

Safety Review Report
of
On-going Japanese ODA Loan Project
in Indonesia and Vietnam

March 2014

Japan International Cooperation Agency
(JICA)

IPM Services co., Ltd
KATAHIRA & ENGINEERS INTERNATIONAL

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Chapter 1. Outline of the safety review

1.1 Background and objective of the safety review

This safety review is initiated based on the recommendation made by the committee deployed by Ministry of Foreign Affairs, Japan, in order to discuss the measures to prevent re-occurrence of the similar accident as that of Can Tho Bridge in Vietnam. Following the recommendation of the committee, JICA has carried out interim reviews of on-going eight projects, which have been implemented since 2008. Of the eight projects, three were in Vietnam, five were in Turkey, Uzbekistan, Philippines, Sri Lanka and Malaysia respectively. And JICA carried out safety review of the following two on-going projects.

- Republic of Indonesia, Railway Electrification and Double-Double Tracking of Java Main Line Project (I)
- Socialist Republic of Vietnam, Hanoi-Ho Chi Minh City Railway Line Bridges Safety Improvement Project

The main objectives of this interim review is to contribute to accident prevention in construction projects under Japanese ODA by carrying out the activities summarized as follows.

- (1) to carry out site visit for the above projects to confirm the current status of implementation of construction safety management
- (2) to collect and analyze general information on occupational health and safety laws and regulations of Indonesia and Vietnam
- (3) to encourage stakeholders to make greater efforts towards the reduction and prevention of occupational accidents and public accidents by feeding back the findings through the above activities to stakeholders. The feeding back will be made by half day seminar to be implemented jointly with JICA Project Formulation Advisor who will carry out site visit at the same period.
- (4) to make recommendations towards the reduction and prevention of occupational accidents and public accidents for improvement
- (5) to review use of “ODA Construction Safety Management Guidelines” proposed in the report of Formulation of ODA Construction Safety Management Guidelines Research Project to the above projects to be studied.

1.2 Safety review team members

- (1) Team leader/ Safety specialist
Hiroaki Tomita (IPM Services co., Ltd)
- (2) Civil and building work safety specialist
Akira Iwashita (KATAHIRA & ENGINEERS INTERNATIONAL)

