Surveys Commissioned by
Ministry of Economy, Trade and Industry

Surveys on Adaptability of IC Tags (RFID) in ASEAN Countries

Report of Survey

(Executive Summary)

March 2006

Next Generation Electronic Commerce Promotion Council of Japan (ECOM)

JIPDEC
Electronic Commerce Promotion Center

This report is a result of the Project for Strengthening the Asian Industrial Infrastructure for FY 2005; Survey on Adaptability of IC Tags (RFID) in ASEAN Countries, which Japan's Ministry of Economy, Trade nd Industry (METI) commissioned JIPDEC to conduct, in cooperation with Next Generation Electronic Commerce Promotion Council of Japan (ECOM), as a contract project for FY 2005.

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1. Overview of the Surveys

1.1 Objectives of the Surveys:

The surveys were commissioned by the Ministry of Economy, Trade and Industry of Japan and conducted based on the results in FY2004.

The objectives of the surveys are to promote understandings of RFID in terms of technology and their implementations, and to utilize the findings for establishment of the electronic trade systems among ASEAN countries and Japan in the future.

1.2 Outlines of the Surveys and Studies

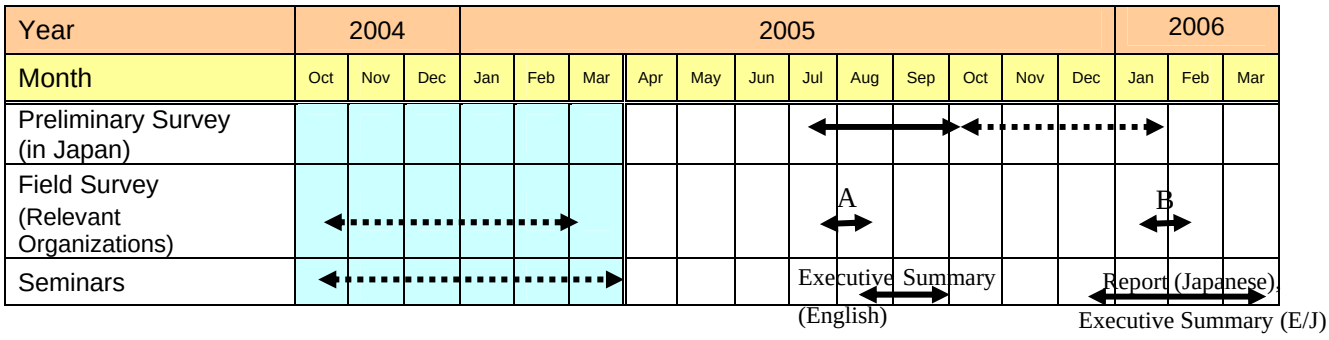
(1) Surveys on the current trade systems in ASEAN countries
(2) Production of the report based on the above surveys
(3) Promotion of understanding and implementation of RFID technologies

1.3 Countries Participating in the Surveys

In FY 2004 seven countries out of 10 ASEAN countries participated in the surveys. Based on its result, in FY 2005, other three countries were added: Laos, Philippines and Brunei Darussalam, and additional investigations were conducted in those countries that detailed researches were needed.

1.4 Time Schedule

Table 1 - 1. The Survey Plan



1.5 Staff Members

Table 1 - 2. The Survey Team

Responsibility	Affiliation	Name
Administration	Research Director, Next Generation Electronic Commerce Promotion Council of Japan	**Hisanao SUGAMATA**
Project Leader	Research Director, Next Generation Electronic Commerce Promotion Council of Japan	**Masakazu FUJITA（Survey A・B）**
Researcher	Research Fellow, Mitsubishi Research Institute, Inc.	**Poh Soon LIM, Ph.D. （Survey A）**
Researcher	Research Fellow, Mitsubishi Research Institute, Inc.	**Naotsugu HIRATA（Survey B・Phillipines）**
Researcher	Research Fellow, Mitsubishi Research Institute, Inc.	**Mamoru TAKAHASHI (Survey B・Singapore）**

1.6 The Survey Schedule

(1) The Survey Schedule in FY2004

The researches and the seminars were conducted from November, 2004 to promote understanding of RFID at each Governmental Agencies (related to trade and RFID), Customs, Port Authorities, FAAs, EDI Service Providers, Product Codes Councils(e.g.; EAN) in the following seven countries, which are Singapore (11/28-12/1), Malaysia (12/1-12/2, 12/12-12/15), Indonesia (12/15-12/17), Vietnam (2005/1/16-1/19), Myanmar (1/19-1/21), Thailand (1/30-2/1, 2/3-2/4) and Cambodia (2/1-2/3).

(2) The Survey Schedule in FY2005

The researches and the seminars to promote understanding of RFID were conducted from August, 2005 in the following three countries: Laos (8/2-8/4), Philippines (8/5-8/9), and Brunei Darussalam (8/10-8/11).

Additional surveys on ASEAN Single Window (ASW), Electronic Certificate of Origin, RFID pilot projects, etc. were conducted from January, 2006 in the following two countries: Philippines (1/23-1/28) and Singapore (1/29-2/2).

1.7 Holding of Seminars

Table 1 - 3. Outline of Seminars

	Date and Time	Content of Seminar	Presenter* (titles are omitted)	Number of Participants
Malaysia	Dec 13, 2004 14:00–16:30	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 50
		Japanese Initiatives for RFID Promotion	Sakuraba Akiyoshi, METI	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	
Indonesia	Dec 16, 2004 13:00–15:00	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 40
		Japanese Initiatives for RFID Promotion	Masakazu Fujita, ECOM	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	
Vietnam	Jan 18, 2005 8:30–12:00	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 50
		Japanese Initiatives for RFID Promotion	Masakazu Fujita, ECOM	
		Research on RFID in Vietnam	Tran Van Tuan, Vietnam Electronics Information Automation Institute	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	
Myanmar	Jan 21, 2005 13:00–16:00	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 50
		Japanese Initiatives for RFID Promotion	Mitsuhiro Yokota, METI	
		Myanmar's e-government plan	Tin Win Aung, e-National Task Force	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	
Cambodia	Feb 2, 2005 14:00–17:30	Japanese Initiatives for RFID Promotion	Mitsuhiro Yokota, METI	Approx. 90
		Introduction of RFID	Masakazu Fujita, ECOM	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	
Laos	August 2, 2005 13:40 - 16:40	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 40
		Japanese Initiatives for RFID Promotion	Mitsuhiro Yokota, METI	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	

Philippines	August 8, 2005 9:00 – 12:00	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 40
		Japanese Initiatives for RFID Promotion	Keisuke Hanyuda, METI	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	
Brunei Darussalam	August 10, 2005 14:15 – 16:15	Introduction of RFID	Masakazu Fujita, ECOM	Approx. 10
		Japanese Initiatives for RFID Promotion	Keisuke Hanyuda, METI	
		Case Studies of RFID Tags Application	Poh Soon Lim, MRI	

Notes: * ECOM: Next Generation Electronic Commerce Promotion Council of Japan, METI: Ministry of Economy, Trade and Industry, MRI: Mitsubishi Research Institute, Inc.

- The seminar scheduled to be held in Thailand was postponed due to unforeseen difficulties in that country.

2. Current Status of Trade EDI in ASEAN Countries

This chapter will first summarize the current status and plans for trade and port EDI, and then will analyze questionnaire responses collected from seminar participants and identify problems.

