CSIS-S4D 2nd Symposium

January 11, 2017

Overseas Project Division

Policy Bureau, MLIT

Environment of infrastructure investment

Increasing infrastructure projects including PPP

国土交通省

Infrastructure investment

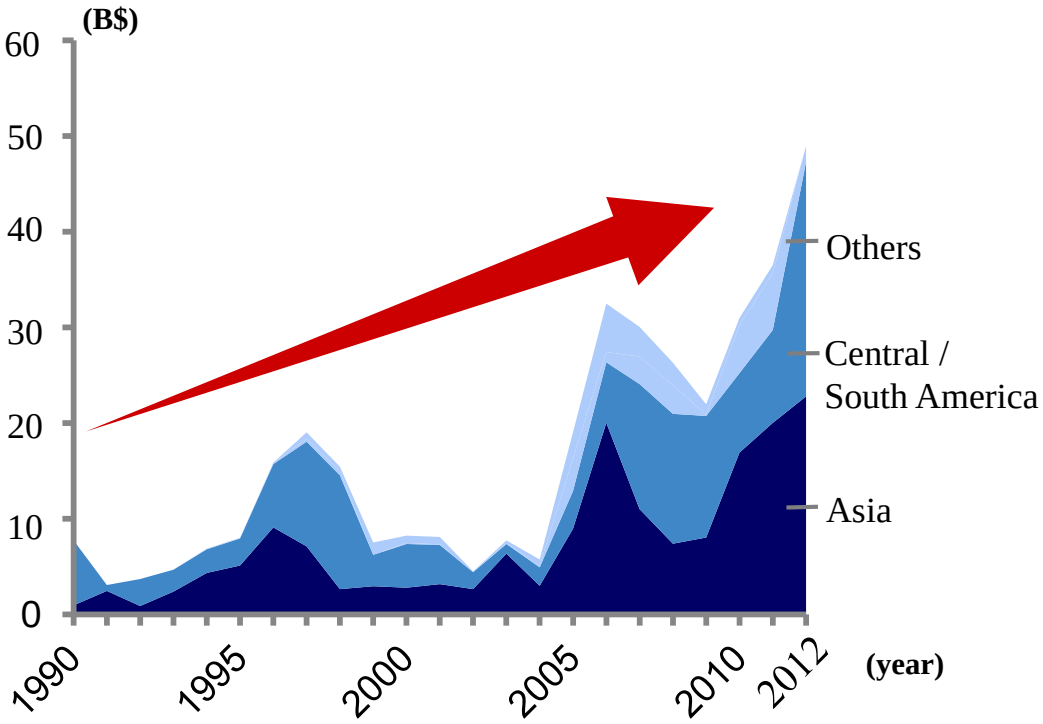
Worldwide ▶ **$2,300B/year**

Source：OECD（2006, 2011）

Asia ▶ **$800B/year**

Source：ADB（2009）

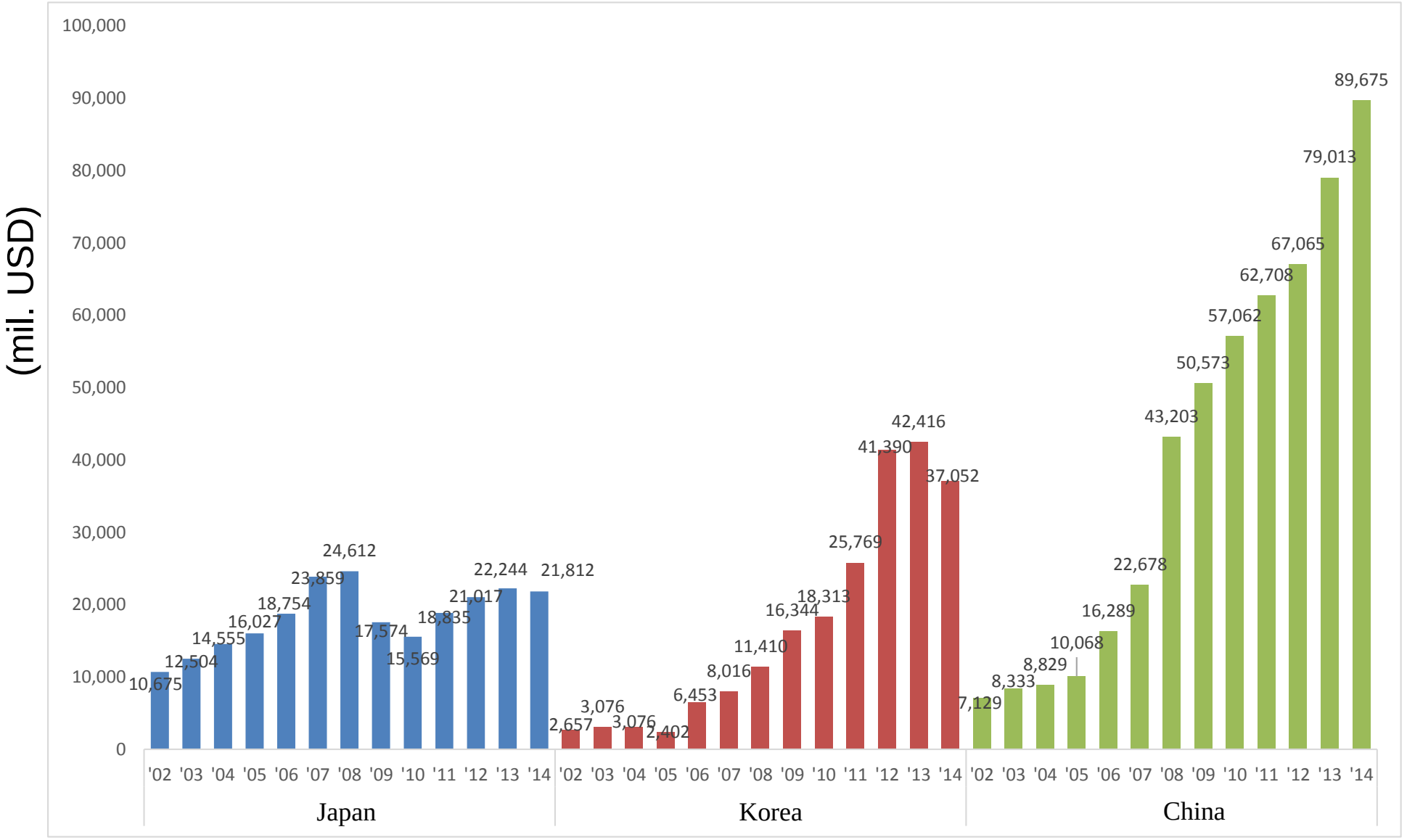
Transport PPP investment



Source: World Bank

Huge demands for infrastructure development, especially PPP

Orders received of infrastructure projects (Japan, Korea, China)



Source : Engineering News-Record

Government policies on overseas development of infrastructure

(Points of the "Infrastructure System Export Strategy")

●"Infrastructure System Export Strategy" summarizes the basic policy of the government (part of the "Japan Revitalization Strategy")

- ➢ The regional initiative policy indicates <u>expanding to the world from ASEAN</u>.
- ➢ Mobilizes all measures such as the "5 pillars", to secure ¥30 trillion (2020) in markets.

Regional Initiative Policies

ASEAN

"A market we cannot lose, must not fail in".
"FULL ADVANCE" is the keyword.

- ➢ Increase infrastructure exports in all fields
- ➢ Support for advancing Japanese companies by enhancing supply chains

Southwest Asia, Middle East, Russia/CIS, Latin America

Major growth markets. Falling behind on trade, investment, and overseas development of infrastructure, partially for cultural reasons.

- ➢ In the field of infrastructure, Japan must work intensively to win orders for major projects ahead of competitor countries.

Africa

Has not been positioned as a business development field for corporations.

- ➢ Collaborate as **ODA** to produce "as many success stories as possible".

Others (developed countries, etc.)

- ➢ Promote infrastructure export leading to support for vulnerability to natural disasters securing resource rights
- ➢ Promote infrastructure export in fields where Japan can demonstrate its strengths, such as power and transport.

5 Pillars

1. <u>Promote public-private collaboration</u> toward enhancing global competitiveness of corporations

- ・Diverse, strong **trade promotion**
- ・Strategic growth of **economic cooperation** (Effective use of govt. support tools)
  - ⇒ **F/S; Proof projects; Tech aid; gratis fund aid; yen loans; public finance**
- ・Enhancement of public-private **collaboration systems**
- ・**Regional/wide-area** initiatives
- ・**From upstream to downstream**
- ・Develop business environments **in legal systems, etc.**

2. <u>Support for small to mid size companies and local governments</u>, HR development

- ・Overseas infrastructure development by **small to medium companies** and **local governments**
- ・Development of **global human resources** and personal network building

3. <u>Securing international standards</u> that make use of advanced technology and knowledge

- ・Secure **international standards**, enhance authentication infrastructure
- ・Overseas development support of **low carbon technology**
- ・Lead **mainstreaming of disaster prevention**

4. Infrastructure fields that will be <u>new frontiers</u>

(Medical field, agriculture field, space field, water and sewage services)

5. Promote stable and affordable <u>securing of resources</u>

(natural gas, oil, mineral resources, coal)

(From the Economic Infrastructure Strategic Conference "Infrastructure System Export Strategy" (Revised May 23, 2016))

MLIT's initiatives for promoting infrastructure investment

MLIT Infrastructure System Overseas Development Action Plan

Background

- **The infrastructure market is growing rapidly, especially in Asia.** The launch of the ASEAN Economic Community (AEC) at the end of 2015 and the outline agreement and signing of the TPP agreement accelerates this process.
- In May 2015, **Prime Minister Abe presented "High Quality Infrastructure Partnerships", and in November of 2015 policies to enhance related systems and financial support measures** were revealed.
- Yet, **competition with competitors to secure orders is growing fierce**, so more strategic initiatives are required.
- **The role MLIT holds in overseas infrastructure development is very large,** so it is necessary to continue and enhance the current initiatives, **while maximizing use of expanding the above systems, taking new initiatives that support current situational changes.**

Positioning of the "Action Plan"

Deepening initiatives in MLIT related areas on the premise of the entire government's "Infrastructure System Export Strategy", and clarify important points to further expand overseas development.

