower rule curve[10] (expressed in the lower broken line in each graph) by late May. The water storage level still steadily increased even after early September when the water level surpassed the upper rule curve (upper broken line in each graph). In the end, the dam was storing water at its maximum capacity by early October and this amount was not reduced until the floods ceased.

Figure 8-2 inflow and discharge from Bhumibol Dam and Sirikit Dam



Source: Komori (2011), pp.12

Behind this, there was a large deviation of water inflow and outflow. From early May, the water inflow of the Bhumibol dam had increased and sometimes

[10] The 'rule curve' represents the target amount of water storage of dams. The amount of the water stored is controlled to fall between the lower line and upper line. In short, if the water level is under the lower rule curve, dams simply try to increase its water storage. Water inflow is preferred to outflow until water level surpasses the upper rule curve.

showed a sharp rise, particularly after early August. Nevertheless, the water outflow had not been increased sufficiently and was almost stable from early April to late September. Finally, the water outflow increased substantially in early October but barely surpassed the level of its inflow until the end of flooding.

The situation at the Sirikit Dam was similar. Its water storage had also increased from late June because water inflow rapidly increased. Then the water level exceeded the lower and upper rule curve in a short period of time through late June to mid-July. But in contrast to the inflow, the water outflow only started to show a slight increase from mid-July, and even temporally decreased in early August. As a result, the water level showed a steady increase. After that, a major water discharge was finally begun after early August, and continued until mid-October, but the outflow seldom surpassed its inflow level. The Sirikit Dam was at full capacity in late September and kept this level during the flood period.

4.3. Problems of water management at the Bhumibol and Sirikit dams

It seems that the water management of the Bhumibol and Sirikit dams was appropriate because they followed the rule curve, but Nipon and Pitsom (2013)[11] pointed out several problems about the water management at these dams, which often contradicted the official flood mitigation policy.

Firstly, the rule curve was based on out-of date information about seasonal weather forecast, hydrology evaluation and so on. Without precise assessment, it is hard to make decisions about the timing of increasing water discharge. Also the space between the lower and upper rule curves was too narrow. It is difficult for dam operators to quickly respond to an emergency situation and get approval from higher governmental authorities. However precise weather forecasting is still within a research phase (Oki 2012[12]; Komori et al. 2012). The water management of dams based on the rule curves should be a topic of continuous discussion for the relevant authorities.

Secondly, the water management of both dams was done separately, without a comprehensive disaster prevention plan. The amount of inflow and outflow was decided by following their own rule curves individually, without taking into account the other dam's situation. Additionally, they also did not take account of the situation of water discharge upstream and even the flood situation downstream. As seen in the next subsection, the Sirikit and Bhumibol dams had

[11] Nipon, P. and M.Pitsom, "Impact of the 2011 Floods, and Flood Management in Thailand," ERIA discussion paper series, ERIA-DP-2013-34, November, 2013

[12] Oki, T., "The damage of 2011 Thailand Floods," Yoboujihou, vol.250, pp.18-23, 2012

been discharging largely when the area below Nakhon Sawan was already inundated. Tebakari and Yoshitani (2012)[13] found that the Bhumibol Dam's reservoir operations had a significant impact on 2011 flooding.

Furthermore, there was a possibility to mitigate the damage impact if both dams had sufficiently increased the water outflow corresponding to the inflow before flooding occurred. Komori et al (2012) and Oki (2012) estimated that both dams could store up to another 5 billion m^3 of water – which is about one third of the total amount of flooding in September – if they had released more water in July and August.

Thirdly, there was a significant distortion of the water management caused by the electricity company and politicians supported by local farmers. The Electricity Generating Authority of Thailand (EGAT) was under political pressure to keep the water storage at a high level in order to secure irrigation water. A newspaper, "The Nation", reported on 11th November that Minister of Agriculture Theera Wongsamut admitted that the government ordered the delay of water release to give farmers time to harvest. Also, giving priority to storing water also served EGAT's own corporate interests as well by lowering the cost of generating electricity. Looking at the inflow-outflow levels, it is clear that EGAT preferred to store water rather than releasing from the beginning of rainy season and even at the moment of flooding.

4.4. The beginning of the floods around the middle basin

Looking at the situation below major dams, flooding was close to occurring on the middle reaches of the Chao Phraya river basin after August. Komori (2011) confirmed by satellite observations that inundation had already started around the confluence of the Nan and Yom rivers in early August. Also Komori found that the water discharge through Nakhon Sawan city to Ayutthaya city began to surpass the capacity by mid-September.

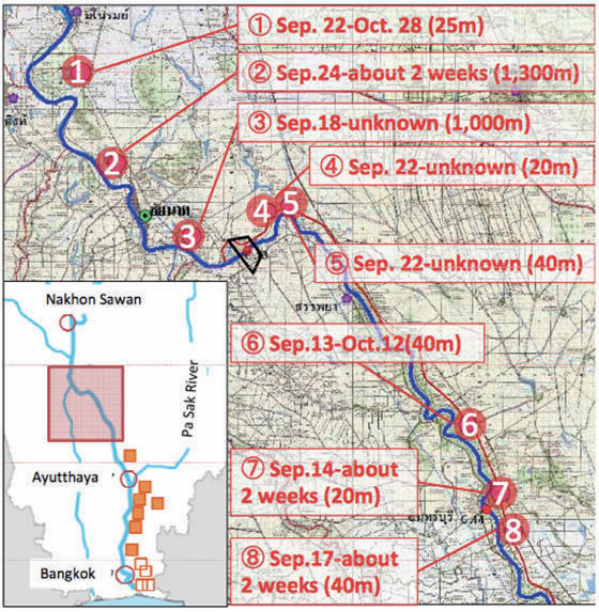
At the same time, the Sirikit Dam had gradually increased its water discharge from early August. Subsequently, the Bhumibol Dam substantially increased outflow from late September.