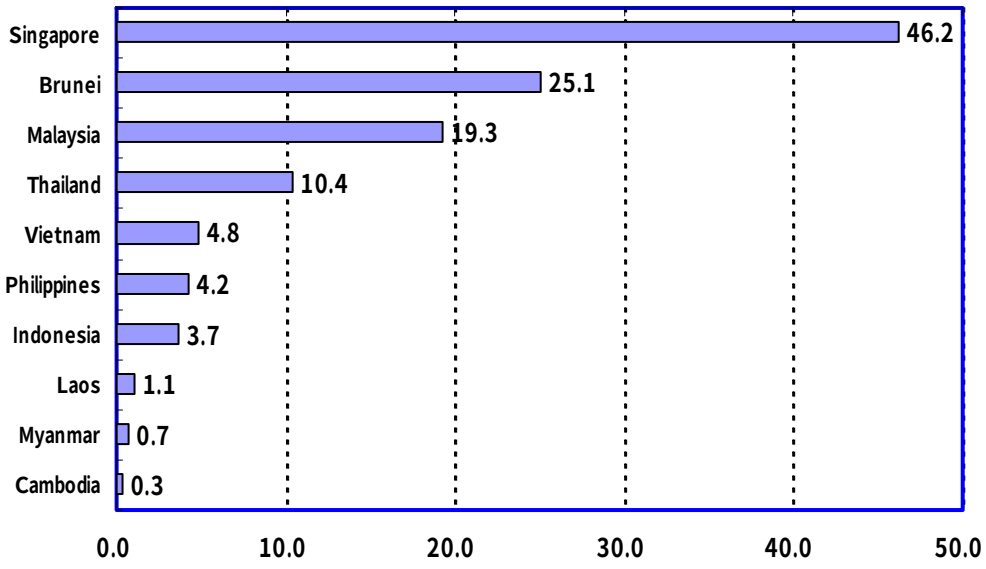
2.1 Current Status of Information Communication Infrastructures

The current situation of information communication infrastructure in ASEAN countries will be described based on information gathered via research conducted by the International Telecommunication Union (ITU) and questionnaires to seminar participants held in connection with this survey. As a general trend, Singapore and Malaysia are the most advanced in building of information communication infrastructures, with Brunei, Thailand and Philippines following them, while Indonesia, Vietnam, Myanmar, Cambodia and Laos remain less advanced.

2.1.1 Current Status of Information Communication Infrastructures

(1) Fixed-Line Phone Penetration

Figure 2 - 1. Fixed-Line Phone Subscribers per 100 Inhabitants

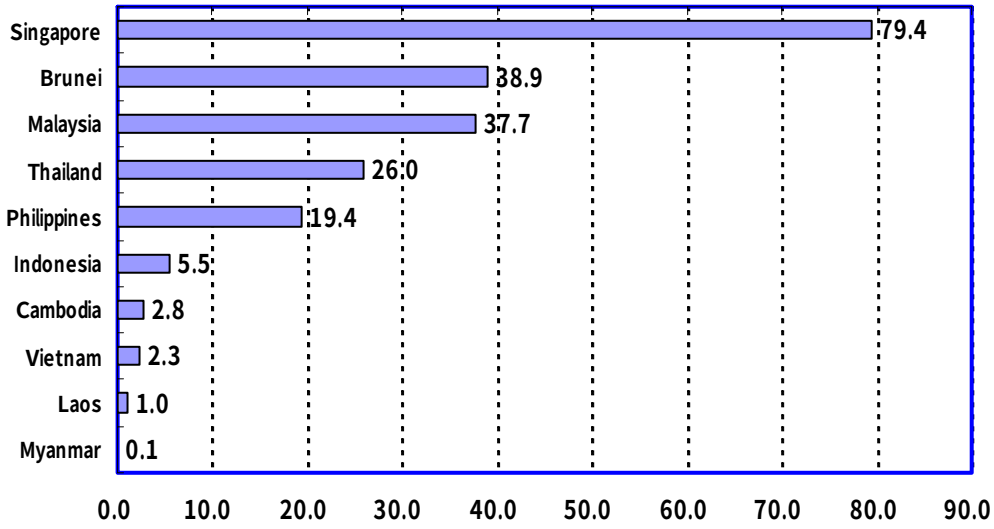


Source: ITU (2003)

For Reference: The penetration in Japan is 47.7 per 100 inhabitants.

(2) Mobile Phone Penetration

Figure 2 - 2. Mobile Phone Subscribers per 100 Inhabitants

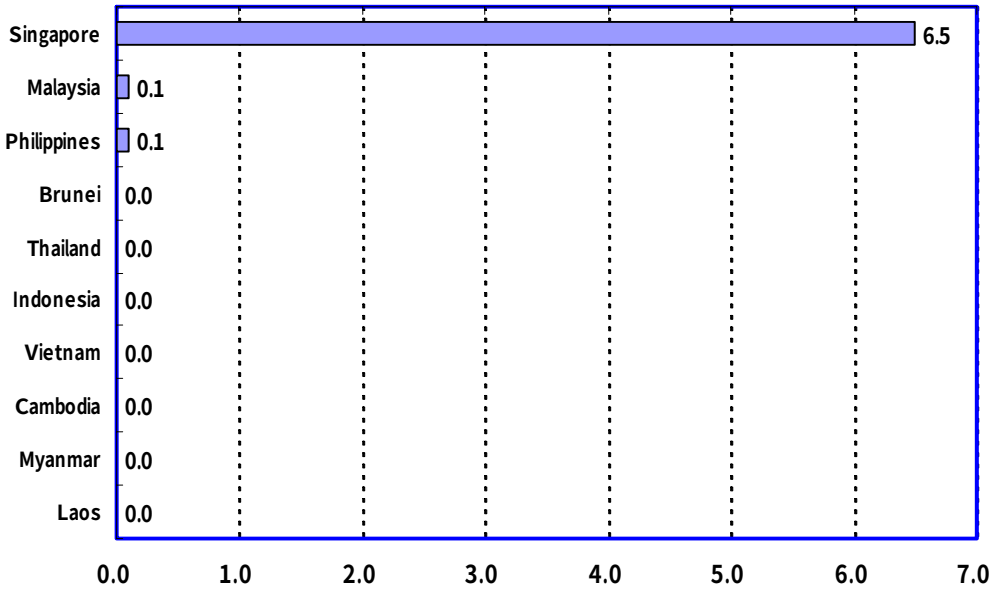


Source: ITU (2003)

For Reference: The penetration in Japan is 63.7 per 100 inhabitants.

(3) Broadband Penetration

Figure 2 - 3. Broadband Users per 100 Inhabitants

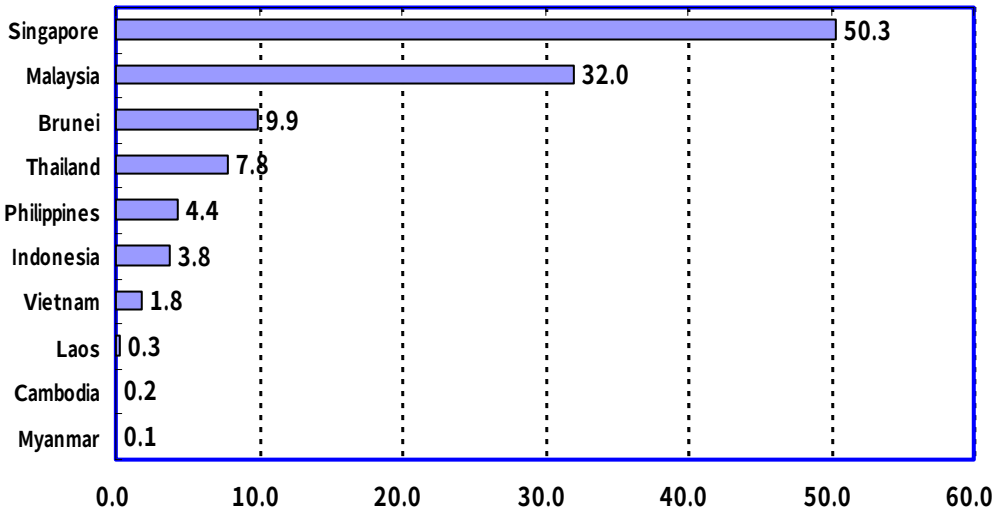


Source: ITU (2003)

For Reference: The number in Japan is 6.2 per 100 inhabitants.

(4) Internet Users

Figure 2 - 4. Internet Users per 100 Inhabitants



Source: ITU (2003)

For Reference: The number in Japan is 54.5 per 100 inhabitants.

2.2 Current Status and Issues of Trade and Port EDI

The current status of implementation regarding trade and port EDI systems shows that Singapore and Malaysia are categorized in an advanced group, followed by Thailand, Indonesia, Philippines and Brunei, while CLMV (Cambodia, Laos, Myanmar and Vietnam) remain less advanced.

In order to improve systems to facilitate trade and port procedures within the region, it is important to raise the level of less advanced group.

With this in mind, an ASEAN-wide initiative to promote efficiency of trade services, called the “ASEAN Single Window (ASW)”, was proposed in October, 2003 and consensus among ASEAN governments was gained. As an organization to put this initiative into effect, a taskforce consisting of ministry representatives from member countries was launched in January, 2004, and has been examining and advancing activities. After ten member countries will sign on the protocol which is the summary of the results in April, 2006, the advanced six countries and four CLMV countries will go on to the next stage to complete ASW by 2008 and 2012 respectively.