1.3 Activity record in Vietnam and Indonesia, and List of interviewees and meetings

(1) Vietnam

Date	Time	Activities	Venue
9-Jan Thu	13:10	Departure from NALA in Manila (A.Iwashita)	
	18:00	Departure from Narita in Tokyo (H.Tomita)	
	19:20	Arrival at Noi Bai Airport in Hanoi (A.Iwashita)	
	22:30	Arrival at Noi Bai Airport in Hanoi (H.Tomita)	
	20:00 - 20:50	Travelling from airport to accomodation in Hanoi (A.Iwashita)	
	23:20 - 0:20	Travelling from airport to accomodation in Hanoi (H.Tomita)	
10-Jan Fri	8:30 - 9:10	Internal Meeting	Hotel in Hanoi
	9:10 - 9:35	Travelling from Hotel in Hanoi to JICA Office in Hanoi	
	9:40 - 9:50	Travelling from JICA Office in Hanoi to RPMU Office in Hanoi	
	10:00 - 11:50	Hearing from the Employer (Railway Project Management Unit (RPMU)) RPMU Pham Quang Duy, Deputy Director Nguyen Dac Phuoc, Deputy Chief of Project Implementation Dept. 1 Tran Quang Tuan, Leader of CP1C	RPMU Office in Hanoi
		JICA ODA Shiro, Representative MORIYAMA Saku, Senior Project Advisor Nguyen Dinh Thao, Senior Program Officer	
		JTC SHIMADA Atsushi, Resident Representative, Hanoi Representative Office	
	11:55 - 12:15	Travelling from RPMU Office to Hotel in Hanoi	
	12:15 - 13:45	Lunch and Data Compilation	
	13:45 - 13:55	Travelling from Hotel in Hanoi to JICA Office in Hanoi	
	14:00 - 15:30	Meeting with JICA ODA Shiro, Representative MORIYAMA Saku, Senior Project Officer Nguyen Dinh Thao, Senior Program Officer	JICA Office in Hanoi
	15:35 - 15:45	Travelling from JICA Office to JTC Office in Hanoi	
	15:50 - 17:40	Hearing from JTC SUZUKI Kuniaki, Project Manager (PM) of the Engineer SHIMADA Atsushi, Resident Representative, Hanoi Representative Office	JTC Office in Hanoi
	17:45 - 18:00	Travelling from JTC Office to Hotel in Hanoi	
18:00 - 19:00	Data Compilation and preparation for Seminar	Hotel in Hanoi	
11-Jan Sat	8:00 - 9:45	Travelling from Hotel in Hanoi to CP1A Office in Ninh Binh	
	9:50 - 12:00	Hearing from MRTC JV for CP1A FUNAGAKURE Shigeki, Project Manager ARIURA Yukitaka, Construction Manager YOSHIOKA Koji, Project Site Manager	MRTC JV Office in Ninh Binh
	12:00 - 13:00	Lunch	
	13:30 - 15:40	Hearing from Cienco-1 for CP1A Nguyen Hong Tu, Substructure Engineer Nguyen Thanh Huong, HSE Officer	MRTC JV Office in Ninh Binh
	15:50 - 16:10	Travelling from MRTC JV Office to Hotel in Ninh Binh	
	16:15 - 18:30	Travelling from Hotel in Ninh Binh to Hanoi (Interpreter only)	
	16:10 - 18:30	Data Compilation and preparation for Seminar	Hotel in Ninh Binh
12-Jan Sun	8:00 - 18:00	Data Compilation and preparation for Seminar	Hotel in Ninh Binh
13-Jan Mon	6:00 - 8:00	Travelling from Hanoi to Hotel in Ninh Binh (Interpreter only)	
	6:00 - 7:30	Site Visit with MRTC JV, Tool Box Meeting	MRTC JV Site Office
	8:00 - 8:20	Travelling from Hotel in Ninh Binh to MRTC JV Office in Ninh Binh	
	8:25 - 9:40	Review of documents	MRTC JV Office in Ninh Binh
	9:45 - 10:10	Travelling from MRTC JV Office to JOJ Office in Ninh Binh	
	10:15 - 10:50	Hearing with JOJ, RPMU with JICA RPMU Nguyen Van Anh, Chief of Planning Dept. Nguyen Dac Phuoc, Deputy Chief of PD1	JOJ Office in Ninh Binh
		JOJ SUZUKI Kuniaki, Project Manager (PM) of the Engineer Le Anh Chien, Assistant of PM of the Engineer Bui The Nan, Safety and Environment Engineer	
		JICA ODA Shiro, Representative MORIYAMA Saku, Senior Project Officer Nguyen Dinh Thao, Senior Program Officer	
	10:55 - 12:50	Site Visit with JOJ, MRTC JV, RPMU and JICA	
	13:00 - 13:50	Lunch	