Finally, the rainfall was about to turn into floods. Flooding in the downstream region was first confirmed in early September. During 13th to 24th September, 8 major floodgates or dykes located between Nakhon Sawan and Ayutthaya were breached (Komori 2011; Oki 2012) (see Figure 8-3). The floodwaters flowed into

[13] T., Tebakari and J. Yoshitani., "Impact of large-scale reservoir operation on flow regime in the Chao Phraya River basin, Thailand," Hydrological Processes, Vol.26, Issue 16, pp.2411–2420, 2012

the right bank in mid-September, and widespread flooding had occurred in the left bank by late September.

Figure 8-3 Map of 8 breached levees located between Nakhon Sawan and Ayutthaya city (): Length of Levee Crevasse



Source: Komori (2011) "Preliminary Report on field survey of 2011 Chao Phraya River Flood" (url: http://hydro.iis.u-tokyo.ac.jp/Mulabo/news/2011/Komori_presentation.pdf), pp.18

4.5. The Inundation of industrial parks around Ayutthaya

The waters further advanced southward, slowly inundating the vast floodplain and inundating a number of industrial parks around Ayutthaya city. The waters reached Saha Rattana Nakhon Industrial park on 4th October. Subsequently, industrial parks such as Rojana, Hi-Tech, Bangpa-In, Factory Land, Navanakorn, Bangkadi were struck through early to late October. The locations of these industrial parks are listed in Figure 8-4.

Figure 8-4 Map of industrial estate around Bangkok

Source: Tokyo Development Consultant, "Map of Industrial Estate around Bangkok" (url: http://www.tdc-thai.com/search/boibkk.htm)

4.6. Problems of flood mitigation policy around the middle of the basin

The inundation of the middle basin was supposed to be prevented by dikes and levees or diverted to the flood control basin, but all of these measures failed. Nipon and Pitsom (2013) have pointed out several policy defects.

Firstly, the local government had failed to undertake proper maintenance of most of the floodgates and levees, even though they were vulnerable to flooding by being located on a curve. The local government's financial basis was too lean to implement proper maintenance for keeping the mitigation capability at the planned level. These facilities had allowed the floods to flow into the right and left bank areas because they had already suffered functional failure before the flooding occurred.

Secondly, the government policy incentivized firms to move into the left bank area, which was known as a natural disaster prone region. There are back marshes or lagoons surrounded by natural levees. Instead of regulating the land use, the government attracted firms with tax holidays and low minimum wages.

In addition, firms had also been motivated to move into the left bank by a certain economic incentive. The land area price was cheap because of the low yield of floating rice in the area, and firms were searching for new candidates for

the location because the land price around Bangkok had gradually risen. Oki (2012) has argued that the primary cause of the tremendous damage of the 2011 Thailand floods was not only the scale of the flooding but also the expansion of developing areas. As Thailand's economy had developed, the development region had increasingly expanded into the disaster prone area.

4.7. An over-optimistic view of the emergency response by the government

Besides the problems of the mitigation policy around the middle basin noted above, the emergency response by the government also failed to mitigate the flooding damage. The government lacked comprehensive foresight about the flooding situation as a whole, so the emergency response was always one step behind events.

The government scenario was based on an over-optimistic view from the beginning. Plodprasop Suraswadi, Minister of Science and Technology, was the first cabinet member to officially announce the risk of massive flooding, on 30th September. However, other cabinet members blamed him for exaggerating the threat. Even after the breaching of levees and dikes situated above Ayutthaya city during September, the government didn't seriously consider the possibility that Bangkok city might be inundated.

Gradually, the government changed its attitude after the inundation of industrial parks such as the Saha Rattana Nakhon on 4th October and the Rojana on 9th October. The military forces were sent to prevent the floods from spreading further, but the government still believed that they could prevent another industrial parks from being inundated. For example, when Minister Plodprasop warned about the risk of inundation to some residents in North Bangkok area and Pathumu Thani prefecture and ordered an evacuation to Don Mueng airport on 13th October, the FROC (Flood Relief Operation Center) director and the Minister of Justice Prach Promnok revoked the order, saying the flooding situation was under control and the Navanakorn industrial estate would be safe.

Finally, the government was forced to officially announce a first evacuation order, for the Navanakorn industrial park on 17th October, since the dikes situated north of the industrial park were breached on the same day. After that, flooding inundated the industrial zone on 19th October.

The emergency response by the government clearly failed to prevent further inundation and to mitigate the damage. The government tried to regain the initiative by moving back the defense perimeter at Bangkadi industrial park, but

again they failed to prevent the flood spreading, and Bangkadi industrial park was also inundated on 20th October. Other than these, Hi-Tech, Bangpa-In, Factory Land and Navanakorn industrial parks were eventually affected, one after another. Most of the affected industrial parks remained flooded until mid-November and, in some cases, the floodwaters didn't recede until early December.