In the future, while ASW is appearing as a system to facilitate intra-regional trade procedures in concrete form, the close linkage from an economical standpoint becomes more important. Japan needs to take some measures to cope with this movement.

2.2.1 Summary of the Current Status of Trade and Port EDI in the ASEAN Countries

The current status and future plans of trade and port EDI in the ten surveyed countries are as follows:

Table 2 – 1. Current Status of Trade and Port EDI in ASEAN Countries

	Current Status of Trade and Port EDI	Future Plans, etc.
Singapore	・ TradeNet is used as the trade EDI system. ・ TradeNet is connected online to PortNet (port- EDI system) and allows users like shipping companies, to go through trade procedures via PortNet.	・ The port and shipping e-community (a community of ports and shipping companies, which is scheduled to be formed and operated) is planned to enable real-time transactions in B2B (Business to Business) area between customers and ports.
Malaysia	・ Dagang Net (trade and port EDI system) is operating. As in Singapore, users of shipping companies can go through trade procedures, too.	・ Launch of Web-based MyPort (trade and port EDI system) and expansion of e-Logistics (electronic distribution system) are planned.
Indonesia	・ EDI Indonesia offers trade-EDI service, and users can exchange data by using EDI with the customs agency, consumption tax agency and banks through EDI Indonesia.	・ An Internet-based customs system will start its operation in 2007.
Vietnam	・ No EDI system is used for trade and port management, and all procedures are performed manually.	・ Customs clearance is scheduled to be automated by 2010 with financial support from the World Bank. As part of this plan, a demonstration experiment in export and import declarations via the EDI will be conducted in Ho Chi Minh and other places.
Myanmar	・ No EDI system is used for trade and port management, and all procedures are performed manually.	・ Dragon Net proposed a system to access to the customs bureau via application service providers (ASPs). ・ The Myanmar ICT Development Center (MICTDC) will establish an EDI provider.
Thailand	・ A trade procedures EDI system through CAT and TradeSiam is operating. ・ Users are connected to the Customs Department via an EDI service provider, CAT and TradeSiam	・ An e-Port (electronic port system) demonstration experiment is being conducted. ・ e-Logistics will be started. ・ An e-Free Zone (electronic free-trade system) demonstration experiment is being conducted. ・ The Single Window Initiative up to 2007 is being promoted.
Cambodia	・ No EDI system is used for trade and port management, and all procedures are performed manually.	・ A project to automate customs clearance procedures will be implemented with financial support from the World Bank. ・ JICA is also planning to cooperate, focusing on establishing a crisis-management system of the customs clearance system.
Laos	・ No EDI system is used for trade and port management, and all procedures are performed manually.	・ Realization of e-government by the e-government project is aimed for.
Philippines	・ Some of procedures in import are computerized, though many of other procedures are performed manually.	・ PROMPT project is scheduled to start its operation in the third quarter of 2006 at main 20 ports.
Brunei	・ No EDI system is used for trade and port management, and all procedures are performed manually.	・ e-Muara port and e-government projects are in review. ・ Introduction of a declarations system of export and import procedures via the internet is scheduled to be conducted in three years from the third quarter of 2005.

Source: Created based on the results of hearings and various materials obtained.

2.2.2 Challenges for Further Promotion of EDI in the Trade-Sector

In the questionnaire surveys to seminar participants, the following questions about problems in promoting EDI in the trade procedures are asked. High scores of more than 4.0 on average were obtained for all 10 items, which shows the high interest of participants from various countries.

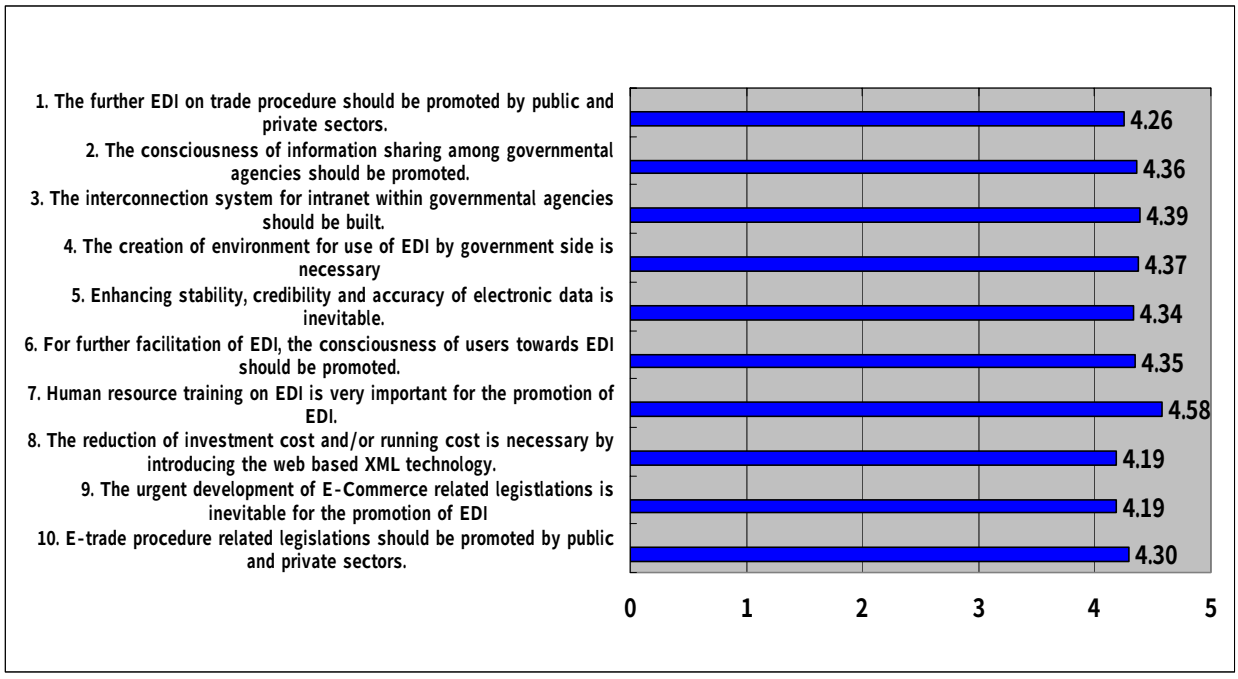
For items 1 to 4, regarding the environment requirements for introducing EDI, the results show the necessity of government-initiated development for the use of EDI, which connects, public and private sectors, governmental agencies and governments.

In addition, the opinions of the users who care about the security of electronic data itself are also strong.

For the items regarding users' attitudes, the results show the need to raise users' awareness, in order to develop qualified EDI personnel and to reduce the introduction costs.

The results also indicate that relevant legislation for promoting computerization (laws equivalent to Japan's Electronic Ledger Preservation Law, Document Lumping Law, e-Document Law, Electronic Signature Law, Radio Law, etc.) is also insufficient, suggesting the need for immediate legislation for digitization.

Figure 2 - 5. Issues for Further Promoting EDI in the Trade-Sector



Note: n =216

Source: Created based on the results of questionnaire surveys to seminar participants

3. Current Status of Application of RFID in ASEAN Countries

This chapter firstly explains the current status of digitization in the distribution sector in ASEAN countries, and then describes the current status of RFID application, including pilot projects and demonstration experiments. At last, the applicability of RFID in ASEAN countries is discussed, focusing on the results of the questionnaire surveys to seminar participants as well as on the points discussed in the seminars.