Point 1: Organize and clarify major countries and major projects

- **Organize and clarify MLIT overseas development projects** which are the focus **for each region and country**

→

- Including **trade promotion**, **strategic promotion at more effective timing** for target countries

Point 2: Enhance HR dev.

Further enhance initiatives in the soft side, such as Japan's strengths in **HR development support and system building support.**

Point 3: Use of JOIN

Actively support overseas expansion of private companies that make max use of the strength of joint public-private fund JOIN.

Point 4: Overseas expansion of construction industry

Enhance initiatives to support overseas advance support for the construction industry, which is important as a lateral responsible organization for projects.

Point 5: S/M Company Support

Actively support the overseas advance of small and medium companies related to MLIT which have superior technology and wish to expand overseas.

Point 6: Support for needs

Enhance initiatives to improve competitive-ness in price and response speed that stand in partner country's line of sight for needs

Point 7: Expansion of PR

Collaborate integrally with each ministry **to enhance the promotion activities suited to the projects and regional characteristics of partner countries.**

Point 8: Use of new tech

Actively develop advanced urban development with cutting edge technology and energy saving, such as IoT and big data.

Infrastructure System Export Promotion by MLIT

Strongly promote the export of infrastructure systems. Specifically, promote joint public-private efforts to participate in upstream (conceptual stage) and downstream (operation and management) activities. Embark proactively on software infrastructure development such as the international standardization of Japanese standards.

Participation in upstream activities, information dissemination

Promote joint public-private efforts in project formation and high level sales pitches, enhance information dissemination

- High level sale pitches in the form of conferences and seminars
- Project formation through public-private partnership and holding PPP conferences.
- Dissemination of information on the quality of Japanese infrastructure by making use of international conferences

Nov 2015
Test Ride on Maglev Train

Mar 2015
Test Ride on "Yurikamome"

Support for business risk reduction

Support the infrastructure exports by Japanese companies from multiple angles

- Provision of support to reduce the business risk in downstream activities (operation and management)
  - ✓ Establishment of 'Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN)'
- Resolution of business issues
  - ✓ Establishment of an "Overseas Construction Hotline"
  - ✓ Bilateral gov. dialogues

Oct 2014
Establishment of JOIN

Jun 2015
High-Level Meeting on Infrastructure Development Cooperation WS between Viet Nam and Japan

Development of soft infrastructure and human resource development

Overseas penetration of soft-infrastructure such as the international standardization of Japanese technologies and systems

- Participation in international organization and standardization bodies.
- Support of development of systems for partner countries.
  - ✓ Holding training courses and seminars, deployment of experts, etc.
- Support of human resource development for partner countries.

Dec 2014
ISO/TC269
(Railway applications)
3rd General Meeting

From Sep to Dec, 2013
JICA Training Course
(Sewage Works Engineering and Stormwater Drainage Technology)

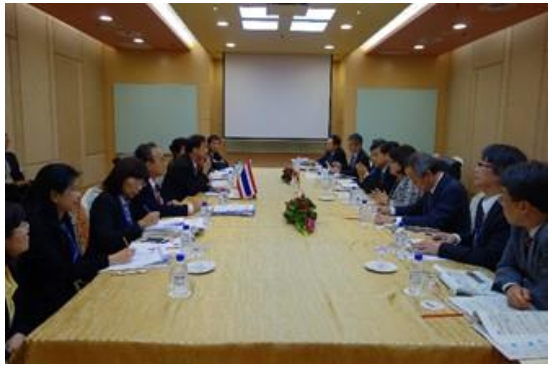
Participation in upstream activities, information dissemination

Latest trade promotion example from MLIT Minister Ishi

○ Minister Ishii visited Malaysia in November 2015, held discussions with Malaysian Minister of Transport Liow, Singaporean Minister of National Development and Minister of Transportation, and Thai Minister of Transport Akhom, conducting trade promotion of Japan's shinkansen system.
○ In December 2015, Minister Ishii visited Laos to attend the groundbreaking ceremony of the (Vientiane) Wattay International Airport terminal expansion project, and held discussions with the Laotian Prime Minister Thongsing and Minister of Public works and Transport Bounchanh.
○ In July 2016 Minister Ishii visited Germany, held discussions with the Federal Minister of Transport and Digital Infrastructure Dobrindt, and in preparation for the upcoming G7 Transport Ministers Meeting in Karuizawa, Nagano Prefecture, and agreed to enhance collaboration with Germany which was the presidency holder last year. Also, Minister Ishii visited Malaysia and Singapore, held discussions with important figures in the governments of both countries, and exchanged ideas about bilateral collaboration in urban development and in infrastructure fields, and conduct trade promotion of high speed rail.

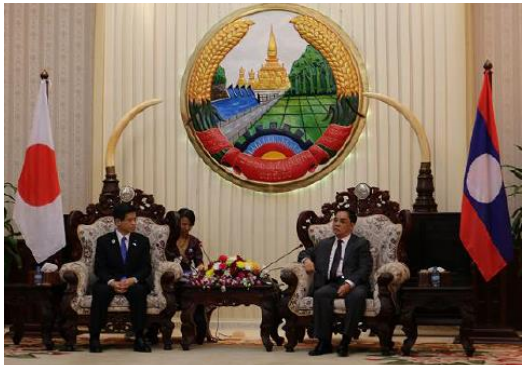
Malaysia (Nov 4-7, 2015)

Discussion with Minister of Transport Liow

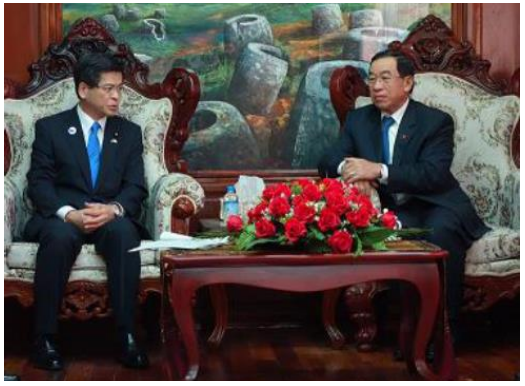


Discussion with Minister of Transport Akhom

Laos (Dec 27-29, 2015)



Discussion with Prime Minister Thongsing



Discussion with Minister of Public Works and Transport Bounchanh

Germany, Malaysia, Singapore (Jul 19-23, 2016)

Discussion with German Federal Minister of Transport and Digital Infrastructure Dobrindt

Discussion with Singaporean Minister of State Teo

Latest trade promotion example from MLIT Minister Ishii (Panama)

○ At the welcome reception for the President of Panama in April 2016, Minister Ishii newly emphasized cooperation enhancement with the development of the Metro Line 3 monorail. The President of Panama and his entourage also visited the Tama Monorail.

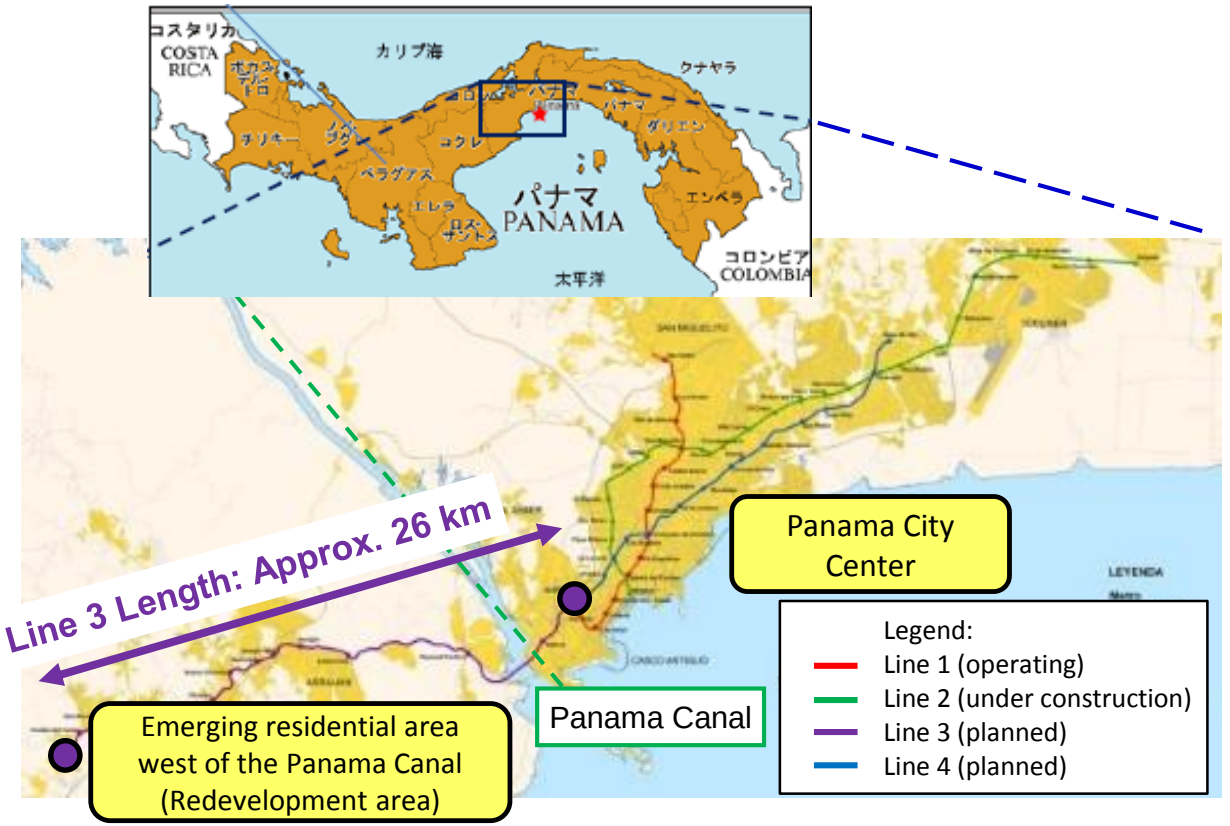
President of Panama visiting Japan (Apr 17-21, 2016)