4.8. No emergency declared

One thing that should be noted is that the government did not issue an emergency declaration. To ensure an efficient emergency response by the military forces, there was serious political pressure to issue a declaration delegating authority to the military. On 11th October, Abhisit Vejjajiva, the former Prime Minister of the Democratic Party, urged the government to declare an emergency at a meeting of ruling and opposition party leaders. However, Prime Minister Yingluck Shinawatra of the Phue Thai Party failed to do so.

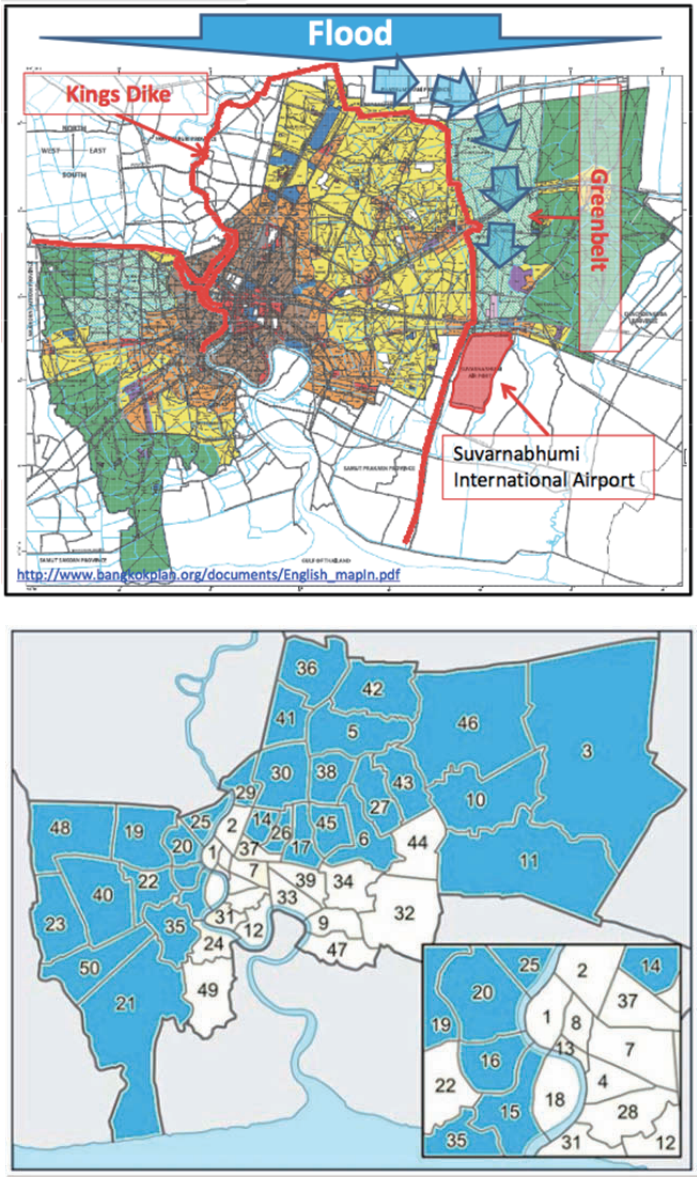
Behind this, a strained relationship between the government and the military existed. Officially, the government explained the reason not to issue an emergency declaration was that the announcement could harm tourism and investor sentiment, but it seems that there was another reason: some of the Phue Thai party councilors were reportedly worried that issuing an emergency declaration might lead to coup d'etat by the military. Thailand has experienced recent political turmoil including a military coup d'etat in 2006 and armed conflict between the administration and demonstrators on "Black Saturday" in 2010. Prayuth Chan-ocha, the commander of Royal Thai Army, objected to these fears saying there no one intended a coup d'etat while the citizens were soaking up to the neck.

But in reality, the commander himself was also negative about issuing an emergency declaration. Officially he was skeptical about the military's ability to change the situation, but he also reportedly thought government should take full responsibility for the result of the flooding situation.

4.9. Inundation of Bangkok city and end of the flooding

Finally, the flooding inundated parts of Bangkok city on 22nd October. The breaching of a levee was confirmed in the Dusit ward. Right after that, Don Mueng airport was inundated, meaning that flooding had already occurred inside the King's Dike. The number of affected areas was growing, and the government was forced to move the headquarters of the FROC to Chatuchak ward in midtown on 29th October.

Figure 8-5 King's Dike and Greenbelt and affected areas in Bangkok (in blue)



Source: Komori (2011) "Preliminary Report on field survey of 2011 Chao Phraya River Flood," pp.24
JETRO, "The affected wards in Bangkok in the 2011 Thailand Floods," as of 15th November, (url: http://www.jetro.go.jp/world/asia/th/flood/inundated_khet.html)

In early November, eventually the water level of the Chao Phraya river started to decrease and the waters in Bangkok stopped at Bang Sue Canal 5 km north of midtown, and advanced no further in mid-November. From this point, the floods gradually ceased.