3.1 Current Status of Digitization in the Distributional and Logistical Sector

Table 3 - 1. Current Status of Digitization in the Distributional and Logistical Sectors of ASEAN Countries (1)

	Overview of Article Number Organization [1]	Current Status of Use of Bar Codes	Recent Trends
Singapore	• The Singapore Article Number Council (SANC) is an official representative organization for implementing the EPCglobal (Electronic Product Code), and it currently is implementing projects for RFID, e-business, and frozen-food chains.	• Foreign major retailers and hypermarkets (large general discount stores) are using bar codes.	• In the future, SANC will promote RFID in combination with the European Article Number (EAN) 128 series of bar codes. • SANC has hosted the "Seminar on EPCglobal & RFID" (the headquarters of EPCglobal dispatches instructors and promotes awareness-raising activities on RFID and public relations activities for EPCglobal in ASEAN countries).
Malaysia	• EAN Malaysia is a subordinate body of EPCglobal. • Activities focus on bar codes, and RFID-related activities are not active yet. • EAN Malaysia has approximately 3,800 corporate members, about 70% of which are small-to medium-sized companies. In terms of types of business, about two-thirds are food companies or grocery companies. The enrollment fee is 750 ringgit, and the annual membership fee is 500–1,500 ringgit (depending on the amount of a company's capitalization).	• 80% to 90% of the companies in the hypermarket industry use bar codes, but such use have not spread among micro retailers. • The obstacle to introducing bar codes is to the difficulty to change all business processes as bar codes are introduced. • EAN Malaysia is conducting awareness-raising activities and training regarding bar codes and RFID.	• EAN Malaysia held the RFID seminar (on EPCglobal, an overview of RFID, RFID technology, and examples of RFID, as in Singapore, the seminar was one of the awareness-raising and public relations activities carried out by the headquarters of EPCglobal
Indonesia	• EAN Indonesia was established in 1992: it has approximately 2,600 corporate members, about 70% of which are small-to medium-sized companies. In terms of the types of business, 55% of them are in the manufacturing industry, 29% of them are in the domestic industry, 12% of them are in distribution industry, and the remainder is in other industries. The enrollment fee is one million rupiah, and annual membership fee is 650,000 rupiah, regardless of the size of a company.	• The reason why companies have adopted bar codes is to respond to suppliers' requests. • Within the country, there are about 60 middle-standing or larger retailers operating a total of 2,400 shops. • The Current situation as to the introduction of POS systems: some 15% to 20% of the total retailers have introduced POS systems, but they are used for the purpose of easier input of product information, not for inventory management, logistics, or SCM.	• EAN Indonesia has proposed to the government (1) consultation concerning the introduction of bar codes on pilgrims going to Mecca and (2) consultation concerning the introduction of bar codes on the cash-containing cases on cash-transport cars going from the printing bureau to the central bank and then to branches.

Source: Created based on the results of hearings and materials obtained.

[1]. EAN changed its name to GS1 in January 2005.

Table 3 - 2. Current Status of Digitization in the Distributional and Logistical Sector in ASEAN Countries (2)

	Overview of Article Number Organization	Current Status of Use of Bar Codes	Recent Trends
Vietnam	• EAN Vietnam was founded in 1995: it has approximately 3,500 corporate members. The breakdown of corporate members shows that most of them are manufacturers, except for five retailers and some trade companies.	• In Vietnam, the use of bar codes has not spread widely. In Hanoi, 50 to 60 companies use bar codes, and even in Ho Chi Minh City, only 70 to 80 companies use them. • Except for global mass merchandisers, only a small number of retailers use bar codes.	• In 2004, IBM and ECR in Thailand co-hosted the seminar on RFID (basics of RFID with EAN Vietnam,
Thailand	• EAN Thailand has approximately 7,000 corporate members, about 70% of which are manufacturers of consumer products or foods: the remaining 30% are pharmaceutical manufacturers. The organization's major functions are holding seminars and training courses on the spread of bar codes, issuing industry journals, and so on. • EAN Thailand is scheduled to change its name to GS1 Thailand in April 2005. • In Thailand, the use of bar codes has been promoted for 15 years, but it has not spread widely. In the last 3 years, however, about 1,000 companies per year have started using bar codes, it has been spreading rapidly.	• It has taken about 15 years for bar code use to spread in Thailand. Recently, major retailers have begun to use bar codes. • The Thai retail industry consists of approximately 300 companies, and approximately 5,000 shops have adopted POS systems. Major retailers such as TECOS and TOPS apply bar codes to SCM, but many other manufacturers use bar codes only to comply with requests from retailers they supply. • Customs agents and shipping companies use EAN Thailand's Global Location Number (GLN) in EDI messages to identify companies and offices. • One member company uses EPCglobal product codes when they export products to Europe.	• Under the leadership of EAN Thailand, experts were dispatched from the headquarters of EPCglobal to hold a seminar on RFID on December 17, 2004: about 300 people participated (as in Singapore, this was also organized for the purpose of raising awareness of RFID and public relations activities for EPCglobal).
Myanmar	• No Article Number organizations	• In Myanmar, a nine-digit product-code system is used only by major retailers, including City Mart, but its use has not spread.	• As part of e-government efforts, discussions have been held regarding e-visa, e-passport, e-procurement, and so on.
Cambodia	• No Article Number organizations.	• Bar codes have not been introduced.	• They have an eagerness to introduce RFID, but not bar codes.
Laos	• No Article Number organizations.	• Bar codes are used at the immigration headquarters, friendship bridge immigration office and the security bureau.	• Though bar codes are used for entry-exit management system, more efficient management would be possible with RFID.
Philippines	• PANC (Philippine Article Numbering Council) consists of 14 employees and 4,058 participating companies. Four wholesalers have introduced EANCOM （1,312 suppliers in total）	• 4,058 companies in total use bar codes. • 776 of them are manufactures.	• ATI (Asian Terminals Inc.) has introduced monitoring system of transporting containers by GPS (web-based). • ATI controls containers with SPART system.
Brunei Darussalam	• No Article Number organizations.	• Bar codes have not been introduced.	• e-Muara port project is in review. • e-government project is in review.

Source: Created based on the results of hearings and materials obtained.

3.2 Current Status of RFID Application

3.2.1 Recent Moves regarding RFID in ASEAN Countries

(1) Singapore

In May 2004, the Infocomm Development Authority of Singapore (iDA) announced its RFID Development Strategy. The authority will invest S$10 million (about US$6.2 million) in the development of supply-chain clusters, which apply RFID technologies. The following three measures will be implemented:

(1) Coordinating allocation of globally applicable radio waves
(2) Implementing capacity building for developing new intellectual property (IP)
(3) Adopting a collaborative system for promoting the introduction of RFID technologies in major industries[2] (CFC: Call For Collaboration)

In 2005, the iDA called on ASEAN+3+India for collaborative projects on RFID:

(1) Sharing information on radio-wave allocation, implementation guidelines, and technical specifications.
(2) Coordinating radio-wave allocation, and training supply-chain and logistics specialists
(3) Developing guidelines for security and privacy relating to the application of RFID

An overview of RFID in Singapore is presented in Table 3-3, which includes a large number of examples of introduction activities.

Table 3 - 3. Overview of RFID status in Singapore

Radio regulation and frequency allocation	• Since November 2, 2004, UHF 866-869MHz, 923-925 MHz and 433 MHz have been opened: these are the frequencies that are most likely to be used in the future (No license for 0.5 watts, but up to 2 watt requires to obtain licenses. It is planned to expand to 920-925MHz till the middle of 2006). 13.56MHz is also available.
Examples of introduction	• Airbus regards Singapore as a maintenance center for equipment and requires all component suppliers to put RFIDs on their components. • Applications of RFID in port management include an electronic-seals demonstration experiment (Phase 1) conducted by an U.S. vendor two years ago, in which shipping companies, third-party logistics (3PL), and goods owners participated. • In 2000, the technical division of the Civil Aviation Authority of Singapore (CAAS) conducted an RFID demonstration experiment on baggage handling, but the results showed high costs as a problem at this time. • Kim Hiap Lee Co (Pte) Ltd., a subsidiary of the major wooden pallet manufacturer LHT Holdings in Singapore, plans to use RFID to manage pallets to be lent to customers such as Calsberg and Fraser & Neave. • Cargo management system of Singapore Airport Terminal Service (SATS) was implemented in FY2005 as one of CFC projects. • Bonded cargo management system of YCH group was implemented in FY2005 as one of CFC projects. • Automatic checking out and returning systems of books, CDs and DVDs in libraries.
Sectors in which RFID is expected to be introduced in the future	• RFID will be introduced into the manufacturing, distribution, retail, aviation, pharmaceutical and food industries. • The Maritime and Port Authority of Singapore (MPA) regards distribution, container seals, and so on as promising fields for the introduction of RFID. • For an application area, RFID will be applied to trace containers for security purposes. Moreover, application of EPC with the use of RFID is expected to automate warehousing. • Airbus and HP have introduced RFID as an extension of systems in their home countries, and major retailers and grocery manufacturers have expressed a keen interest in the introduction of RFID. • Baggage, boarding card, and air freight are conceivable, but CAAS has no concrete plans.
Obstacles to the introduction of RFID	• The biggest obstacle to introduce of RFID at this time is its cost. • The accuracy of RFID is currently being tested. • Because air-freight handling is currently being managed with the use of bar codes and causes few mistakes, no advantages to introduce RFID have been found.
Major vendors, etc.	• Matrix, Omron, Hitachi, Renaissance Rosett, UFK, IBM, Microsoft, SAP, SmarTech , Toppan, Phillips, Infineon

Source: Created based on the results of hearings.