Panama Presidential welcome reception

Tour of the Tama Monorail

Project Outline

- Line Length: Approx. 26 km (14 stations)
- Total Project Cost: Approx. ¥299.2 billion
- ODA donation: Approx. ¥281.1 billion
- Construction Period: 2017-2021 (planned)
- Project Leader: Metro public corporation (Metro de Panamá, S.A.)

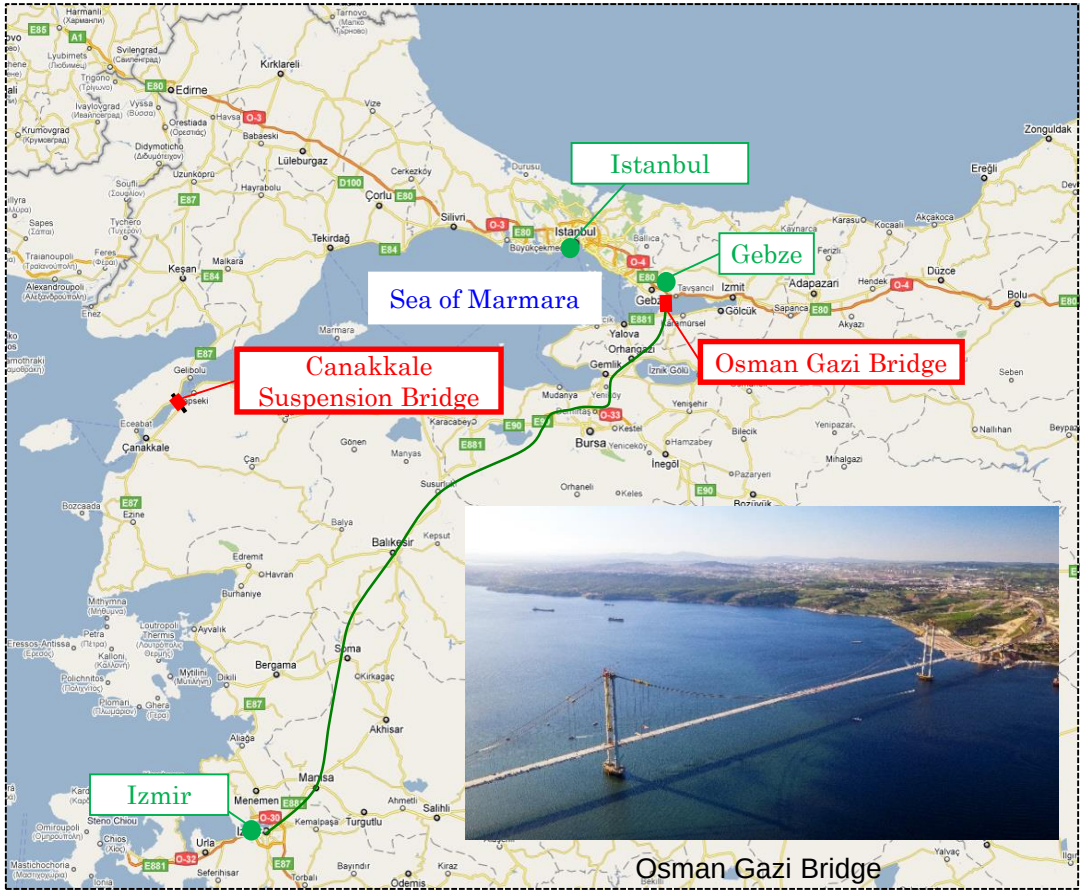


Turkey, Izmit Bay Bridge (Osman Gazi Bridge)

- On June 30th, 2016, the Izmit Bay Bridge (Osman Gazi Bridge) built by Japanese corporations was opened.

(Center Span: 1,550 m suspension bridge (#4 in the world))

- Technology Counselor Shichijo attended the opening ceremony as a representative for MLIT Minister Ishii. After the ceremony, he held a dialog with Turkish Minister of Transport, Maritime and Communication Arslan, and handed him a personal letter from the Japanese Prime Minister's aide Izumi, and promoted construction of the Canakkale Suspension Bridge.
- President Erdogan spoke about the construction of the Canakkale Suspension Bridge in his speech at the opening ceremony.
  "Our next target is the Canakkale Suspension Bridge. (Omitted) This is an international rather than a national revolutionary investment project. It is a project befitting our country. Easing transportation in the Marmara Region means easing transportation in all of Turkey."



Osman Gazi Bridge

At the ceremony
(Minister of Transport, Maritime and Communication Arslan)

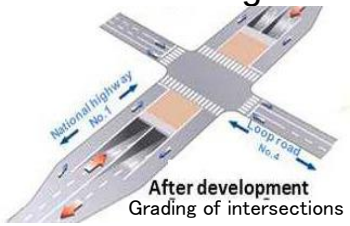
Speech by President Erdogan

Development of the Solution Proposal Model

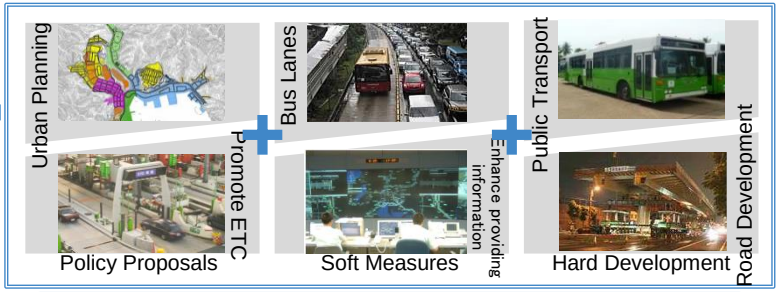
- Originally, Japan's strengths are in (1) A posture that emphasizes customers and (2) Medium to long term field of view considering life-cycle.
- We will establish a system that converts the perspective of emerging countries, and proposes solutions in the medium to long term field of view.

Individual Sales (= Cost competition)

Traffic Congestion Countermeasures

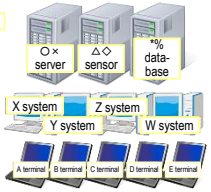


Proposals for "Solutions" (=added value competition)

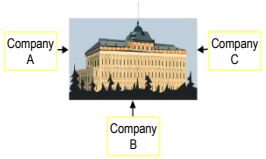


Approach from supply side (high performance/high price)

Excess quality

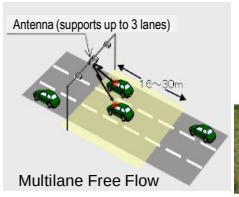


Unused features

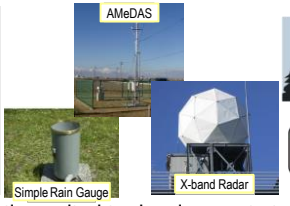


Redundant sales activities

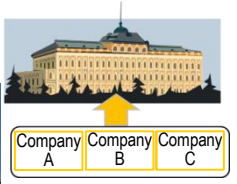
Approach from the customer needs side



Propose local specs

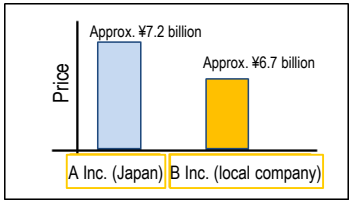


Function suited to development stage



Collaboration with private companies

Competition centered on initial cost



Comparison of bid prices

Infrastructure from Country A, which degrades a few years after development

Proposals considering life-cycle

Streamlining of maintenance admin

HR development

Priority Fields

- Rain/flooding countermeasures
- Urban traffic congestion countermeasures
- Infrastructure degradation countermeasures
- Urban development strong against earthquakes

Target Goals

- Improve Japan's presence in "family art" fields
- Build sustainable partnerships by introducing Japanese solutions
- Discover and form good projects, and secure orders for Japanese companies using Japanese technology

Implement (1) Typology of emerging country's needs, (2) Menu development for each need, (3) Organizing guidelines for each field.
*Industry organizations, universities, and research institutions collaborate to work (especially (1) and (2)) with the government and people on priority fields and make proposals to emerging countries in order.