On 19th November, Prime Minister Yingluck issued a declaration of safety. In the end, three-fifths of the wards in Bangkok city were affected by flooding. The maps of the King's Dike and the affected areas in Bangkok city are shown in Figure 8-5.

4.10. Problems of flood prevention policy in the capital region

The prevention policy around the capital region failed to prevent the flooding of much of the city. There were problems both of 'hardware' and 'software' related to the flood prevention policy.

In terms of hardware, flooding at Bangkok city was supposed to be prevented by the King's Dike, but some sections of this dike had not yet been constructed. The mitigation strategy to divert the flood into the eastern area of Bangkok thus failed at an early stage. To compensate for this, the government started to construct an emergency embankment consisting of gigantic sand bags called "Big bag". But this measure caused an unexpected problem, as explained in the following subsection.

Also, it proved to be impossible to pump out water into the Chao Phraya river at the moment of major scale flooding. To prevent flooding in Bangkok city, the Royal Irrigation Department (RID) and the government of the Bangkok Metropolitan area had installed drainage stations mainly along the Chao Phraya river. But the water level was too high for the waters to flow into the river at the moment of the floods.

Looking at the software, the eastern area of Bangkok was barely functional in terms of flood control. Nipon and Pitsom (2013) argue that the main problems were as follows.

Firstly, the government had gradually deregulated land use policy after lobbying, and had converted the area to serve the interests of financial circles. As a result, houses and industrial parks were constructed in the flood-prone area.

Secondly, land use by the government itself was also problematic. Suvarnabhumi International airport was constructed south east of Bangkok. Flood control functions in the eastern Bangkok area had already been diminished by the construction of private stocks and public infrastructure.

Thirdly, because of urban sprawl – the development and expansion of urban

areas without planning – many canals in Bangkok city were occupied by illegal dwellers.

4.11. Failure of coordination between central and city governments

The emergency response by the authorities also had an issue. The central government could not coordinate with the Bangkok metropolitan government effectively and consistently from the beginning of the floods. On October 18th, after the inundation of industrial parks below Ayutthaya city, the governor of the Bangkok metropolitan area Sukhumbhand Paribatra announced that Bangkok was still facing the threat of flooding. In response, Director Prach strongly contradicted this statement and Prime Minister Yingluck stressed that the central government was in charge of the comprehensive flood prevention policy. Despite those reactions, Governor Sukhumbhand further declared on 19th October that the city should prepare for flooding.

The reason why they failed to work cooperatively lay in the conflict of interests between the central government and the Bangkok metropolitan area. On 20th October, the central government was forced to change its objective from diverting floodwaters to the eastern area to letting the flooding flow to the bay by inundating Bangkok city. The threat of flooding had became a reality since the floodwaters from Pathumu Thani prefecture had flowed into the Prapa canal, and the road running north to south was on the verge of flooding. But Bangkok post newspaper reported on 20th October, in contrast with the request by the government, Governor Sukhumbhand announced that the drainage through the canals in inner Bangkok would be limited since Bangkok area was not capable of fully receiving floodwater.

Prime Minister Yingluck gave the order to open all the floodgates in Bangkok city on 21st October with the support of the Democratic Party, financial circles including the Japanese chamber of commerce in Bangkok, and even the military. On the same day, the central government invoked the provisions of the Disaster Prevention and Mitigation Act to gain full authority over state officials around the country. Even so, Bangkok post reported on 22th October that Governor Sukhumbhand was inactive to fully open the floodgates. Securing the lives and property of Bangkok city residents is the priority for the Bangkok metropolitan government, whereas the role of the central government is to manage the flooding as a whole and to end the flood situation as soon as possible.

Also, the conflict was partly because the central government had lost the trust of many Bangok residents, which allowed the Governor Sukhumbhand, of the

Democratic Party, to take an aggressive attitude. Public opinion surveys around Bangkok city showed that about 89% of respondents were confused about the FROC information and 87% did not trust the response of the central government.

4.12. Conflict between affected and non-affected people

The government mismanagement also had created conflicts of interest between affected and non-affected people. Citizens of affected areas often took their own action to mitigate the damage. Local people opened some floodgates unofficially and removed sandbags on their own, or even obstructed the sandbagging. For example, locals in Pathumu Thani prefecture opened the floodgate of Don Mueng ward on 16th October and people in Don Mueng ward removed big bags on 14th November in order to move the waters into Bangkok city. The case of Khlong Sam Wa was even worse. Some residents tried to break the floodgate by force. Finally, the floodgate was opened by the order of Prime Minister Yingluck on 31th October.

However, because of this measure, Bangchan Industrial Estate located on the east side of Bangkok was endangered. On 1st November, Governor Sukhumbhand had to take back his prediction that the flooding would be contained and announced that all of Bangkok city could be inundated.

The interest of people who lived in the affected areas and non-affected areas clashed. Blocking the flood by floodgates and big bags kept the water in the affected area, which forced local people there to endure unpleasant odors and an unsanitary environment in their daily lives for more than a month. But for people in non-affected area, opening the floodgates and removing big bags would have meant the inundation of their houses and living area and, naturally, those people opposed such measures, even if they would help people in affected areas.

The central government could not articulate a comprehensive flood management plan nor convince people in non-affected areas that they would receive compensation for the damage to property. In the next section, we review the flood management master plan and the recovery plan for the 2011 Thailand Floods.