[2] For details, see http://www.ida.gov.sg/idaweb/media/infopage.jsp?infopagecategory=infocommindustry.mr:media&versionid=4&infopageid=I3088.

(2) Malaysia

In the Ninth Malaysia Plan (2006–2010), the Malaysian government has three priority strategy areas:

(1) RFID

(2) Sensors

(3) IPv6 (Internet Protocol version 6)

Activities relating to the introduction of RFID in Malaysia are summarized as follows.

Table 3 - 4. Overview of RFID status in Malaysia

Radio regulation and frequency allocation	• The Malaysian Communication and Multimedia Commission (MCMC), which is under the control of the Ministry of Energy, Water and Communication (MEWC), have jurisdiction over these matters. • UHF 860 MHz (1W) and 433 MHz have been opened, but 920 MHz is under discussion: all of them can be used in Europe. Also, 2.45 GHz is available.
Examples of introduction	• Under the Eighth Malaysia Plan, a project for each citizen to have an ID in the form of an IC card (MyCard) was implemented. The use of ETC as an electronic payment system for toll-expressways, parking and the RLT (monorail) is also spreading. • At Port Klang, PIL (a shipping company in Singapore) conducted a pilot test using electronic seals (from Savi) from late 2002 through early 2003. In connection with a system to track cold-storage containers among Australia, Malaysia, and Hong-Kong, an antenna was installed to gates to record in RFID data from temperature sensors within containers. In spite of the technological success of the system, problems of cost remain. • Teras Technology has implemented a tracking system for bed sheets at hospitals. • Malaysia Airports Technologies Sdn Bhd once conducted a baggage-handling demonstration (not yet for freight). • At this time, the government is not conducting any demonstration experiments.
Sectors in which introduction is expected in the future	• The application of RFID for distribution activities is expected to spread from foreign companies as many European and U.S. major companies enter the Malaysian market.
Obstacles to the introduction of RFID	• RFID demonstration experiments for tracing containers have been conducted, but there are many problems relating to standardization, cost bearing and technology. So the introduction of RFID should be considered carefully.
Major vendors, etc.	• Mr. Kong at FEC Malaysia, an MM chip developing company, responded to our request for an interview. MM chips are being promoted as a project of the Office of Prime Minister.

Source: Created based on the results of hearings.

(3) Indonesia

RFID in Indonesia has no radio wave allocated and has no concrete introduction examples at this time.

Table 3 - 5. Overview of RFID status in Indonesia

Radio regulation and frequency allocation	• Allocation of a radio frequency bandwidth for RFID has not yet been decided.
Examples of introduction	• Some companies have introduced RFID respectively to prevent theft, but there are no examples of its application between companies. • Book management at the national library is being considered as an RFID demonstration experiment. EAN Indonesia has just begun to consider the application of RFID and has no concrete projects at this time.
Sectors in which introduction is expected in the future	• The use of RFID for Electronic Toll Collection (ETC), public buses and MRT (train) is possible. • Pilot projects for introducing RFID in the automobile industry, in which Japanese companies are deeply involved, are possible.
Obstacles to the introduction of RFID	• Experiments to demonstrate the effects of introducing RFID are necessary, so that RFID can spread.
Major vendors, etc.	• None

Source: Created based on the results of hearings.

(4) Vietnam

In Vietnam, adoption of a two-dimensional code system has been under review for national ID cards, and EAN Vietnam and other organizations have begun discussing the introduction of RFID.

Table 3 - 6. Overview of RFID status in Vietnam

Radio regulation and frequency allocation	• EAN Vietnam and the Vietnam Radio Regulatory Authority held a meeting on frequencies to be allocated for RFID. The Vietnam Radio Regulatory Authority agreed to consider the frequencies that EAN Vietnam would propose. Based on RFID experiences in ASEAN countries, EAN Vietnam is suggesting the UHF frequencies to be used for RFID. • EAN Vietnam proposes to the Ministry of Science and Technology the frequencies to be used for RFID. After an approval, the Ministry of Science and Technology's proposal is sent to the Ministry of Post and Telecommunication, which allocates frequencies.
Examples of introduction	• Since 2002, the Ministry of Science and Technology has conducted research and surveys on RFID and bar codes. • In accordance with the demands of European countries, traceability for marine products will be implemented in, under the initiative of the Ministry of Fishery. • In Vietnam, in cooperation with Denso and Marubeni, a QR code (two-dimensional code system) has been adopted for the national ID system, and this system is now being tested. The results of this test will be presented to the government. The system is expected to obtain a government approval within this year. After comparison of the QR code and RFID, the QR code was adopted due to its cost, use environment and ease of use. The QR code enables the encoding of facial photos, fingerprints and Chinese characters. Even if as much as 30% of data is damaged, it can be read.
Sectors in which introduction is expected in the future	• Because SC is a sector likely to gain large advantages by introducing RFID, EAN Vietnam will encourage its corporate members to use RFID in the supply chain management (SCM) sector. • EAN Vietnam will call for companies to apply for RFID demonstration experiments this year, and it will conduct those demonstration experiments next year. At this time, only Nestle Vietnam has indicated an intention to apply.
Obstacles to the introduction of RFID	• A trade and port procedures EDI system has not yet been introduced, the IT infrastructure is undeveloped, and there is low awareness of RFID.
Major vendors, etc.	• None

Source: Created based on the results of hearings.

(5) Myanmar

As the table 3-7 shows, RFID is not widely-recognized in Myanmar

Table 3 - 7. Overview of RFID status in Myanmar

Radio regulation and frequency allocation	• UHF 915 to 935 MHz is not being used, and thus it could be allocated for RFID. • Myanmar has no radio regulations, but RFID regulations will be formulated.
Example of introduction	• As an RFID pilot project, an e-meter for electric power supply is being planned.
Sectors in which introduction is expected in the future	• Logistical sector
Obstacles to the introduction of RFID	• The IT infrastructure is undeveloped, a trade and port procedures EDI system has not yet been introduced, and appropriate human resources are lacking.
Major vendors, etc.	• RFID is being considered as a part of economic cooperation between Japan and ASEAN countries. • The Ministry of Posts and Telecommunications has not conducted surveys and research on RFID, but an RFID survey group has been set up in the Asia-Pacific Telecommunity (APT), which has 32 member countries and is discussing RFID. • Standardization is a responsibility of the Ministry of Science and Technology.

Source: Created based on the results of hearings.

(6) Thailand

Table 3 - 8. Overview of RFID status in Thailand

Radio regulation and frequency allocation	• The National Telecommunications Commission (NTC) has been established in order to decide on allocation of radio waves for RFID. • UHF 920-925MHz (0.5w) was approved only for demonstration experiments (January, 2006). This bandwidth is planned to be for RFID and approved officially. Others (850-875MHz, 13.56MHz, etc.) will continue to be under review.
Examples of introduction	• In cooperation with the Customs Department, a demonstration experiment regarding "e-Free Zone" in which electronic seals will be used to control movement of containers in warehouses among three domestic free zones, will start in January 2005 and will be completed over the next two years. • The e-Port Initiative is an electronic port project aiming at increasing efficiency and ensuring the security of customs services by the use of RFID. In December 2004, NECTEC, the Customs Departments, and the Port Authority of Thailand (PAT) signed an MOU regarding the e-Port Initiative. As part of the e-Port Initiative, Kelly Logistics Warehouse has started an electronic-seals pilot test at Laem Chabang Port. • A pilot project to apply RFID for the flow of products from manufacturers' warehouses to distribution centers (DCs) has been planned. One Japanese company (Lion Corporation), one European company, and three local companies (five companies in total) have expressed their interests, but due to issues regarding cost bearing, not much progress has been made. • The National Food Institute will use EAN 128 codes to affect the traceability of shrimp and chickens. • The Ministry of Commerce (MOC) held the e-Logistics seminar for importers and exporters. The e-Logistics Initiative, involving the use of e-Manifests, e-Insurance, e-Bills of Lading (B/L), and e-Packing Lists, will be started in April 2005 with the collaboration of the MOC, the Ministry of Industry (MOI) and the Customs Department. • The new Bangkok airport will use RFID to manage baggage. SMARTCard and ETC also will be introduced. There is also an initiative to use RFID to manage the transport of lumber from Myanmar to Thailand.
Sectors in which introduction is expected in the future	• The logistical sector and the marine distribution sector are promising fields.
Obstacles to the introduction of RFID	• Awareness-raising activities and education and training for private users and governmental organizations are very important. • There is an initiative that, under the leadership of the Ministry of Science and Technology (MS&T), RFID is put on plastic cases for shrimps and chicken to realize traceability of these foods. There are no technological problems, but other problems remain, such as how to manage the 30,000 producers and who should bears which costs.
Major vendors, etc.	• TIFFA EDI Services: EDI service provider • EPC: solutions provider • Identify: manufacturer of electronic seals (local company)

(7) Cambodia

No RFID demonstration experiments have been conducted in Cambodia, and moreover, bar codes are not used. At the invitation of the Ministry of Commerce of Cambodia, about 90 concerned people, including the Minister of Commerce, participated in the seminar on RFID. Considering the number of people who attended the seminar, it can be said that the level of interests in RFID is high.