Date	Time	Activities	Venue
	14:00 - 15:40	Hearing from JOJ, RPMU with JICA RPMU Nguyen Van Anh, Chief of Planning Dept. Nguyen Dac Phuoc, Deputy Chief of PDI JOJ SUZUKI Kuniaki, Project Manager (PM) of the Engineer Le Anh Chien, Assistant of PM of the Engineer Bui The Nan, Safety and Environment Engineer JICA ODA Shiro, Representative MORIYAMA Saku, Senior Project Officer Nguyen Dinh Thao, Senior Program Officer	JOJ Office in Ninh Binh
	15:40 - 16:05	Travelling from JOJ Office to MRTC Office	
	16:10 - 18:00	Hearing from MRTC JV with JICA MRTC JV FUNAGAKURE Shigeki, Project Manager ARIURA Yukitaka, Construction Manager YOSHIOKA Koji, Project Site Manager JICA ODA Shiro, Representative MORIYAMA Saku, Senior Project Officer Nguyen Dinh Thao, Senior Program Officer	MRTC JV Office in Ninh Binh
	18:05 - 19:30	Travelling from MRTC Office to Hotel in Hanoi	
14-Jan Tue	7:20 - 8:10	Travelling from Hotel in Hanoi to Noi Bai Airport	
	9:40	Departure from Noi Bai Airport in Hanoi	
	11:10	Arrival at Dong Hoi Airport	
	11:50 - 13:30	Travelling from Airport to JOJ Office via Hotel in Dong Hoi	
	13:10 - 13:50	Hearing from JOJ and RPMU with JICA JOJ SUZUKI Kuniaki, Project Manager Buc Duy Long, Engineer Ngo Thi Nuh Phuong, Administrator HIGUCHI Tsutomu, Resident Engineer RPMU Tran Quang Tuan, Leader of CPIC JICA MORIYAMA Saku, Senior Project Officer Nguyen Dinh Thao, Senior Program Officer	JOJ Office
	14:00 - 15:15	Travelling from JOJ Office to Site	
	15:15 - 16:00	Site Inspection	
	16:00 - 17:00	Travelling from Site to Hotel in Dong Hoi	
	17:00 - 18:00	Data Compilation and preparation for Seminar	Hotel in Dong Hoi
15-Jan Wed	8:30 - 9:00	Travelling from Hotel in Dong Hoi to TMC JV Office	
	9:00 - 12:00	Hearing from TMC JV TMC JV GOTO Toshio, Project Manager TAIRA Takashi, Superstructure Engineer Do Van Giac, QA/QC Manager Nguyen Ta Thi, Site Project Manager Nguyen Van Hung, Safety Manager Vuong Chi Kien, Super Structure Engineer Le Thi Thu Ha, Secretary JICA MORIYAMA Saku, Senior Project Officer Nguyen Dinh Thao, Senior Program Officer	TMC JV Office
	12:00 - 14:40	Travelling from TMC JV Office to Dong Hoi Airport and Lunch	
	15:40	Departure from Dong Hoi Airport	
	17:05	Arrival at Noi Bai Airport	
	17:25 - 18:30	Travelling from Noi Bai Airport to Hotel in Hanoi	
	18:30 - 0:00	Dinner and preparation for seminar	
16-Jan Thu	8:00 - 10:00	Preparation for seminar	
	10:10 - 10:20	Travelling from Hotel in Hanoi to JICA Office in Hanoi	
	10:30 - 11:00	Meeting with JICA Mr.Moriyama regarding seminar	JICA Office in Hanoi
	11:00 - 11:10	Travelling from JICA Office in Hanoi	
	11:10 - 13:30	Lunch and preparation for seminar	Hotel in Hanoi
	13:30 - 14:45	Internal meeting with interpreter	Hotel in Hanoi
	14:45 - 15:30	Travelling from Hotel in Hanoi to VNR Office	
	15:30 - 16:00	Preparation for seminar	VNR Office in Hanoi