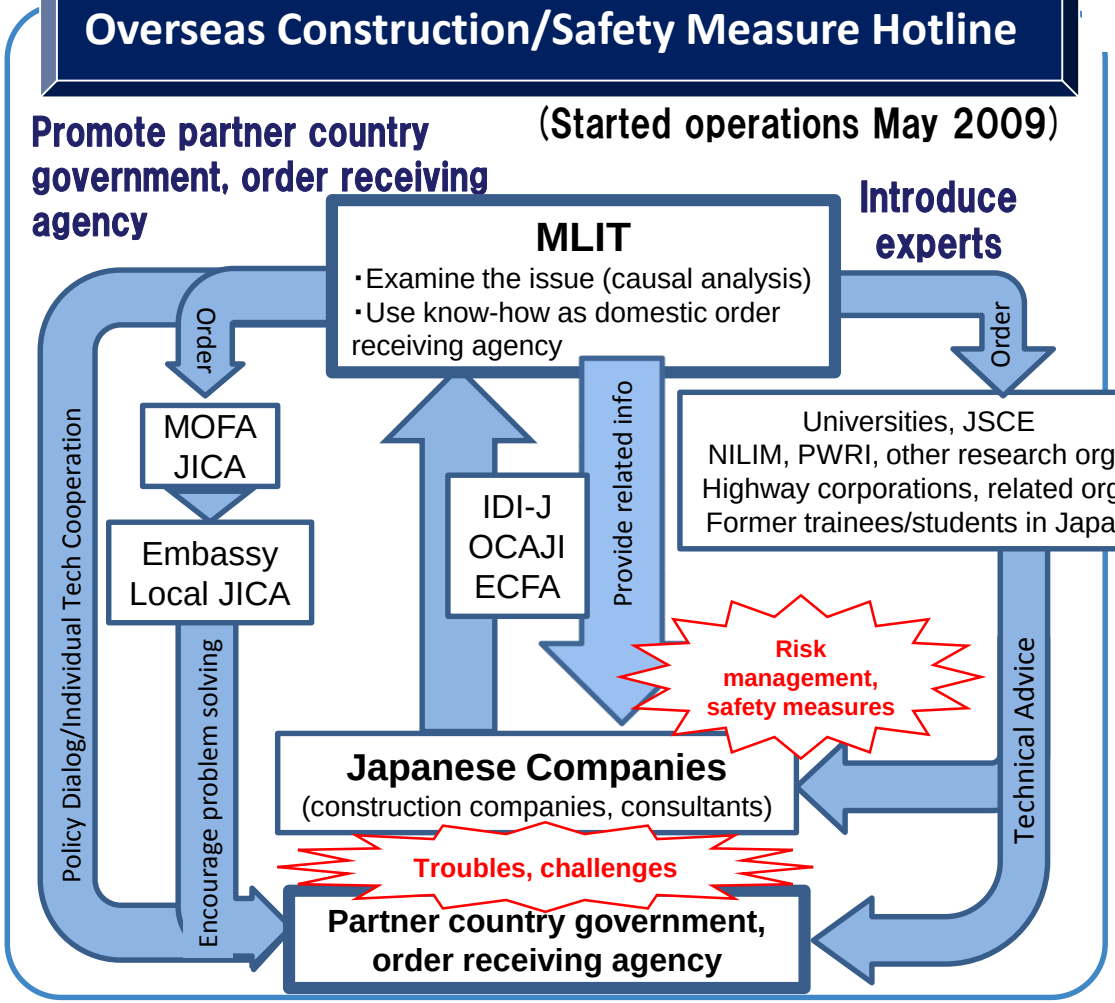
Support for business risk reduction

Consultation service on overseas infrastructure projects

- "Overseas Construction Hotline" opened in May 2009 as a consultation service for various problems in overseas construction projects
- Indicate safety measures as a consultation item from August 2016, name changed to "Overseas Construction/Safety Measure Hotline"
- Implement promotion including top claim, professional introduction, and providing related information, for each project

Overseas Construction/Safety Measure Hotline

(Started operations May 2009)



Example discussions for each construction stage (reference)

(From actual discussed projects)

*Also supports discussions of risk management and safety measures overseas

Ads

Bid, contract

- Bidding process is unclear
- Contract differs from bid conditions
- Contracts are 1-sided (structure in which the order receiver bears all risk) 6 in total

Start

- Purchase of site not completed
- Problem properties (water pipes, power lines, etc.) transfer not complete
- Related construction is late 18 in total

Build

- Significant design changes
- Sudden rise in prices due to external conditions (natural disasters, civil war, etc.)
- Trouble with local residents 36 in total

Finish, deliver

- Delivery process is troublesome
- Change contract (payoff) not implemented 8 in total

Payment

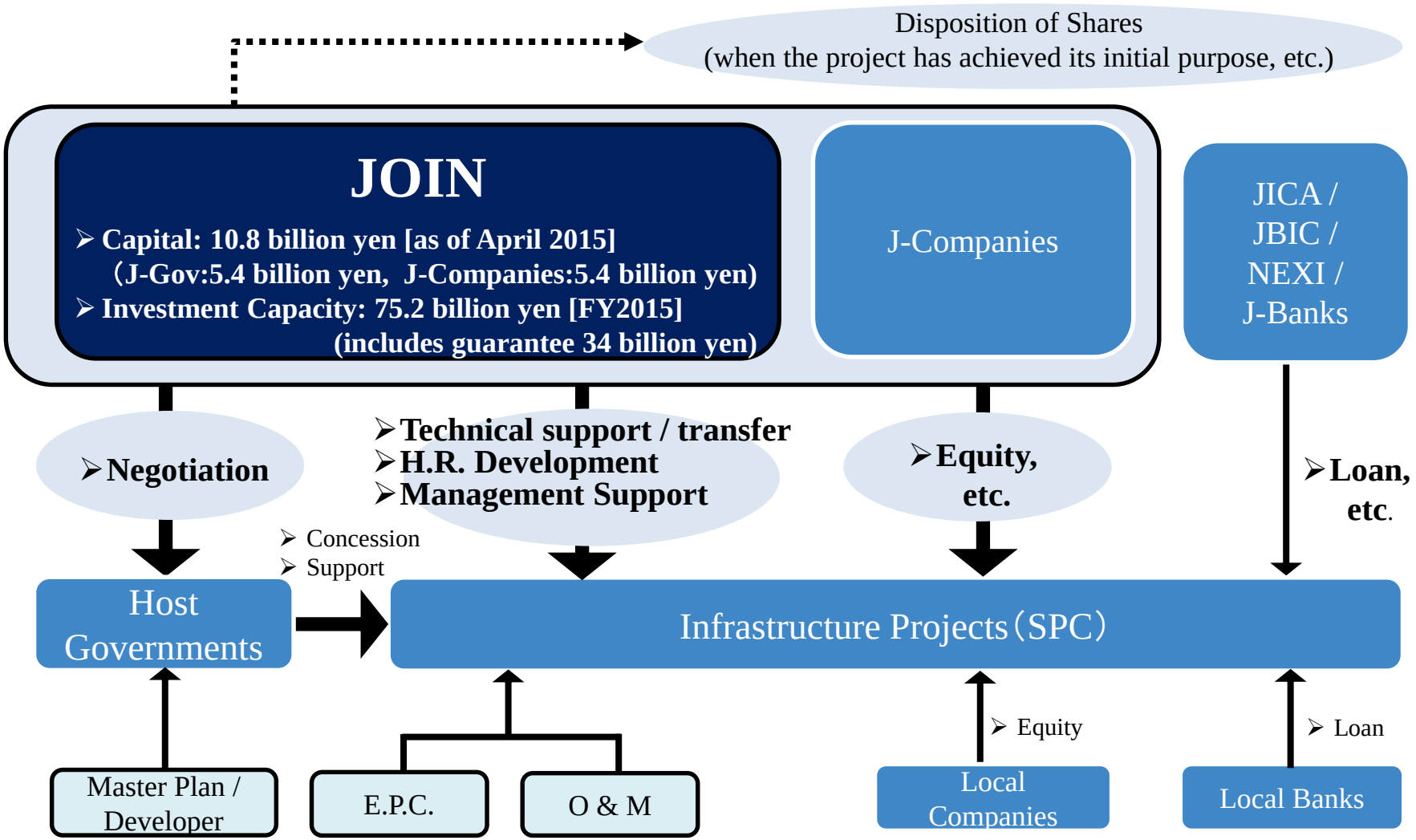
- Delay, denial of payment 32 in total
- No return of overpaid taxes 22 in total

*Some cases overlap

*To keep contractual secrets, expressions are chosen that prevent identification of individual contracts.

JOIN (Japan Overseas Infra. Investment Corp.)

Established in October 2014



Projects decided for support from JOIN

< JOIN No. 1 Project > Chi Bai Port Development/Operation Project in Vietnam

- ○ To support rising demand for steel in Vietnam, this project was started in Chi Bai Port near Ho Chi Minh City, to develop and operate a port terminal for importing steel scrap
- ○ Expanding Japan's knowledge and know-how of port operation overseas (First time for a Japanese port operator to participate in port operation in Vietnam)

(Approved by MLIT Minister on October 27, 2015. JOIN funding set to about ¥1.2 billion)

Importing steel scraps (image)

< JOIN No. 2 Project > Texas High Speed Railroad Project in USA

- ○ A project to connect the cities of Dallas and Houston in the state of Texas, USA with high speed rail (approx. 90 min).
- ○ American private corporation Texas Central Partners (TCP) is the business leader, promoting the project on the premise of using the Japanese shinkansen system (N700-I Bullet).