5. Review of mitigation policy, emergency response and recovery plan

5.1. Overview of flood management master plan and its budget

Months after the flooding ended, the government announced policy reforms for the water resource management and the flood damage recovery plan. In terms of comprehensive water resource management, the government announced a

flood management master plan.

The objective of the plan is threefold: (1) to prevent or minimize losses and damages from flooding: (2) to improve the capacity of the flood prevention system, emergency flood management, and increase capacity in the warning system: (3) to build confidence and stability and increase the incomes of farmers, communities, and the nation as a whole, while managing water, land and forests for sustainable use.

The action plan consists of (A) an action plan of water management for the crisis and (B) an action plan for integrated and sustainable flood mitigation in the Chao Phraya river basin. The budget for the former is about 181.1 billion baht and for the latter is 3 trillion baht[14].

In addition to that, the government established assistance measures for flood damage relief in December 2011[15]. Some of the main measures were assistance grants, suspension of interest payments, a reduction of interest rates, exemption from taxes and purchasing of assets in inventory for firms, farmers and workers. The expenditure for the immediate phase (including the emergency measures listed above and reconstruction of public infrastructures) is about 120 billion baht from the central government[16] and about 79.8 billion baht from local government (Nipon and Pitsom 2013).

For the future disaster compensation, the government established a reinsurance body, the National Catastrophic Insurance Promotion Fund (NCIPF), in March 2012[17]. Since private disaster insurance companies faced enormous payouts for the 2011 Thailand floods damage, they decided not to insure for damage due to flooding in the next renewal of their contracts with customers. NCIPF's risk covers about 500 billion baht and the fund consists of 50 billion baht from the government and joint finance by private insurance companies. Covered disasters include flooding, earthquakes, storms, and other natural disasters.

But looking at the detail of those expenditures, the budget of the action plans is mainly for structural measures and setting up a new weather forecast system. And the total coverage provided by the NCIPF is smaller than the total cost of the economic damage caused by the 2011 Thailand floods. The government has laid

[14] Detail of the plan and its budget are listed in the presentation linked to below URL.
(http://committees.jsce.or.jp/kokusai/system/files/③タイ政府 MP(英語版)_1.pdf)

[15] The detail is listed in JETRO "Special topic: Information about the recovery from the 2011 Thailand Floods," (http://www.jetro.go.jp/world/asia/th/flood/20111205002.html)

[16] The budget from government is detailed in the Powerpoint slide number 9,
(http://www.unescap.org/idd/events/EGM-DRS-2013/11Building-National-Resilience-in-the-context-of-recovery-from-Thailand-flood-2011.pdf)

[17] Detail is listed in the URL below. (http://www.ncif.or.th/en/coverage.html)

more weight on structural measure rather than the assistance measures.

5.2. Organizational reform for comprehensive flood management

In February 2012, the government announced a restructuring of water resource management into a new "Single Authority". The supreme decision-making committee is called the National Water Policy and Flood Committee (NWPFC) and the Prime Minister will work with the chairman. A new Water and Flood Management Committee (WFMC), directed by the Ministry of the Environment and Natural Resources, will co-ordinate related departments in other ministries including the Bangkok metropolitan government.

However Funatsu (2013)[18] has pointed out several problems. Firstly, the path to access the information from the committee is not clear. In fact, firms could not acquire proper information about flooding on a real time basis in 2012.

Secondly, the personnel policy is biased and lacks independence from the government. Senior positions in WFMC are occupied by leading politicians. Plodprasop Suraswasdi, who has since become a Deputy prime minister in the Yingluck administration, was appointed the chairman. Also Suphot Tovichakchaikul was appointed secretary-general. They have close ties to the Phue Thai Party and both are from the Ministry of the Environment and Natural Resources. This might explain why the staff of the WFMC are mainly from the Ministry of the Environment and Natural Resources.

But for the assessment of flood situations and operations for disaster prevention facilities, the WFMC should employ more human resources from the irrigation ministry, which exercises jurisdiction over canals and floodgates for irrigation across Thailand and is specialized in disaster engineering and hydrological measurement.

Furthermore, the vertically segmented administrative system, which caused a failure of gathering comprehensive information and announcing consensus opinions by the Ministry of Interior at the time of the 2011 Thailand Floods, has not been modified because of the bias.

Thirdly and most importantly, there is no effective alternative in the plan if key persons in charge of the NWPFC and the WFMC mismanage the flooding situation and fail to direct other organizations. On 25th February 2013, The Nation newspaper quoted Suwattana Jitladakorn, from the Engineering Institute of Thailand's committee on water sources, as saying that "I'm not so sure that

[18] Funatsu T., "2011 Thailand Floods: Aspire to reconstruct the institution under democratic politics," The formation of resource and environment management policy and institution under developing process, Institute of Developing Economies, 2013

creating a new ministry will solve the problem. The flood crises we have faced were caused by government mismanagement."

6. Concluding words

The 2011 floods were the most devastating to have occurred in Thailand since 1942. The government could not prevent major scale flooding because the policies in reality were barely functional in terms of disaster prevention. Also, the emergency response failed to prevent further inundation because it had been based on over-optimistic predictions, and the government lacked proper coordination with the military and the Bangkok metropolitan government to jointly work against the disaster.