Date	Time	Activities	Venue
	16:00 - 18:30	Seminar VNR Ngo Anh Tao, Deputy General Director Nguyen Thi Thu Thanh Nguyen Bao Van Thuong Nguyen Manh Hien RPMU Nguyen Van Hieu Pham Quang Duy, Deputy Director MRTC JV FUNAGAKURE Shigeki, Project Manager ARIURA Yukitaka, Construction Manager YOSHIOKA Koji, Project Site Manager Nguyen Thanh Huong RINKAI MATSUDA Kentaro Nguyen Thanh Hai, Engineer Nguyen Dinh Son, Engineer TMC1 JV Nguyen Van Lam, Construction Manager Investment and Construction Joint Stock Company No.120 Nguyen Van Thuong Bui Dang Binh Ding Duc Lap Bridge Company No.14 Nguyen Huu Tuyen Joint Stock Company No.116 - Cienco 1 Tran Nam Hung Nguyen Trong Thao Mechanical Construction Company No.1 (MCC1) Pham Hoang Linh Tran Van Hai JOJ SUZUKI Kuniaki, Project Manager Bui Thi Nan, Engineer Le Anh Chun, Assistant of PM of the Engineer JICA ODA Shiro, Representative MORIYAMA Saku, Senior Project Advisor Nguyen Dinh Thao, Senior Program Officer	VNR Office in Hanoi
	18:30 - 19:00	Travelling from VNR Office to Hotel in Hanoi	
17-Jan	Fri	8:00 - 9:15 Payment documentation 9:15 - 9:25 Travelling from Hotel in Hanoi to JICA Office in Hanoi 9:30 - 11:30 Meeting with KEI for JICA project 11:30 - 11:45 Travelling from JICA Office in Hanoi to Hotel in Hanoi 11:45 - 14:00 Lunch and data compilation 14:00 - 14:30 Travelling from Hotel in Hanoi to KEI Office in Hanoi 14:30 - 15:00 Meeting with KEI Hanoi 15:00 - 15:45 Travelling from KEI Office in Hanoi to Hotel in Hanoi 15:45 - 18:00 Payment documentation for interpreter and car rental	KEI's JICA project Office in Hanoi Hotel in Hanoi KEI Office in Hanoi Hotel in Hanoi
18-Jan	Sat	9:00 - 9:30 Payment to Hotel and rental car 9:30 - 11:00 Travelling from Hotel in Hanoi to Noi Bai Airport 12:40 Departure from Noi Bai Airport in Hanoi	Hotel in Hanoi

Abbreviation

VNR	Vietnam Railway
RPMU	Railway Projects Management Unit
JTC	Japan Transportation Consultants, inc.
JOJ	Joint Venture of JTC, Oriental Consultants(OC), Japan Railway Technical Service (JARTS)
MRTC JV	MES-Rinkai-Taisei-Cienco1 Joint Venture
TMC JV	Taisei-MES-Cienco1 Joint Venture

(2) Indonesia

Date	Time	Activities	Venue
18-Jan Sat	12:40 19:25 20:00 - 21:30	Departure from Noi Bai Airport in Hanoi Arrival at Airport in Jakarta Travelling from airport to Hotel in Jakarta	
19-Jan Sun	8:00 - 18:00	Data Completion and preparation for Seminar	Hotel in Jakarta
20-Jan Mon	8:55 - 9:20 9:40 - 11:00 11:00 - 11:20 11:20 - 11:40 11:40 - 13:00 13:00 - 14:20 14:20 - 16:30 16:30 - 17:45 17:45 - 18:15 18:15 - 20:05	Travelling from Hotel in Jakarta to JICA Office in Jakarta Meeting with JICA Courtesy visit to Mr. Sasaki, Chief Representative JICA HORIGOME Shoshiro, Technical Advisor HAYASHI Naoto, Project Formulation advisor Travelling from JICA Office in Jakarta to the Engineer's Project Office in Jakarta Introduction Lunch Hearing from the Engineer The Engineer IITOYO Toshiaki, Project Manager OISHI Norio, Civil Construction Manager MATSUI Mamoru, Railway System Engineer NAKAYAMA Ken, Building Construction Manager JICA HORIGOME Shoshiro, Technical Advisor HAYASHI Naoto, Project Formulation advisor Travelling from the Engineer's Office to Cikaran Station Site Inspection Hearing from MSJO Travelling from MSJO Cikaran Office to Hotel in Jakarta	JICA Office in Jakarta The Engineer's Project Office The Engineer's Project Office Cikaran Station MSJO Cikaran Office Hotel in Jakarta
21-Jan Tue	8:15 - 8:55 9:10 - 10:10 10:20 - 12:20 12:20 - 13:45 13:50 - 15:50 16:00 - 17:00 17:00 - 18:00 18:00 - 0:00	Travelling from Hotel in Jakarta to JICA Office Travelling from JICA Office to DGR Office Hearing from DGR DGR Widodo Herry Ernanto Dwianto H. Travelling from DGR Office to MSJO Bekasi Office Hearing from MSJO MSJO KAMEDA Yoichi, Project Manager (General Superintendent) HOAN Hideki, Interface Manager MOTO Yuji, Health, Safety & Environmental Manager NAGATA Kaoru, Engineering Manager ABE Nobuyuki, Engineering Manager - Civil, Building and Overhead Contact System SUEISHI Toshifumi, Chief Engineer - Building Works NAKAMURA Seisetsu, Signal & Telecom Engineer KENAGA Takeshi, Signaling System Engineer YAMASAKI Ichio, Chief Engineer - Overhead Contact System Works NONAKA Yuji, Deputy Manager (E&M) NOGUCHIKOHEI, Administration Manager ADACHI Masahiko, Construction Manager Rio Sapto, Safety Site Inspection Travelling from Bekasi Station to Hotel in Jakarta Data Completion and preparation for Seminar	DGR Mangarai Office MSJO Bekasi Office Bekasi Station Hotel in Jakarta
22-Jan Wed	8:30 - 9:00 9:10 - 10:15 10:15 - 12:00 12:00 - 13:25 13:25 - 14:00 14:00 - 16:20	Travelling from Hotel in Jakarta to KEI Office in Jakarta Hearing from KEI Jakarta OKUMURA Takashi, Executive Vice President Preparation for seminar and payment documentation to interpreter and rental car Travelling from KEI in Jakarta to DGR Office Preparation for seminar Seminar DGR Widodo Herry Ernanto Dwianto H. DGR consultant IITOYO Toshiaki, Project Manager GUNADI, Deputy Project Manager	KEI Office in Jakarta DGR Office in Jakarta DGR Office in Jakarta