(Approved by MLIT Minister on November 21, 2015. JOIN funding set to about ¥4.9 billion)


Japanese Shinkansen System (Reference)
(N700 Shinkansen)

< JOIN No. 3 Project > Urban Railroad Development/Operation Project in Brazil

- ○ A project to collectively run 4 commuter rail, subway, and LRT projects in 3 cities in Brazil, including Rio de Janeiro.
- ○ From overseas advance centered on the export and sale of train cars, move to full entry into funding and project operation for passenger railroad projects.

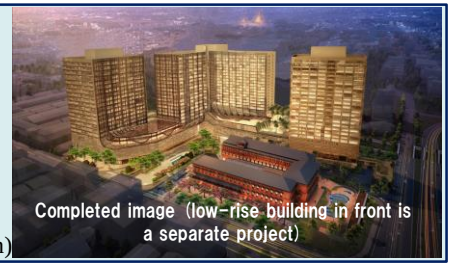
(Approved by MLIT Minister on December 9, 2015. JOIN funding set to about ¥5.6 billion)


Rio de Janeiro Commuter Rail
(railroad car in operation)

< JOIN No. 4 Project > Complex Urban Development Project in Myanmar

- ○ A project to build and operate a complex facility that will be a landmark near Yangon Central Railway Station in Myanmar.
- ○ Through know-how transfer relating to operation of complex facilities, contribute to local HR development, and improve the brand power of Japan's urban development in Myanmar.

(Approved by MLIT Minister on July 12, 2016. JOIN funding set to about ¥4 billion)


Completed image (low-rise building in front is a separate project)

< JOIN No. 5 Project > Complex Urban Development Project in the Suburbs of Jakarta, Indonesia

- ○ A project to develop single-family detached houses and commercial facilities in the suburbs of Jakarta, Indonesia.
- ○ An alliance of Japanese firms made up of railway operators received support from JOIN and took part in planning urban development projects in Indonesia for the first time. This has prompted a transfer of know-how on Japan's transit oriented development (TOD).

(Approved by MLIT Minister on October 27, 2016. JOIN funding set to about ¥3.4 billion.)

Development of soft infrastructure and human resource development

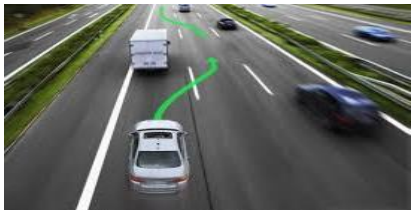
International Standardization Initiatives in MLIT fields

○ Japan plays a leading role in such fields as automobiles, railroads, sewage treatment, roads, marine, etc. for international standardization.

○ Because acquiring international standards/regulations for technology that Japan has strength in is an extremely effective initiative for making Japan's "high quality infrastructure" into international standards, and spreading technology and know-how Japan has strengths in as the "Japanese Method", it is necessary to work steadily on this.

Automotive Field

- Japan leads discussion of automatic driving technology, such as holding the co-presidency with the UK in the Automatic Driving Subcommittee of the United Nations World Forum for Harmonization of Vehicle Regulations (WP29).
- As various countries advance the development of automatic driving technology, in order to develop an environment for global performance of Japanese automobile manufacturers which have technical strength, Japan makes its national systems and technology into international standards.



Auto passing/merging/dividing (Automatic steering)

Standardize performance of auto brakes and auto steering

Road Field

- Japan leads discussion of standards for the ITS (*) field in technical committees of the International Organization for Standardization (ISO)
- Promote international standardization of ITS technology in international standardization agencies in order to grow and develop the effective application of related domestic industries.

(*) Intelligent Transport Systems

Standardize communication systems and usage systems of collected data

Railroad Field

- Japan leads discussion of railroad technology, such as by serving as the president of technical committees in the International Organization for Standardization (ISO).
- Japan also promotes international standardization of Japanese technology, as this leads to overseas expansion of railroad systems which Japan as strength in.

Example of standard proposed by Japan

Japan has proposed international standards in the ISO for "synthetic sleepers", which are lighter than concrete rail sleepers and are highly durable

Synthetic Sleepers

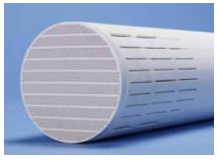
Standardize manufacturing methods and required performance

Sewage Treatment Field

- Japan leads discussion of sewage treatment technology, such as by serving as secretariat of technical committees of the International Organization for Standardization (ISO).
- As world water markets expand with the growing risk of drought due to climate change, Japan promotes international standardization of water recycling technology in order to improve international competitiveness of membrane technology, which Japan has an advantage in.

Water recycling technology with membrane treatment

MF membrane (flat sheet membrane)



MF membrane (ceramic membrane)

Standardize performance evaluation of treatment technology

Implementing training in collaboration with JICA

- While collaborating/consulting with JICA, we implement training (by country/challenge) according to our partner country's needs and challenges.
- MLIT proposes training content and contributes deeply to content development for 21 training courses by challenge (planned for implementation in 2015).
- We accept approximately 1,300 trainees (2015 performance) for training by challenge/country, and arrange the dispatch staff trainers and on-site observation.
- In the future, we will use JICA training to the maximum extent as a perfect opportunity to represent Japanese infrastructure project and as a human network for infrastructure exports.

■ 2014 JICA training by challenge

Theme: Sewage technology/urban drainage
Trainees: 17 from 12 countries, including Indonesia, Myanmar, and Brazil
Summary: Implemented a rich training menu including lectures, practical training, and on-site observation of planning, design, construction, and maintenance management of sewage treatment, sludge treatment, and flood countermeasures

- Until now there was only lectures and on-site observation of the common sewage treatment process (standard activated sludge process) in Japan, but from 2014, we added lectures and on-site observation of small-scale sewage treatment plants (OD process, etc.) as sewage treatment process that meet the needs and situations of training partner countries.
- Also, on-site observation in the Tohoku Region has been incorporated into the curriculum, setting opportunities to learn about support during disasters and restoration of facilities.
- Additionally, by incorporating observation of private factories for pipes used in repair and update of pipelines, we have made opportunities to represent Japanese corporations.

< Images of training >

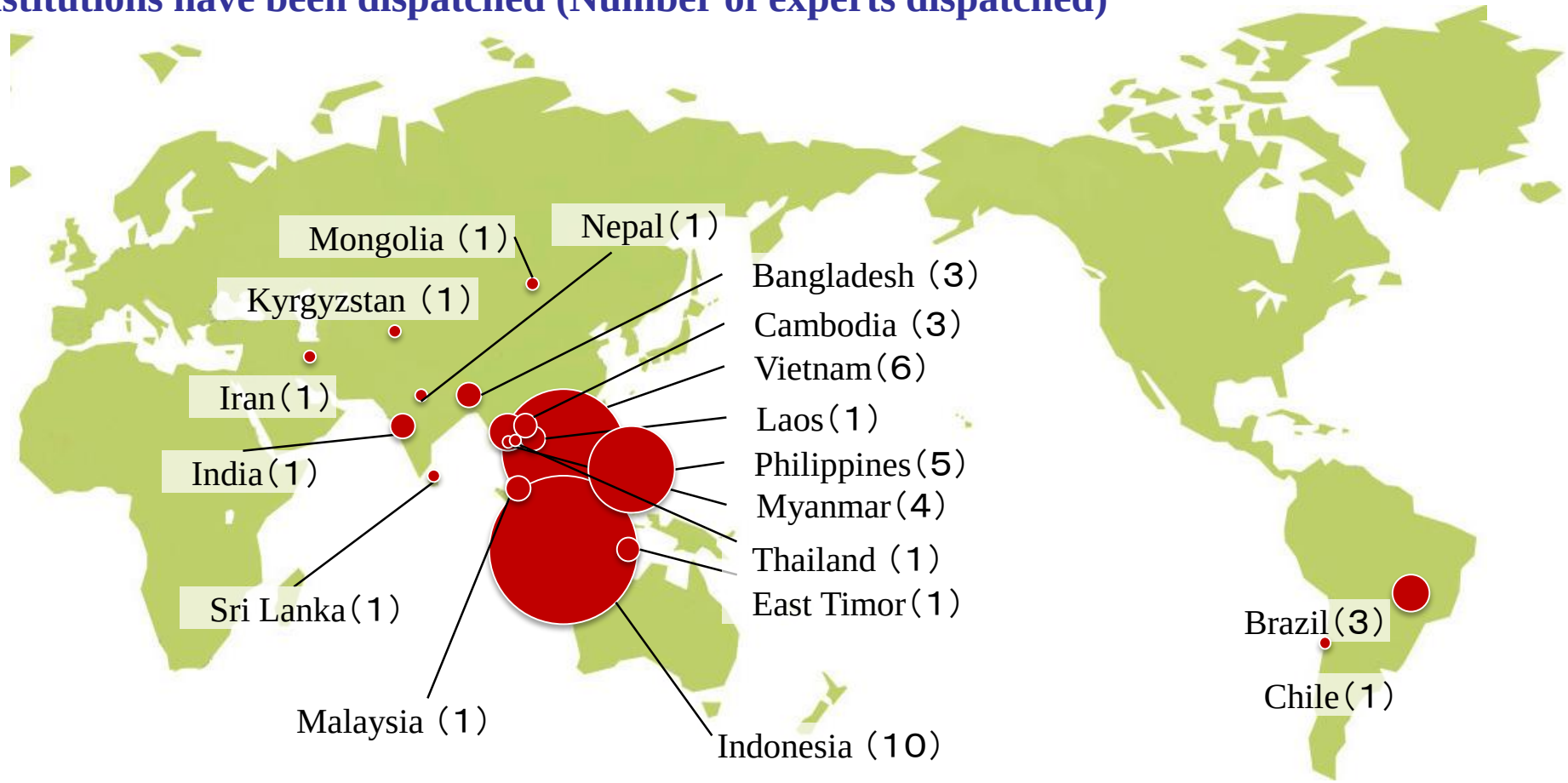
Dispatch of JICA Expert from MLIT and affiliated institutions