(8) Laos

No RFID demonstration experiments have been conducted in Laos. However, bar codes are used for the entry-exit management system. In terms of export, some problems are pointed out. One of them is a lengthy procedure to export cargos. Staffs from the Customs Department visit shippers to their sites like factories to check cargos and lock containers, then the cargos are finally ready to export. Another problem is that there are no container yards to check cargos at the Friendship Bridge. In order to solve those problems, introduction of RFID is considered to be necessary.

Frequency bands (866 MHz~869 MHz and 923 MHz~925 MHz) are reserved for RFID, but when to make an official decision is not yet determined. To reserve those frequency bands was decided by ASEAN Telecommunication Regulator Committee (ATRC). The 433 MHz is officially approved by the government and available. The 2.45 GHz is also reserved for RFID.

Regarding a necessity of permission for the use of radio waves, the permission is not necessary if it is for demonstration use and its output is 0.5 watt. It takes approximately a month from acceptance of application to use radio waves. Regulations on frequency bands are specified in the Telecommunication Law in Laos. The Law is established in 1980s, and planned to be revised in the future. Specific area to introduce RFID will be the management of containers. However, the early introduction seems difficult budget wise.

(9) Philippines

No RFID demonstration experiments have been conducted in Philippines. Yet, bar codes have been used in conformity with PANC (Philippine Article Numbering Council), they are not widely used in the logistical field. Ports in Philippines are infested with bribes. Its countermeasures have been hotly debated. Therefore, they haven't even started to consider RFID, yet 30 people responded to the survey at the seminar and it shows their increasing expectation toward RFID.

ATI (ASIAN Terminals Incorporated) has been implementing a monitoring system of transport containers using GPS from terminals at the south port of Manila to Inland Container Depot, under the arrangement with the Customs Department. This system has been replaced with a web-based system in the last few years and it improved its convenience. ATI also introduced a radio-based container management system called SPART (Single Planning and Real Time Container System) in 1995 and has controlled loading and unloading of ships at terminals ever since.

Laws and regulations regarding RFID are not yet existed. Assignment of frequency bands (13.553MHz to 13.567MHz and 2,445MHz to 2,454MHz) has been discussed, based on public opinions. UHF 860MHz to 960MHz has been already allocated for radios and cell phones, while 918-920MHz is still under review to allocate for RFID. However, if the Philippine government approves the need of RFID, those bands would be also available. 433MHz is not available since it is used by amateur radio operators. 2.45GHz can be used with Wi-Fi so that exchanging memorandums is now under discussion.

In terms of feasibility to introduce RFID in Philippines, political instability and undeveloped infrastructures would be obstacles.

(10) Brunei Darussalam

No RFID demonstration experiments have been conducted in Brunei. Therefore, laws and regulations on RFID have not yet existed, but it is more likely that frequency bands are allocated to private companies, if they find the need of RFID. At present, there are no frequency bands, which are currently allocated for RFID, but 866MHz to 869MHz and 923MHz to 925MHz are scheduled to be allocated. No license is needed if the output electric power is under 0.5 watt, but with over 2 watt, license is required. 433MHz is now used for small-sized radio-controlled toys and 2.56GHz is used for Wi-Fi. To apply for use of frequency bands, official documents on use of radio wave

are required to be submitted to the Minister of Telecommunications and the president of Information and Communication Technology Public Corporation.

Frequency Assignment Committee of Singapore, Malaysia and Brunei (FACSMB) was established at radio wave regulatory authorities in Singapore, Malaysia and Brunei, and opinions are exchanged regarding ideas and related technologies of RFID once a month.

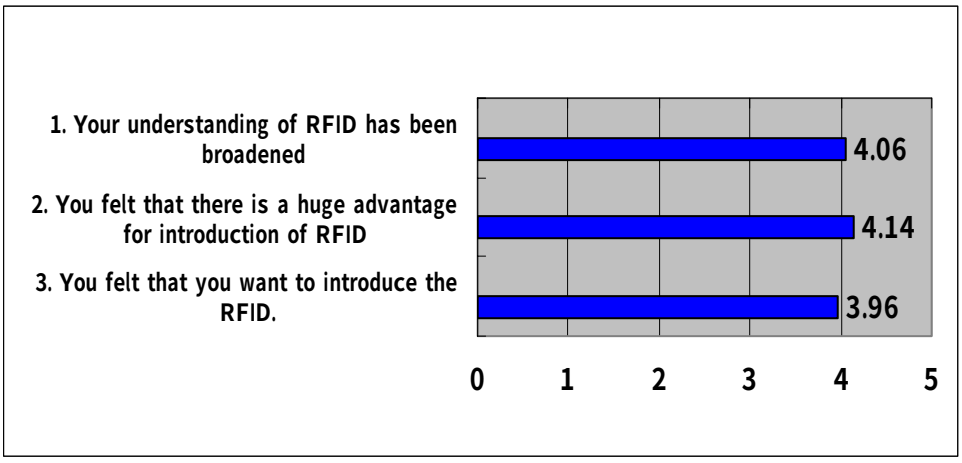
3.3 Applicability of RFID

Based on the aforementioned current status of RFID application and development of IT infrastructures, the following will describe the applicability of RFID in the future.

First, as the figure below shows, the questionnaire survey to seminar participants has revealed (1) that the seminars deepened the participants' understanding of RFID, (2) the advantages of introducing RFID, and (3) the very high needs for introduction of RFID.

Taking active questions and answers in seminars into consideration, it can be said that ASEAN countries have an eagerness to apply RFID as a policy tool. As being described later, however, many problems for the application of RFID remain. Based on this, Singapore, Malaysia, and Thailand, where especially IT infrastructure and EDI systems are comparatively developed, would possibly go ahead of other countries in application of RFID.

Figure 3 - 1. Feedback of Participants on the Need of RFID Introduction



Note: n = 216

Source: Created based on the results of questionnaire surveys of seminar participants.

4. Summary

Surveys in the ten ASEAN countries were made, and RFID seminars were held in the countries together with the field surveys. As a result, the current situations and issues that the countries are facing with the digitalization of related procedures as the basic requirement for trade facilitation were specified, and the awareness toward the technologies and the possibilities to utilize the technologies were raised.

When looking at the situation of ASEAN countries as a whole, the countries can be classified into two groups: an advanced group with the high digitalization level; a group without enough IT infrastructures and with many problems. However, even in the latter countries, economic bureaucrats themselves were first to attend the seminars and such aggressive attitudes toward the use of leading-edge technologies for the improvement of distribution efficiency and trade facilitation have been seen. That indicates that efforts of ASEAN countries as a whole in this field will be activated further in the future.

Attending the ASEAN Single Window Taskforce Meeting made it clear that the ASEAN Single Window Initiative is progressing rapidly in concrete form. One of the future issues they address in the taskforce is the use of RFID. There is a growing recognition in ASEAN region that information exchange between ASEAN countries and Japan which has been conducting RFID demonstration experiments is an advantage. Toward further trade facilitation between Japan and ASEAN countries, it is necessary to exchange information on various issues including related systems and know-how of implementation, and to make use of the outcome of the information exchange to the effective utilization of the leading-edge technologies in the region.

4.1 Results of the Surveys and Seminars

The following six field trips were made in ten countries (thirteen countries in total) and surveys and seminars were held in eight countries from November 28, 2004. Summary of the results of the surveys, issues and the seminars are as follows.