Date	Time	Activities	Venue
		MSJO KAMEDA Yoichi, Project Manager (General Superintendent) HOAN Hideki, Interface Manager MOTO Yuji, Health, Safety & Environmental Manager NAGATA Kacru, Engineering Manager ABE Nobuyuki, Engineering Manager - Civil, Building and Overhead Contact System SUEISHI Toshifumi, Chief Engineer - Building Works Rio Sapto, Safety TAKEDA Sho, Civil Engineer Endi Tasura, Safety PT Modern Surya Jaya (Sub-contractor of MSJO) M.S. Adito, HSE/Safety Bambang Heudrawanto, Safety Daniel Girsang, Project Manager PT Wijaya Karya (Sub-contractor of MSJO) Heru Nugroho, Safety Daryanto, Project Manager PT Densha Indoguna Jaya (Sub-contractor of MSJO) Nicko A., Safety Samin Lyicesyuwanto, Safety PT Len Industri Building (Sub-contractor of MSJO) Asep Basari, Administrator Tantra A., Safety JICA HORIGOME Shoshiro, Technical Advisor HAYASHI Naoto, Project Formulation advisor	
	16:30 - 18:30	Travelling from DGR Office to Airport in Jakarta.	
	21:25	Departure from Airport in Jakarta	
	0:55	Departure from Airport in Jakarta	

Abbreviation

The Engineer	Joint-Venture of Oriental Consultants Co., Ltd., Japan Railway Technical Service and Japan Transportation Consultants, Inc.
DGR	Directorate General of Railways, Ministry of Transportation
MSJO	Mitsubishi - Sumitomo Joint Operation
KEI	Katahira & Engineers

Chapter 2. Current situations of OSH in Vietnam

In Vietnam, the number of fatalities caused by occupational accidents has been declining to less than 600 for the past few years, however, its number exceeded 600 again in 2012. In March 2013, a Government official said “Viet Nam is lagging behind many other countries, including most of its neighboring countries in occupational safety and health. It’s time to improve work safety.” at a two-day workshop organized by MOLISA in Hanoi on “Strengthening National Occupational Safety and Health System in Hazardous work”.

In Vietnam, Ministry of Labour, Invalid and Social Affairs (MOLISA) regulatory authority for Occupational Safety and Health (OSH), has been taking the lead and devoting continuous efforts to reduce occupational accidents. As described more in detail hereinafter, one of the most important of its ongoing efforts is to implement, promote and strengthen OSH and the other is to strengthen the labour inspection system in MOLISA.