- **45 JICA long-term experts from MLIT have been dispatched to 18 countries.**

(As of June 20, 2016)

Countries to which long-term experts from MLIT and affiliated institutions have been dispatched (Number of experts dispatched)

(As of June 20. 2016)



MLIT INITIATIVES

OTHERS

- Promote high quality infrastructure development
- G7 Transport Ministers Meeting in Karuizawa, Nagano Prefecture

High Quality Infrastructure: Bridge Construction/Management Technology

From the "High Quality Infrastructure Investment" case study collection (published on the MOFA homepage)

Made by MOFA, MOF, METI, MLIT, MIC, JICA

Summary/Traits of Technology

○ High Performance Steel: High yield point steel plates for bridges developed and standardized in Japan (JIS G3140) have realized strength and workability higher than conventional (reduction/elimination of welding preheating). As weather-resistant material, it does not require repainting.

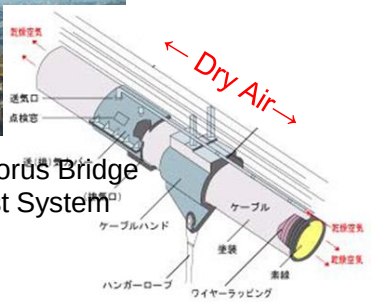
○ Rapid Construction Tech: Various construction methods that allow building in a short period of fly-overs implemented as urban congestion countermeasures

○ Long Lasting Tech: Anti-rust system manages humidity inside suspension cables developed in order to make the Honshu-Shikoku Bridge longer lasting

○ Efficient Inspection Tech: Non-destructive inspection system that can discern 0.2 mm cracks in concrete with images photographed from vehicles driving past or boats under the bridge

Tokyo Gate Bridge: High yield point steel plates for bridges

Kosaka Intersection Grading (Matsuyama, Ehime Prefecture): Rapid Construction



Second Bosphorus Bridge Cable Anti-Rust System

Traits of "High Quality Infrastructure" Technology

○ According to the field conditions of each area, adopt rational bridge formats and decrease use of steel with high strength materials, reduce maintenance costs with weather-resistant steel, reduce life-cycle cost of road bridges by making them longer lasting

○ Secure safety in the field and reduce congestion costs due to traffic regulations by constructing fly-overs in a short period

○ Improve safety of bridges and reduce their life-cycle costs by non-destructive inspection tests that due not bring traffic regulations

Performance in Japan and overseas

[Japan]

○ Tokyo Gate Bridge (high yield point steel plates for bridges)

○ Akashi Kaikyo Bridge (Cable anti-rust system)

[Overseas]

○ First and Second Bosphorus Bridges in Turkey (Cable anti-rust system)

○ Illinois bridge inspections in USA (Non-destructive inspection systems)

Cambodia Tsubasa Bridge (Neak Loeung Bridge) Construction Project

- Bridge over the Mekong River to resolve the missing link between the southern economic corridor of the Great Mekong region and the Asia Highway No. 1
- Contribute to the smoother flow of freights in the Mekong region (the ferry waiting time was a maximum of 7 hours during peak periods)

■ Basic information

- Implementing agency: Cambodia Ministry of Public Works and Transport
- Total project expenditure: 12.1 billion yen
- Free financial assistance: 11.9 billion yen (E/N: Jun 2010)
- Construction period: Dec 2010 – Mar 2015 (construction period)
- Constructed by: Mitsui Sumitomo Construction (7.8 billion yen)
- Consultant : CHODAI CO.,LTD. JV

[Bridge Parameters]

Overall length : 5.5km (one lane on each side)

- Main bridge girder (PC cable-stayed bridge): 640m (center span 330m)
- Installed bridge (PC composite girder bridge): 1,575m
- Installed road: 3.2km

■ Chronology of events

Feb 2011 Ground-breaking ceremony

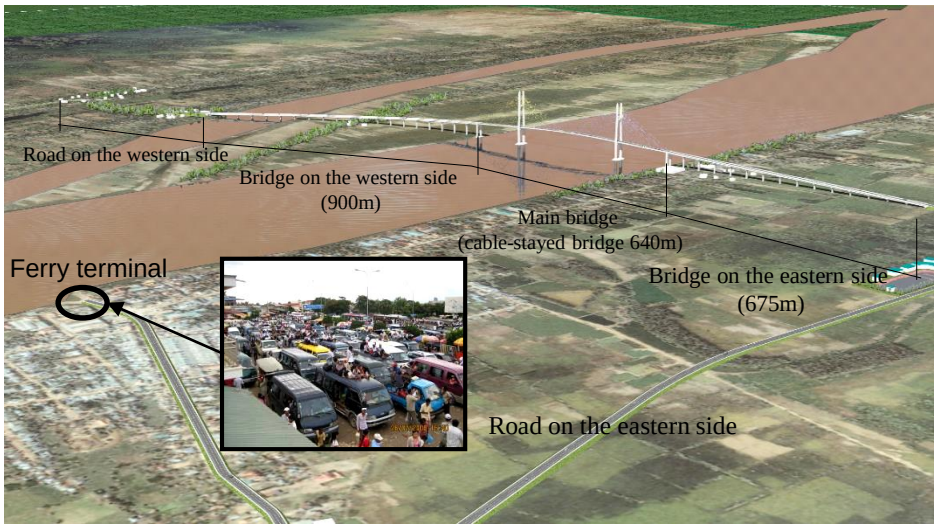
Jan 2015 Bridge girder joining ceremony

Attended by

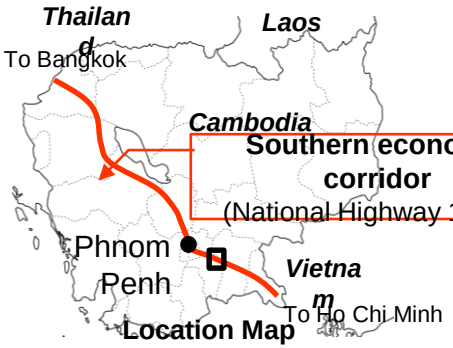
- Parliamentary Secretary of Foreign Ministry Mr. Nakane
- Prime Minister Hun Sen
- Minister of Public Works and Transport Mr. Tram

Named as Tsubasa Bridge by Prime Minister Hun Sen

Apr 6, 2015 Formal opening ceremony



Project image diagram



Location Map

New 500 riel note
(L: Tsubasa Bridge, R: Kizuna Bridge (both built with Japanese ODA))

Development Effects of Tsubasa Bridge (Neak Loeung Bridge)

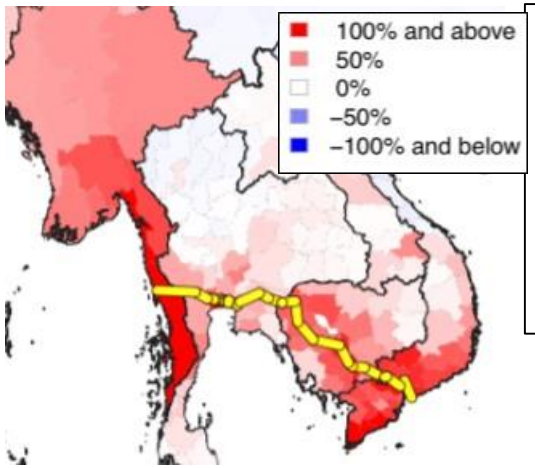
○ The Tsubasa Bridge solves the missing link of the Southern Economic Corridor of the Greater Mekong Region
・Eliminates waiting for ferries (Up to 7 hours → Access in 5 minutes after completion of the bridge)
○ Creates a new business environment by enhancing connection of 3 cities: Bangkok – Phnom Penh – Ho Chi Minh City
○ In ERIA (Economic Research Institute for ASEAN and East Asia) research, development of the Southern Economic Corridor is predicted to increase the GDP of Cambodia by 70% (estimated GDP 10 years after it is developed)

■ Waiting for a ferry

- Traffic (Approx. 5,500 vehicles/day as of 2009) exceeded ferry capacity (Approx. 4,900 vehicles/day)
- Up to 7 hours wait during Khmer New Year's Holiday and Pchum Ben holiday
- Closed at night (Midnight to 5 AM)