In the end, the damage caused by the floods was immense and was attributed not only to the scale of the disaster but also to the vulnerability of the policies and the quality of the government.

The Thai government announced various policy reforms and assistance measures months after the 2011 floods to construct new disaster mitigation policies and for improved disaster relief measures. But these stressed structural rather than assistance measures, and the organizational reform plan still has issues. To build a disaster-resilient society, there are still a lot of issues left to be solved, in particular those related to government mismanagement.

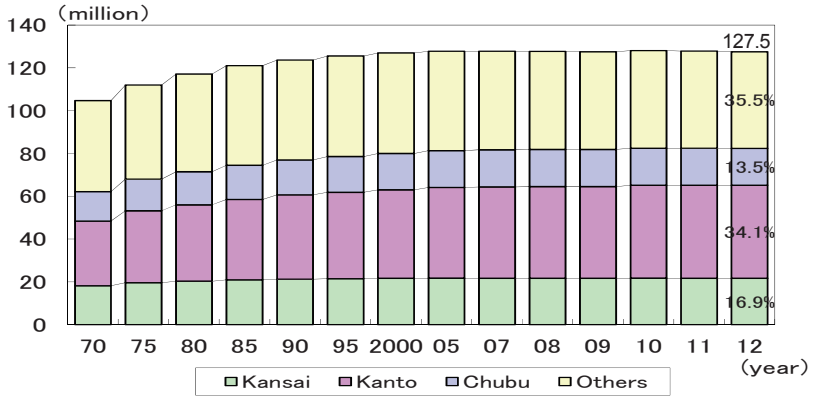
In 2013, Thailand was again struck by major flooding. Over 70,000 people were affected in this natural disaster and the death toll was estimated at about 70. Additionally, there have been several other massive disasters in the Asia region since 2011, such as the 2012 floods in Beijing and Pakistan, Typhoon Haiyan in the Philippines in 2013, and Typhoon Phailin in India in the same year. EM-DAT reported that the number of natural disasters to hit the region between 2011 and 2013 was 396.

These facts further underline the need for disaster prevention policies with clear long-term visions to be examined carefully by policymakers and others considering the further economic development of Asian countries, in order to achieve future risk reduction and the realization of safer and more secure societies.

Statistical Annex

●Figure 1　Total Population

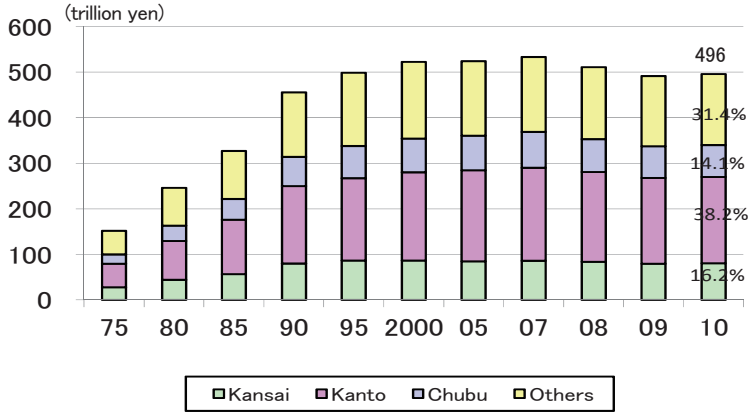
● Kansai accounts for 17% of Japan's total population.



Note:　Numerical value as of October 1 for each year.
Source:　the Bureau of Statistics of the Ministry of International Affairs and Communications, "Population Census", "Population Estimates".

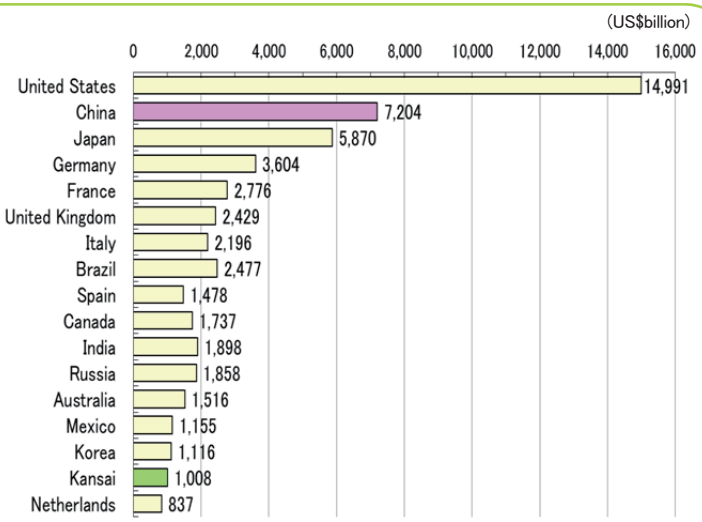
●Figure 2　Gross Regional Products

● Kansai accounts for 16% of Japan's total GDP.