2.1 Work-related accidents and fatalities

Table 2.1-1 shows the number of work-related accidents and fatalities in recent years, reported by “Labour and Social Trends in Viet Nam 2009/10”¹.

Table 2-1 Occupational injuries and fatalities in Vietnam, 2005-2009

	2005	2006	2007	2008	2009
Number of accidents	4,052	5,881	5,951	5,836	6,250
Number of fatalities	473	536	621	573	550

According to the MOLISA, nearly 6,800 occupational accidents occurred in 2012 and 606 workers died in work-related accidents in Vietnam, almost 10 per cent increase from 2011.²

Table 2-2 shows the construction investment and the population of Japan and Vietnam. In 2012, there were 1,093 fatalities in Japan, and 606 fatalities in Vietnam. That means one workplace fatality has occurred out of every 11,500 populations in Japan and out of every 14,500 populations in Vietnam. It seems that there is no substantial difference between two countries in terms of the number of fatalities. However given its difference in the economic scale and the construction investment between two countries, especially the construction investment of Vietnam being far less than those of Japan, 606-fatality seems to be an alarming level.

¹ This report was developed by the Institute of Labour Science and Social Affairs with the technical support from the International Labour Organization (ILO).

² Article from ILO web-site “It’s time to improve work safety” on 15 March 2013.

Table 2-2 Construction investment and population of Japan and Vietnam

Country	Nominal GDP In 2007 (Billion US\$)	Construction investment in 2007 (Million US\$)	Population in 2012 (x 10,000)	GDP in 2012 (Billion US\$)
Japan	4,374.4	4,133	12,600	4,318
Vietnam	70.6	12	8,970	13.77

In Vietnam the construction, mining and chemical industry are collectively called “a high-risk-industry”, and serious accidents in the workplace of the high-risk (hazardous)-industry, reportedly, account for over 60%³ of all serious accidents in Vietnam. Furthermore, among those industries, the construction industry is regarded as one of the most hazardous industries in Vietnam.

According to an Government official, “Causes leading to occupational accidents in the hazardous-industry are mainly because employers have not paid adequate attention to OSH.”³ Thus, for Vietnam, the strengthening, promoting and implementing OSH is urgent issue.

2.2 Occupational Safety and Health administrative organization

Article 236 “State management competence on labour” of the Labour Code stipulates that “The Ministry of Labour Invalids and Social Affairs is responsible for the Government for implementation of the State management over labour.”

The organization chart of the MOLISA is illustrated in figure 2-1.

MOLISA implements labour administration and plays a central role in Vietnam to prevent occupational accidents, investigate work-related accidents, conduct safety audit, draw up the nation safety policy and promote/implement OSH.

Except for MOLISA, the following organizations have a close relation to OSH;

- Ministry of Health(MOH)
- Ministry of Science Technology and Environment(MOSTE)
- Ministry of Construction(MOC)

- Vietnam General Confederation of Labour(VGCL)

The Article 188 “Role of trade union organization in labor relationship” stipulates that the Viet Nam General Confederation of Labour and trade unions at all levels shall participate in the

³ Extracted from an article “Ensuring labor safety in high risk industries” on VIETMAZ of December 2, 2013

supervision of state administration of labour in accordance with the provisions of the law. As stated in this Article, VGCL plays a very important role in Vietnam for OSH.

Among those organizations related to OSH, MOLISA seems to be the most active organization in promoting and strengthening OSH.