■ ERIA trial calculation

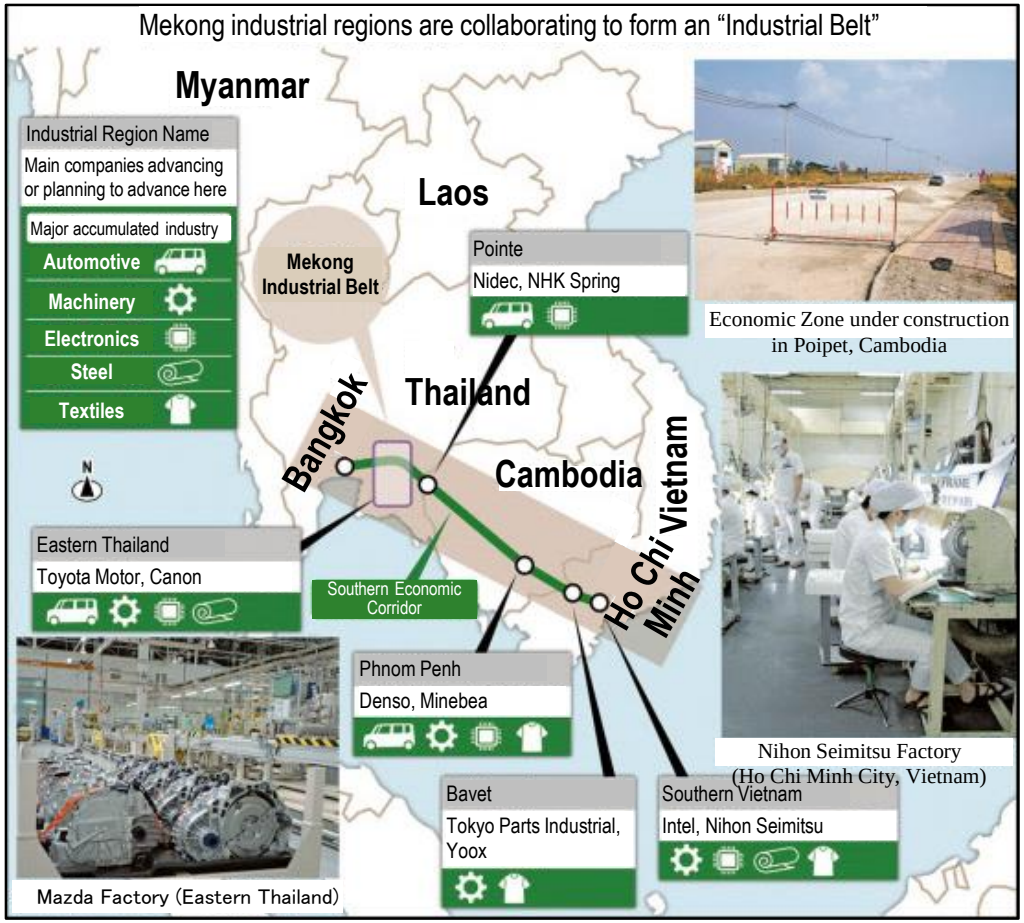
・Trial calculation of GDP growth 10 years from the development of the Southern Economic Corridor



- GDP will rise significantly 10 years after opening the Southern Economic Corridor
  - Cambodia: 69.9%
  - Myanmar: 59.0%
  - Vietnam: 54.9%
  - Thailand: 24.7%
  - Laos: 5.2%

(ERIA, The Comprehensive Asia Development Plan, October 2010)

■ Creation of a new business environment



Mekong "Industrial Belt" (Nihon Keizai Shimbun, March 31, 2015)

G7 Transport Ministers Meeting in Karuizawa, Nagano Prefecture

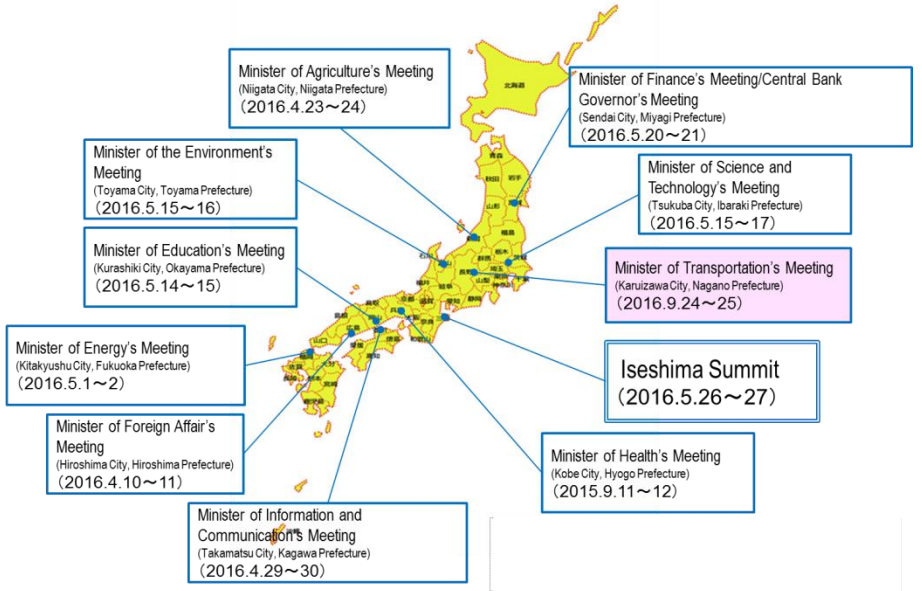
- The “G7 Transport Ministers Meeting in Karuizawa, Nagano Prefecture” was held for September 24-25, 2016
- At the meeting, a “ministerial declaration” based on discussions in the G7 Transport Ministers Meeting held in Frankfurt, Germany in September 2015 were discussed and presented

< Meeting Summary >

1. **Time & Date:** September 24-25, 2016
2. **Venue:** In Karuizawa-machi, Nagano Prefecture
3. **Participants:** Japan (Presidency holder in 2016), USA, UK, France, Germany, Italy, Canada, EU
4. **Topics:** (1) Development and diffusion of latest technology concerning automobiles and roads
   (2) Basic strategy for responding to transport infrastructure development and degradation

G7 Transport Ministers Meeting
(Karuizawa, Japan)

G7 Summit/Ministerial Meeting Venues



REFERENCES

Interagency collaboration for overseas expansion in the geospatial information field

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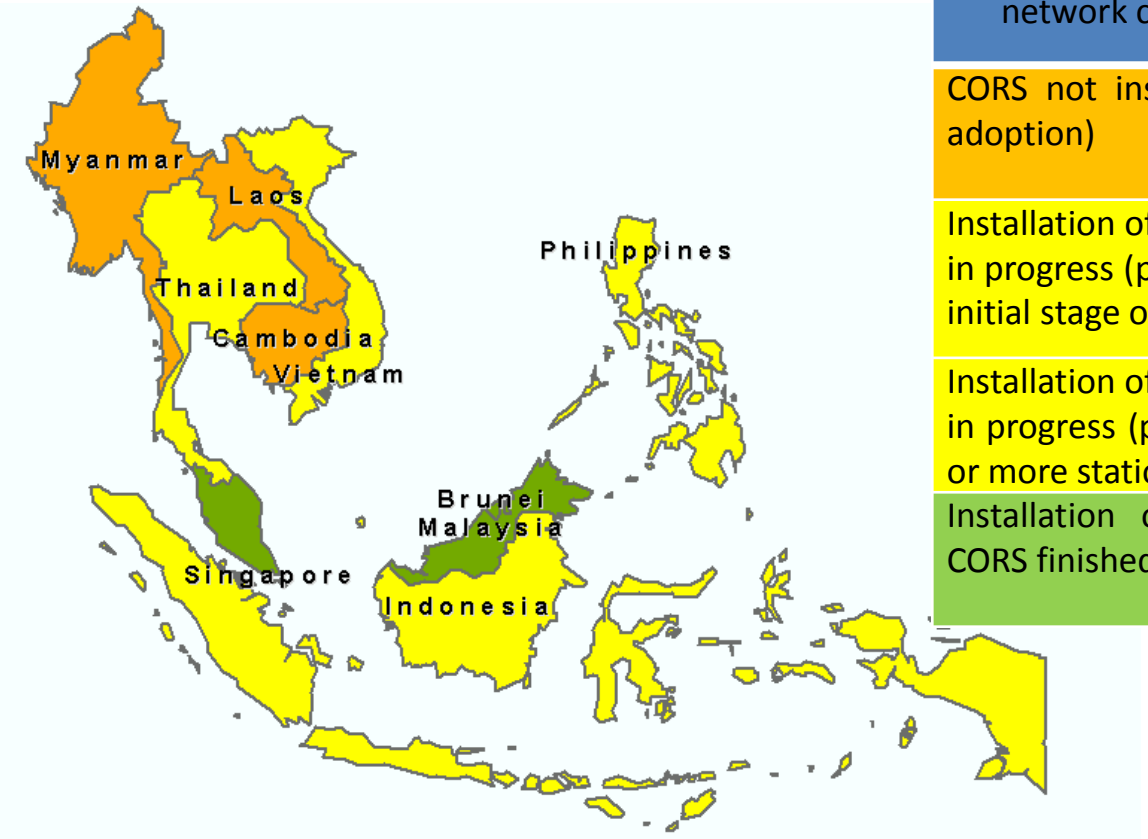
Advancing overseas expansion in the geospatial information field while linking with various platforms in the space and g-space fields.