4.1.1 Outline of the Surveys

The table 4.1 “Summary of the Surveys on Applicability of IC Tags (RFID) in Ten ASEAN countries” shows the evaluation of the field survey results in each country with the important items as indexes.

Ten items are selected as the evaluation indexes (development of IT infrastructure, development of relevant legislative system, development of trade EDI system, development of port EDI system, degree of Japanese business advance, importance for Japanese business in the future, frequencies allocated to RFID, presence of goods code promotion organization and examples of introduction of RFID and RFID demonstration experiments). The evaluations of results are showed with ◎,○ and △.

Table 4-1 Summary of the Surveys on Applicability of IC Tags (RFID) in Ten ASEAN Countries

Evaluation item* / - Country** / - Population (10k : 2003) / - GDP (billion US$: 2003)	Development of IT Infrastructure	Development of Relevant Legislative System	Development of Trade EDI System	Development of Port EDI system	Frequencies allocated to RFID	Presence of Goods Code Promotion Organization	Examples of Introduction of RFID and RFID Demonstration Experiments
Brunei Darussalam 35 4.7	△	△	△	○～△ (Only Container Terminals)	866~869MHz and 923~925MHz are under discussion	No	None
Cambodia 1,414 3.4	△	△	△	△	849~870 MHz is not used	No	• None (The Ministry of Commerce has a strong intention to conduct an RFID demonstration experiment at Sihanoukville.)
Indonesia 21,509 182.4	○～△	△	○ (EDI Indonesia)	△ (EDI Indonesia)	Under discussion	Yes	• None(The introduction of a fee-collection system for expressways, public buses, subways and the national library will be possible in the future.)
Laos 560.9 2.3	△	△	△	△	433MHz 866~869MHz 923~925MHz 13.5 MHz and 2.45GHz are under discussion	No	None
Malaysia 2,517 94.9	◎	○	◎ (Dagang Net)	◎ (Dagang Net)	13.56MHz 433 MHz, 919~923MHz (860MHz is under discussion)	Yes	• The expressway toll-collection system (Touch&Go) has been applied to parking and monorails (LRT) • National ID cards (MyCard) using IC tags have been introduced • A demonstration experiment of the bed-linen tracking system at hospitals • A demonstration experiment of the use of electronic seals at Port Klang • Development of MM chip (a project of the Office of the Prime Minister)
Myanmar 4,962 7.1	△	△	△	△	915~935 MHz is not used	No	• None (A RFID demonstration experiment on the e-Meter for automatic measurement of electric power supply is being planned)
Philippines 8,150 86.4	○～△	△	○～△ (Only Import)	△	13.5MHz, 918~920MHz and 2.45GHz are under discussion	Yes	• ATI introduced a monitoring system of transport containers using GPS • ATI introduced a container management system called SPART
Singapore 420 87.0	◎	○	◎ (TradeNet)	◎ (PortNet)	13.56MHz, 433MHz, 866~869 MHz, 923~925 MHz (planning to expand to 92~-925MHz by the middle of 2006)	Yes	• Examples of introduction: electronic toll-collection, national library, arowana, parking-fee collection, tracking of healthcare practitioners • A demonstration experiment of electronic seals at PSA

Thailand 6,253 126.5	○	△	○ (TradeSiam, CAT)	○ (TradeSiam, CAT)	920~925MHz (0.5w) is planed to be approved. Others (850~875MHz, 13.56MHz, etc.) will be under discussion	Yes	• Demonstration experiments of electronic seals have begun in the e-Free Zone (January 2005), and in the e-Port (December 2004). • National ID cards using IC tags will be introduced. • The e-Logistics Initiative will start in April 2005. (EAN Thailand is inviting companies to participate in demonstration experiments.)
Vietnam 8,138 34.9	○～△	△	△	△	Under discussion	Yes	• National ID cards using two-dimensional codes have been introduced. (The Ministry of Fishery will implement a marine-products traceability system this year.) (EAN Vietnam is inviting companies to participate in demonstration experiments.)

Note: ◎Highly achieved
○ Efforts are in action
△ Governmental efforts are about to start
* Infrastructure (IT, usable frequency, legislative system, EDI system, EAN organization, introduction and demonstration experiment examples) is regarded as evaluation axes.

Evaluation items

Development of IT infrastructure: foundations of RFID introduction

Development of relevant legislative system: inevitable to introduce and implement DI and RFID

Development of trade EDI system: necessary system for information management of trading cargo with RFID tags

Development of port EDI system: ditto

Frequencies allocated to RFID: international standardization of RFID

Presence of goods code promotion organization: promotion bodies of code standardization which are the basis of inter-company information sharing

Examples of introduction of RFID and RFID demonstration experiments: presence of past results can be important evidences of possibilities to introduce RFID tags

4.2 Summary of Issues

Summary of Issues relating to Trade and Port EDI and the Introduction of RFID

Table 4-2 Summary of Issues

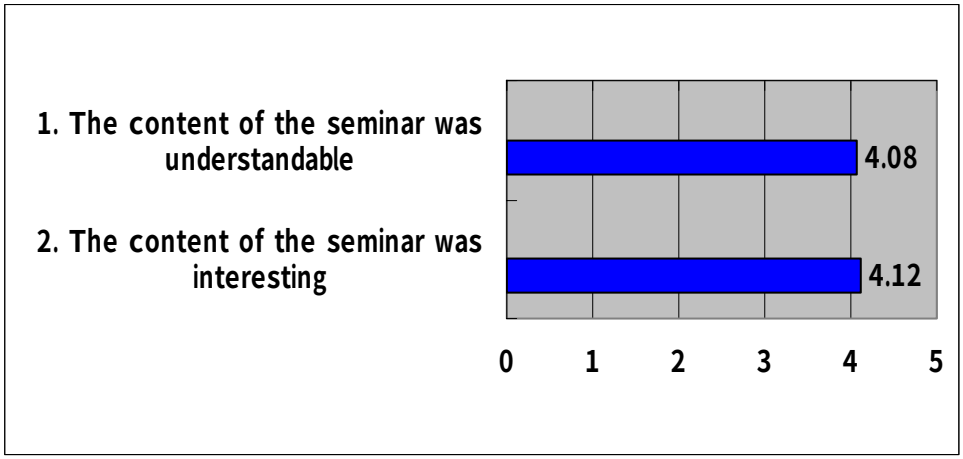
	Issues	
Problems relating to Trade and Port EDI	Infrastructure	・Undeveloped IT infrastructure (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines) ・Electric-power shortage (Cambodia, Myanmar, Vietnam, Philippines)
	Administrative procedures	・Trade- and port-procedures EDI system has not yet been introduced. (Cambodia, Myanmar, Vietnam, Laos, Brunei) ・ Many ministries and agencies have not shown progress on digitization. (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei) ・ Governmental organizations have not made progress on deregulation. (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei) ・Time required for customs procedures. (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei) ・Lack of clarity in administrative procedures (Vietnam, Laos, Myanmar, Philippines) ・Import and export regulations (collection of export taxes, time for obtaining export licenses, ban on dollar settlement, use of multiple exchange rates) (Myanmar)
	Legislative system	・Undeveloped legislation concerning e-commerce (laws equivalent to Japan's Electronic Ledger Preservation Law, Subcontract Law, Document Lumping Law, e-Document Law, Electronic Signature Law, Radio Law, etc.) (Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei)
	Operation	・Lack of qualified IT personnel and low awareness on EDI (Indonesia, Cambodia, Myanmar, Vietnam, Laos, Brunei) ・Low IT literacy (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines)
Problems relating to RFID	Infrastructure	・Undeveloped IT infrastructure (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei)
	Legislative system	・Frequencies have not been allocated to RFID (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Philippines, Brunei)
	Operation	・High introduction cost (Singapore, Malaysia, Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei) ・Low awareness on RFID (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei) ・Shortage of RFID personnel (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei)
	Technology	・Low technology level of domestic hardware manufactures (Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei) ・Lack of standardization (Malaysia, Thailand, Indonesia, Cambodia, Myanmar, Vietnam, Laos, Philippines, Brunei)

Source: Created based on the results of hearings.

4.3 Results of the Seminars

In FY2004, the seminars were held in five countries: Malaysia, Indonesia, Vietnam, Myanmar, and Cambodia. In FY2005, seminars were held in three countries: Laos, Philippines and Brunei. After the completion of the seminars, questionnaire surveys to participants were conducted. The results of those surveys show that the content of the seminars was highly valued as being easy to understand (4.05 on a 5-point scale) and interesting (4.09). These results show that awareness and diffusion of RFID among concerned parties in ASEAN countries have been promoted..