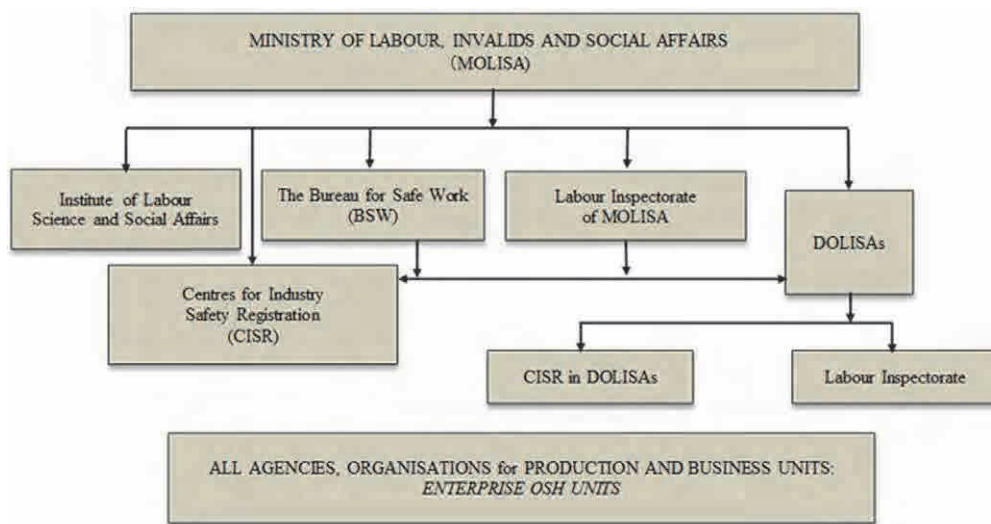


Figure 2-1 OCCUPATIONAL SAFETY AND HEALTH IN VIETNAM, by BSW

2.3 Occupational Safety and Health legislation

The main legislative framework related to OSH in Vietnam, is Chapter IX “Occupation Safety and Health” Section of the Labour Code and Article 78 “Safety during execution of building works” of the Law on Construction. In addition, there are lots of decrees, circulars and standards issued by relevant authorities to supplement the Labour Code and the Law on Construction.

Chapter IX Article 142 “Occupational accident” stipulates that “All occupational accidents and diseases and other serious incidents at the workplace must be declared, investigated, recorded, statisticed and periodically reported as prescribed by the Government.” And Article 238 stipulates “Labor inspection”. In both cases, its supervisory authority is Department of Labour, Invalids and Social Affairs(DOLISA) belonged to MOLISA. As stipulated, Employers are obliged to notify and report data on occupational accidents to the labour inspectorate. In practice, however, only serious injuries and illnesses are reported and there appears to be a high level of unreported accidents⁴. There is an estimation that the actual number of occupational accidents per year at around 40,000⁵.

⁴ Extracted from an article “Labour Inspection Structure and Organization “ 04 March 2013 on the ILO Web-site.

⁵ Ditto “It’s time to improve work safety” 15 March 2013 on the ILO Web-sate.

To improve the current situation, from 2012, with the technical assistance from the ILO, MOLISA began a process of reforming to the State labour inspectorate in a so-called Master Plan for the strengthening of the labour inspection system until 2020. The Master Plan covers a number of elements including strengthening the organizational structure of the inspectorate, finalizing its management information system, reforming inspection methodologies, forms and operations; investing in equipment for labour inspectors, and finalizing the training strategy for inspectors.

2.4 Activities to implement, promote and strengthen OSH in Vietnam

One of the most important activities for MOLISA to reduce occupational accidents is the implementation of "National Programme on Occupational Safety and Occupational Health in Period of 2011-2015"⁶ (hereinafter referred to as "Programme2011-2015") which aims to promote and strengthen OSH in Vietnam.

Its main objectives are as follows;

- To improve working conditions
- To prevent occupational accidents and occupational diseases
- To provide health care for workers
- To raise awareness, ensure the compliance with Occupational Safety and Health (OSH) laws
- To protect physical safety and life of workers

Its specific targets are as follows;

- Reduce annually by 5% frequency rate of fatal occupational accidents in highly hazardous sectors⁷;
- Increase by 3% number of units having work environment monitored and supervised;
- Increase annually by an average of 2,000 small and medium sized-enterprises (SMEs) which apply effectively the OSH management system;
- Provide OSH training
- 100% of fatal occupational accidents are investigated and settled in compliance with laws.