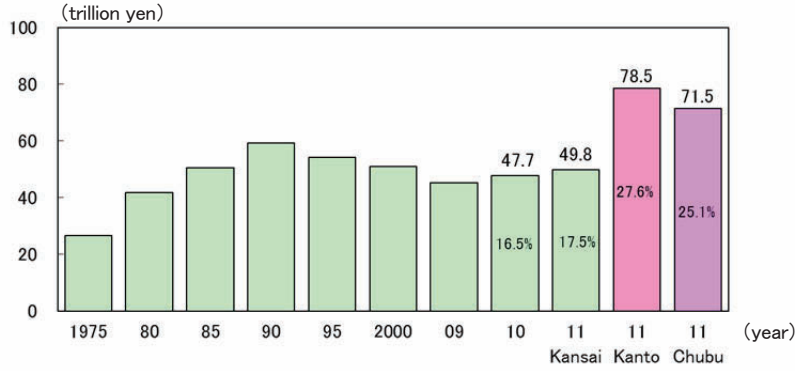
Note:　Nominal. A new calculation system has been adopted since the 1990 fiscal year.
Source:　the Cabinet Office, "Annual Report of Regional Accounts Statistics".

●Figure 3　GDP in Cross-Country Comparison（2011）



Note:　2011 Calendar year. Nominal. The value of Kansai is based on the GRP (nominal) in the 2010 fiscal year.　The exchange yen rate was 79.80 to US dollar in 2011.
Source:　UN, "National Accounts Main Aggregates Database"; the Cabinet Office, "Annual Report of National Accounts Statistics", "Annual Report of Regional Accounts Statistics".

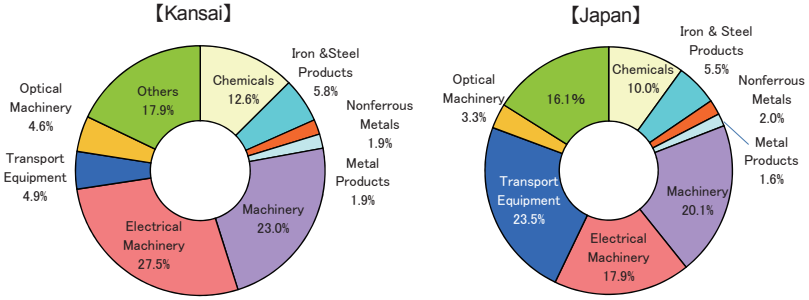
●Figure 4　Values of Manufactured Goods Shipments



Note:　The survey covers establishments with 4 or more employees.
Source:　the Ministry of Economy, Trade and Industry "Statistics Table on Census of Manufactures". (The figures in 2011 are based on the “2012 Economic Census.”)

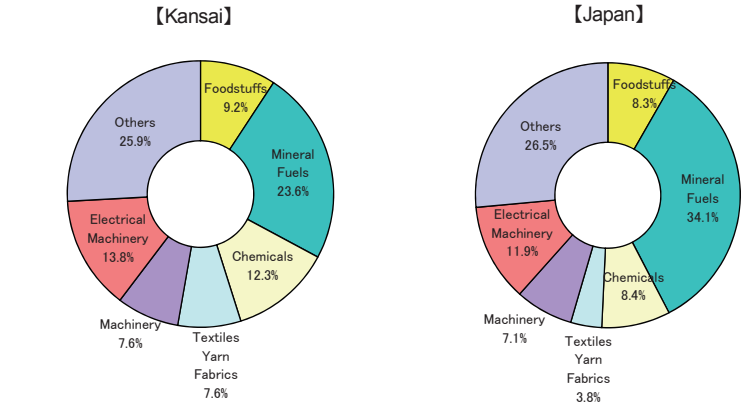
●Figure 5　Exports by Commodity (2012)

● Electrical Machinery accounts for a large percentage in Kansai.



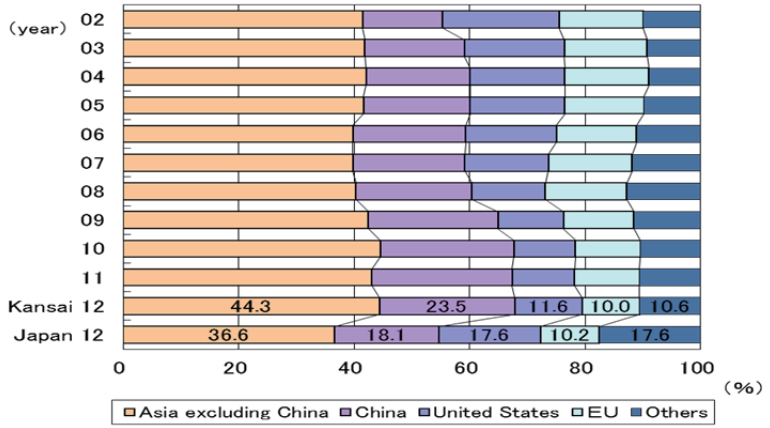
Note:　Kansai consists of 6 prefectures - Shiga, Kyoto, Osaka, Hyogo, Nara, and Wakayama.
Source:　the Ministry of Finance, Osaka Customs, "Trade Statistics"

●Figure 6　Imports by Commodity (2012)