Figure 4 - 1. Evaluation of Seminars



Source: Created based on the results of questionnaire surveys from seminar participants.

Notes: The number of survey responses totaled 165: 30 (Malaysia), 28 (Singapore), 34 (Myanmar), 31 (Cambodia), 12 (Vietnam), and 30 (Indonesia), 28 (Laos), 18 (Philippines), 5 (Brunei), 216 in total. For evaluation, a 5-point scale was used.

4. 4 Future Directions

4. 4.1 Proposed Future System to Facilitate Trade Services between Japan and ASEAN Countries

The surveys in ten ASEAN countries and awareness-raising activities conducted through the seminars were successfully completed.

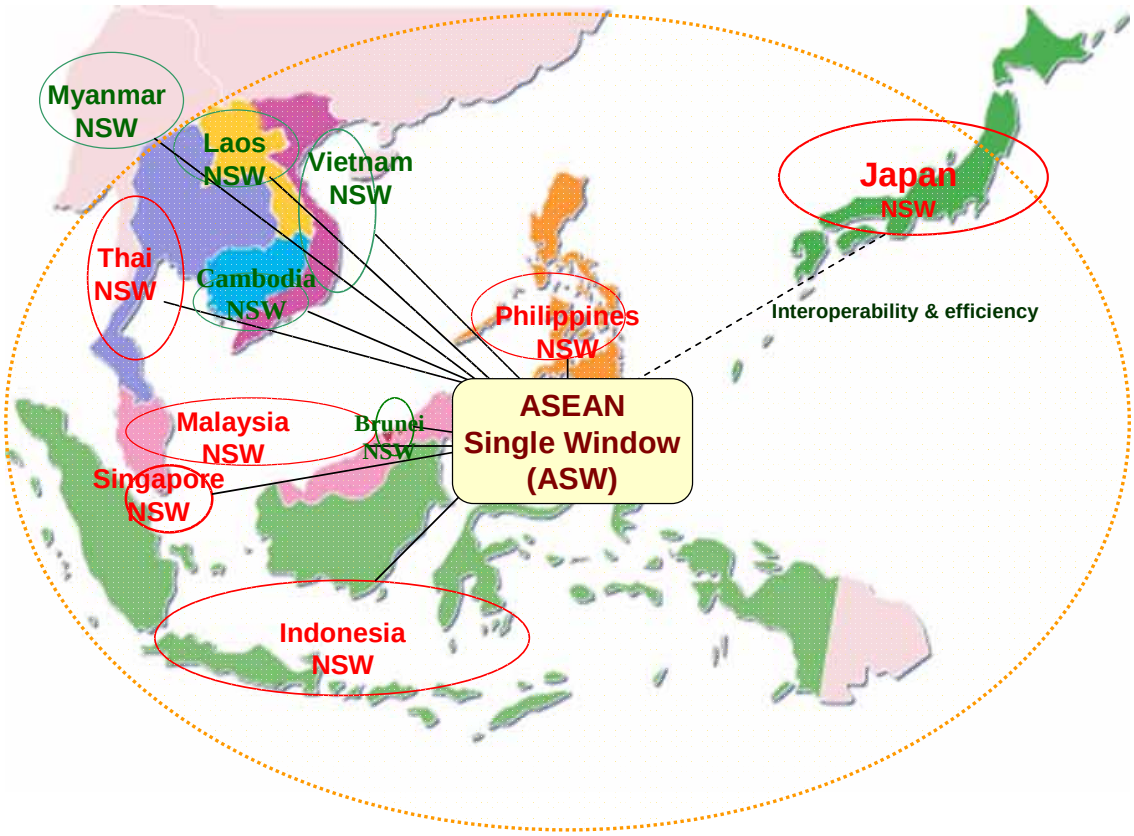
In the future, in order to invigorate BtoB trade between Japan and ASEAN region by facilitating the trade-related administration procedures as one of our survey's objectives, it is practical to proceed with the following steps:

- **Simplification and standardization of the trade-related legislation, procedures, and necessary documents.**
- **Examination and development of systems which enables safe and smooth operation in the logistics.**
- **Construction and utilization of information and communication technology infrastructures.**

However, ASEAN countries (advanced six countries) are already in the stage of implementation of the projects to commence the ASW operation in 2008. Therefore, Japan should make its single window in close cooperation with the ASW taskforce at each above mentioned step, as maintaining consistency with the ASW.

As one of the ASW's agenda to be examined in the future, ASW taskforce pointed out the application of RFID. It is the field that Japanese technologies and knowledge are expected. When planning to cooperate with ASW, to examine the ways (hardware, software, system integration, services, etc.) how to cooperate and collaborate between Japan and ASEAN countries regarding RFID is beneficial.

Figure 4 - 2. Image of a Proposed Future System



4.4.2 Plan for FY 2006

This survey has identified many issues relating to trade and port EDI and to the introduction of RFID in ASEAN countries. In addition, it became clear that the ASEAN Single Window (ASW) Project is progressing in concrete form in ASEAN countries toward the trade facilitation in the region.

Currently, many Japanese companies go into the ASEAN market, make huge investments, and develop cross-boarder manufacturing, distributing and marketing activities through a supply chain. Under the environment, the trade facilitation in ASEAN countries and between Japan and ASEAN region is one of the biggest tasks to improve earning capacity and to maintain competitive superiority for those companies as a corporate strategy. The trade facilitation is also beneficial for local companies, since it expands trade between local companies and Japanese companies, and is expected to contribute to economic revitalization in the region and establishment of a favorable win-win relationship between Japan and the ASEAN region.

In consideration of the situation, following projects can be promoted in FY2006.

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(1) Japan-ASEAN Joint Forum

A forum can be held as follows, in order to share concepts and information on ASW, to ensure consistency of promoting projects between Japan and ASEAN countries, and develop business of both Japanese and local companies efficiently.

- Delegates of the Forum

Japan

1) Companies which are doing business in the ASEAN region and related organizations
2) Administration officials

ASEAN

1) Local companies and related organizations
2) Administration officials from each country and officials in charge of trade facilitation at the ASEAN secretariat

- Theme of the Forum

1) Information sharing on the progress of ASW
2) Examination on RFID application (applicable areas, system and HW/SW/NW, integration/development/implementation), which is related to ASW
3) Examination on security, data models, standardization, etc. which are related to ASW implementation

- Operation of the Forum

1) Holding of workshops
2) Holding of seminars
3) Reporting at the ASEAN Economic Ministers and the Minister of Economy, Trade and Industry of Japan Consultation (AEM-METI)

- Tasks at the Forum

Japan

1) Offering information on RFID application examples (demonstration experiments, etc.)
2) Offering RFID HW/SW (HIBIKI project)
3) Offering other technical information (e.g. WCO Data Model, ebXML, digital signature, authentication, etc.)
4) Offering frameworks/system requirements, suggestions on how to cooperate, etc. from a standpoint of Japanese companies

ASEAN

1) Reporting the progress of trade facilitation including the ASW in the ASEAN region
2) Sharing issues regarding ASW implementation
3) Others

(2) Participation in ASW Pilot Projects

In addition to the above mentioned forum, Japanese companies participate in ASW pilot projects to share the current status of ASW and to ensure consistency of system coordination between Japan and ASEAN countries. In this way, to share and complement information, technologies and knowledge is meaningful to facilitate coordination.
The following two styles of the pilot projects can be considered.
- A pilot project with Japanese companies in the ASEAN region
- A pilot project between Japan and ASEAN countries

(3) Strengthening coordination with the efforts in Japan and ASEAN Countries

It is important to report on this project and to circulate them via existing channels between Japanese and ASEAN governments, such as the ASEAN Economic Ministers and the Minister of Economy Trade and Industry of Japan Consultation (AEM-METI), the ASEAN Senior Economic Officials–Ministry of Economy, Trade and Industry Consultations (SEOM-METI), and the ASEAN-Japan Committee on Comprehensive Economic Partnership (AJCCEP), and to discuss the future direction, so as to ensure active commitment from the ASEAN countries. It is also essential to recognize the current situation of efforts toward the trade facilitation in the region by custom and port officials in both Japan and ASEAN countries and to plan and implement in a manner consistent with the situation.

A Project Commissioned by **Ministry of Economy, Trade and Industry (METI)**
Surveys on Adaptability of IC Tags (RFID) in ASEAN Countries

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