- **Task Force for Overseas Expansion of Space Systems**
  - MLIT is also participating in the Thailand/ASEAN working groups, etc.
  - In addition to promoting use of quasi-zenith satellite systems, support is being provided for installation of networks of continuously operating reference stations (CORS) in countries where such stations have yet to be installed（example: Thailand）.
  - Support for building networks of CORS is also included in the progress schedule of the Basic Plan for Space.
- **Conference to Advance Utilization of Geospatial Information**
  - A team to promote overseas expansion was set up in Nov. 2015.
  - MLIT（Engineering Affairs Division）is also participating in the pertinent team, which is linked with Task Force for Overseas Expansion of Space Systems.

Efforts by countries of ASEAN to build networks of continuously operating reference stations (CORS)

国土交通省

- In the countries of ASEAN too, progress is being made in building networks of continuously operating reference stations for the purposes of each country.
- Among the 10 countries of ASEAN, 3 countries have not yet adopted CORS or are engaged in test adoption.
- (Even among countries which have installed a nationwide CORS network, dislike in Japan, in some countries the system has not been opened for civilian use.)



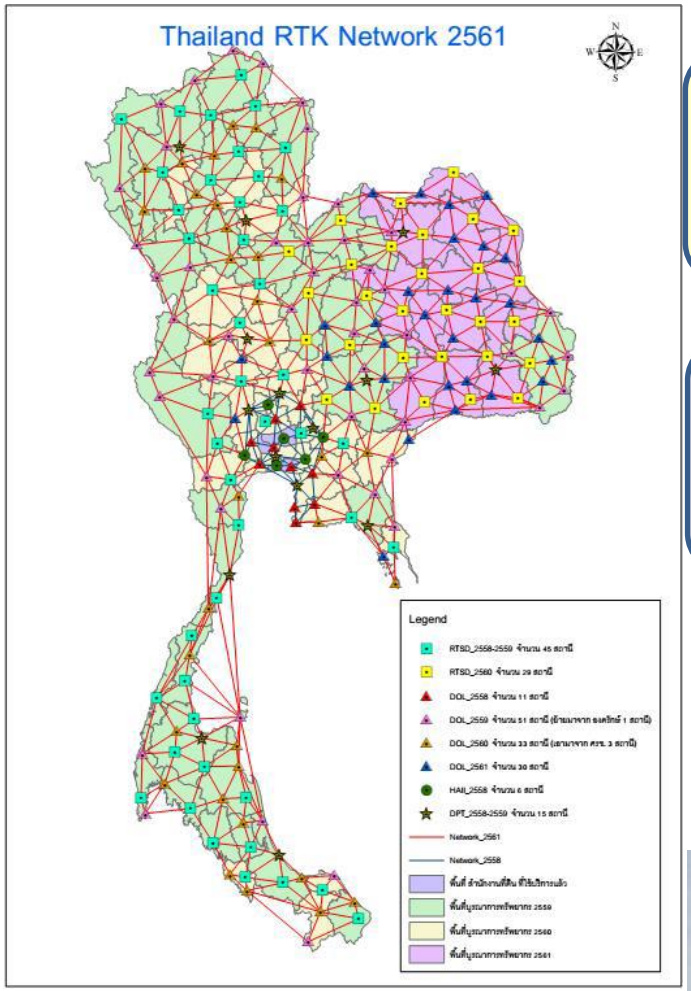
Development stage of CORS network construction	Adoption of World Geodetic System	Country name
CORS not installed (or test adoption)	Not yet	Myanmar, Laos, Cambodia
Installation of CORS network in progress (partial adoption, initial stage of installation)	Not yet	Thailand, Vietnam, Philippines
Installation of CORS network in progress (progress to 100 or more stations)	Finished	Indonesia
Installation of nation-wide CORS finished	Finished	Malaysia, Singapore, Brunei

Red: Basic investigation in progress by MLIT

Activities of the senior advisor for satellite positioning in Thailand

国土交通省

- Expert name: Katsuto Nakagawa ・Country dispatched to: Thailand
- Period of assignment: May 2016 – April 2017
- Organization assigned to: Hydro and Agro Informatics Institute (HAII)



Plan for installation of CORS in Thailand

Overview of support by Japan

In moving toward construction of a uniform satellite positioning system in Thailand, a long-term JICA expert was dispatched by MLIT from May 2016 as a senior advisor. To form an integrated CORS network in Thailand, various types of support are being provided with coordination by the Japan-Thailand working group.

Description of expert activities

(1) Advice and technical support for building an integrated CORS network
(2) Advice for planning pilot model projects
(3) Advice for introduction of CORS

Existing electronic reference station in Thailand (has not yet been networked)

Field survey

Meeting with counterparts, etc.

Goals for results

Moving forward for

- Fostering a uniform understanding by relevant organizations
- Striving to improve ability to build/operate network of reference stations in such organizations
- Developing a plan and organizational structure for building/operating a network of reference stations

Construction of a uniform satellite positioning system in Thailand

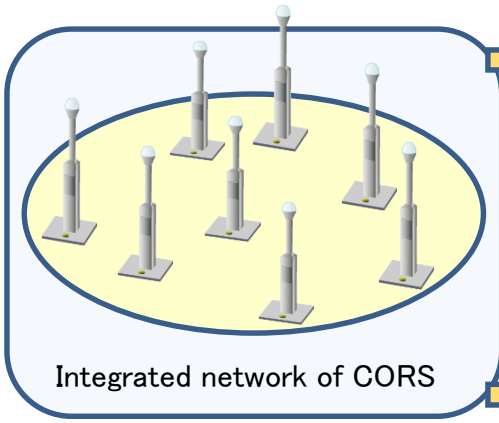
individual expert, background of activities and current situation in Thailand

Effects and role of continuously operating reference stations

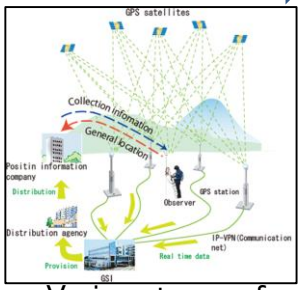
・Installation of electronic reference stations network is crucial for efficient maintenance of geodetic system and conducting surveys.

・Uniformly installed and operated system will enable various services based on position information

・Japan is a country which has been the world leader in installing a network of CORS. By keeping a dense network of these stations, we maintain a stable geodetic coordinate system, and this also enables a variety of uses such as more efficient surveying and unmanned construction.



Integrated network of CORS



Various types of efficient surveying

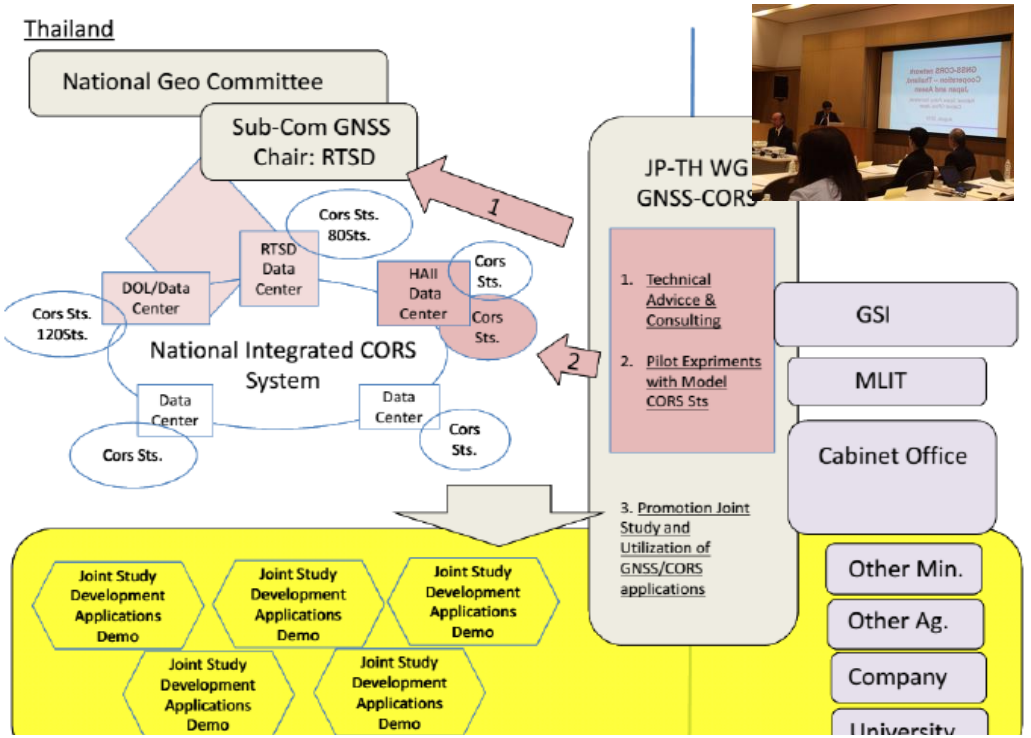
Various applications using position information

Unmanned construction
IT agriculture
Navigation…

In Feb. 2015, Japan and Thailand agreed to cooperate regarding adoption of CORS using satellite positioning technology

For operated by multiple organizations and a disconnected coordination and isolated system, current reference points system is lack of efficient and effective management capability

Set up a working group between the governments of the two countries, and provide technical support and other assistance to the Thailand side



Conceptual diagram of relations of organizations of the two countries in the Japan–Thailand working group

Thank you for your attention