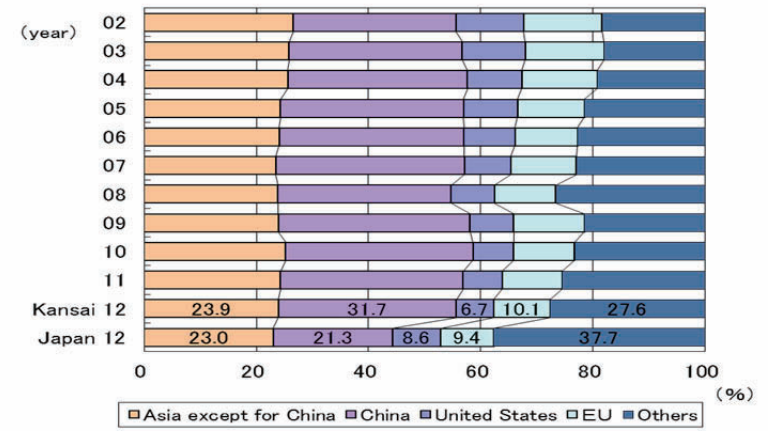
Note:　Kansai consists of 6 prefectures - Shiga, Kyoto, Osaka, Hyogo, Nara, and Wakayama.
Source:　the Ministry of Finance, Osaka Customs, "Trade Statistics"

●Figure 7　Export Destination from Kansai



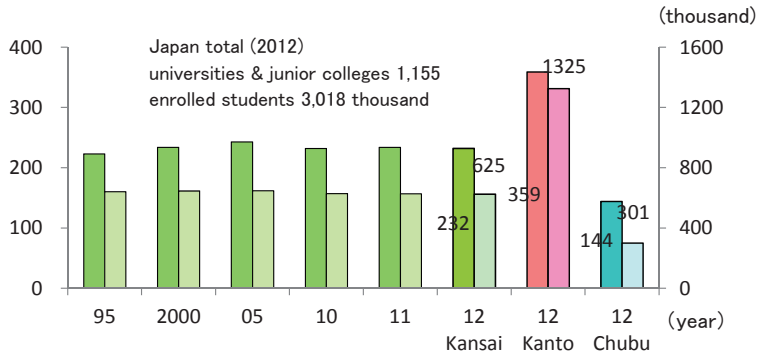
Note:　Kansai consists of 6 prefectures - Shiga, Kyoto, Osaka, Hyogo, Nara, and Wakayama.
Source:　the Ministry of Finance, Osaka Customs, "Trade Statistics".

●Figure 8　Import Origin to Kansai



Note:　Kansai consists of 6 prefectures - Shiga, Kyoto, Osaka, Hyogo, Nara, and Wakayama.
Source:　the Ministry of Finance, Osaka Customs, "Trade Statistics".

●Figure 9　Numbers of Universities and Junior Colleges, and Student Enrollment



Note:　left bar = universities & junior colleges　　right bar = enrolled students
Source:　the Ministry of Education, Culture, Sports, Science and Technology, "School Basic Survey".

●Figure 10　Numbers of National Treasures & Important Cultural Properties

● 50% of Japanese cultural properties are concentrated in Kansai.

Prefectures	National Treasures	Important Cultural Properties	National Treasures Domestic Share (%)	Important Cultural Properties Domestic Share (%)
Fukui	6	105	0.6	0.8
Shiga	55	810	5.1	6.3
Kyoto	227	2,140	20.9	16.6
Osaka	60	661	5.5	5.1
Hyogo	20	461	1.8	3.6
Nara	197	1,307	18.2	10.2
Wakayama	36	384	3.3	3.0
Kansai	601	5,868	55.4	45.6
Kanto	325	3,598	30.0	27.9
Chubu	39	1,057	3.6	8.2
Japan	1,085	12,874	100.0	100.0

Note:　The values are as of May 1, 2013.
Source:　the Agency for Cultural Affairs.

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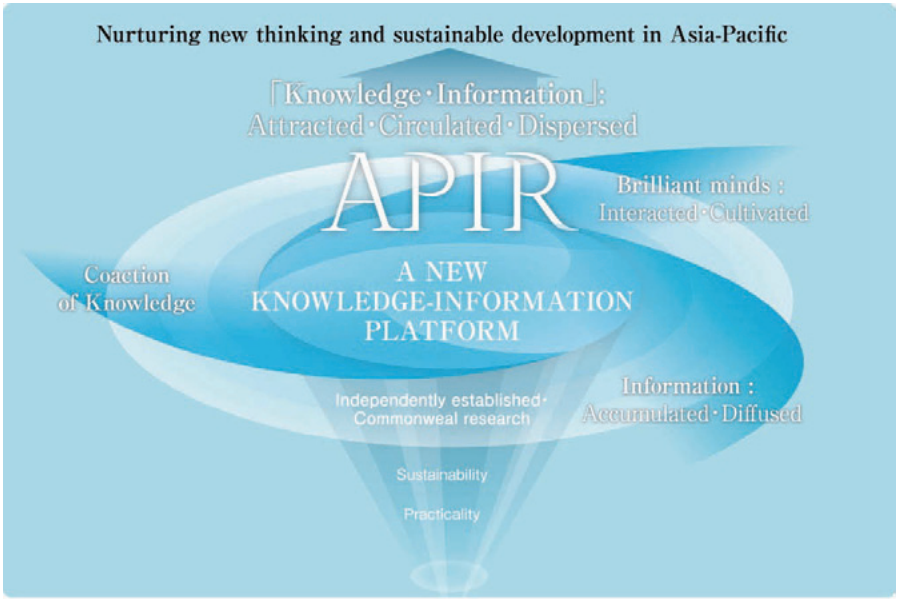

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