Its main activities under the Programme 2011-2015 are as follows;

- Improved capacity building and efficiency of State management on OSH, including:
 - a. Review, amend and supplement legal documents on OSH;
 - b. Train, support equipment for raising capacity of verification and examination, product quality control, inspection, testing and supervision on OSH;

⁶ National Programme on Occupational Safety and Occupational Health in Period of 2011-2015. This Programme follows its first national programme on OSH in period 2009-2010 successfully completed

⁷ Mining, construction, use of electricity, metal and chemical production

- c. Study to develop OSH Act;
 - d. Develop mechanisms and policies to promote the socialization of OSH activities;
 - e. Develop and strengthen the database on OSH;
 - f. Complete and implement the management models of OSH in enterprises in hazardous industries.
- Consultancy, technical assistance and investment to prevent occupational accidents in enterprises in hazardous sectors;
 - a. Support equipment and training skills to monitor and supervise working environment;
 - b. Assist in providing enterprises with skills on occupational health to take care of workers' health at the workplace.
 - Raising awareness and responsibilities of employers, workers and the community
 - a. Support equipment, invest in constructing and upgrading OSH training centers;
 - b. Standardize training curriculum and materials on OSH;
 - c. Develop standards and qualifications required for trainers; support to extend the network of trainers, communicators on OSH;
 - d. Provide OSH training and propaganda and information for employers and workers.
 - Research and application of science and technology on labour protection and OHS in highly hazardous occupation and jobs

In addition to those activities as mentioned above, MOLISA, since 1999, organizes nationwide events such as an annual National Week of Occupational Safety and Health to promote and strengthen OSH.

Chapter 3. On site safety review in Vietnam

-Hanoi-Ho Chi Minh City Railway Line Bridges Safety Improvement Project-

3.1 Project outline

(1) Project Name : Hanoi-Ho Chi Minh City Railway Line Bridges Safety Improvement Project

(2) L/A : Date of L/A March 31, 2004
 Amount of L/A 8,222Million Yen
 Condition STEP

(3) Project aim : The objective of the project is to ensure the safety of railway service, shorten passenger and freight transport time, and boost transport volume by replacing 44 severely deteriorated bridges on the railway line between Hanoi and Ho Chi Minh City

(4) Location : Ninh Binh and Quang Binh Province in Vietnam

(5) Employer : Vietnam Railways, Ministry of Transport (VNR)

(6) Engineer : Joint Venture of Japan Transportation Consultants, Inc., Oriental Consultants Co., Ltd. and Japan International Consultants for Transportation, Co., Ltd.

(7) Demarcation : Total 4Lots consist of CP1A,CP1B,CP1C and CP1D.
 Since site safety review and observation were conducted only CP1A and CP1C, therefore the study report described only about CP1A and CP1C.

(8) Contractors : (a)CP1A: Joint Venture of Mitsui Engineering & Shipbuilding, Rinkai Construction Co., Ltd. Taisei Corporation and Cienco 1
 (b)CP1C: Joint Venture of Taisei Corporation, Mitsui Engineering & Shipbuilding and Cienco 1

(9) Construction Period: (a)CP1A 2nd April,2012-1st April,2015(36months)
 (b)CP1C July 2011-January 2014(30months)

(10) Dimensional data & works volume:

(a) CP1A

Structure	Description
Ninh Binh Bridge	<ul style="list-style-type: none"> • 3Span Arch Truss Bridge(3x75m=225m) • PC Girder (13x33m and 9x33m Total 726m) • Embankment(approach area included) Underpass
Station Building	<ul style="list-style-type: none"> • New Ninh Binh Station and Tracks • Signal System
Flyover Bridge	<ul style="list-style-type: none"> • Flyover bridge(416m) and approach road(embankment)

(b) CP1C

Structure	Description
Ngan Son Bridge	<ul style="list-style-type: none"> Total length 230.30m, (Truss 49.45m, and 7 span PC girder) Approach area(Right bank and Left bank area, total length 1,418.70m
Other 7 Bridges	<ul style="list-style-type: none"> Total span length 848.71m, Total approach length 4,793.24m Total Length 6,164.95m

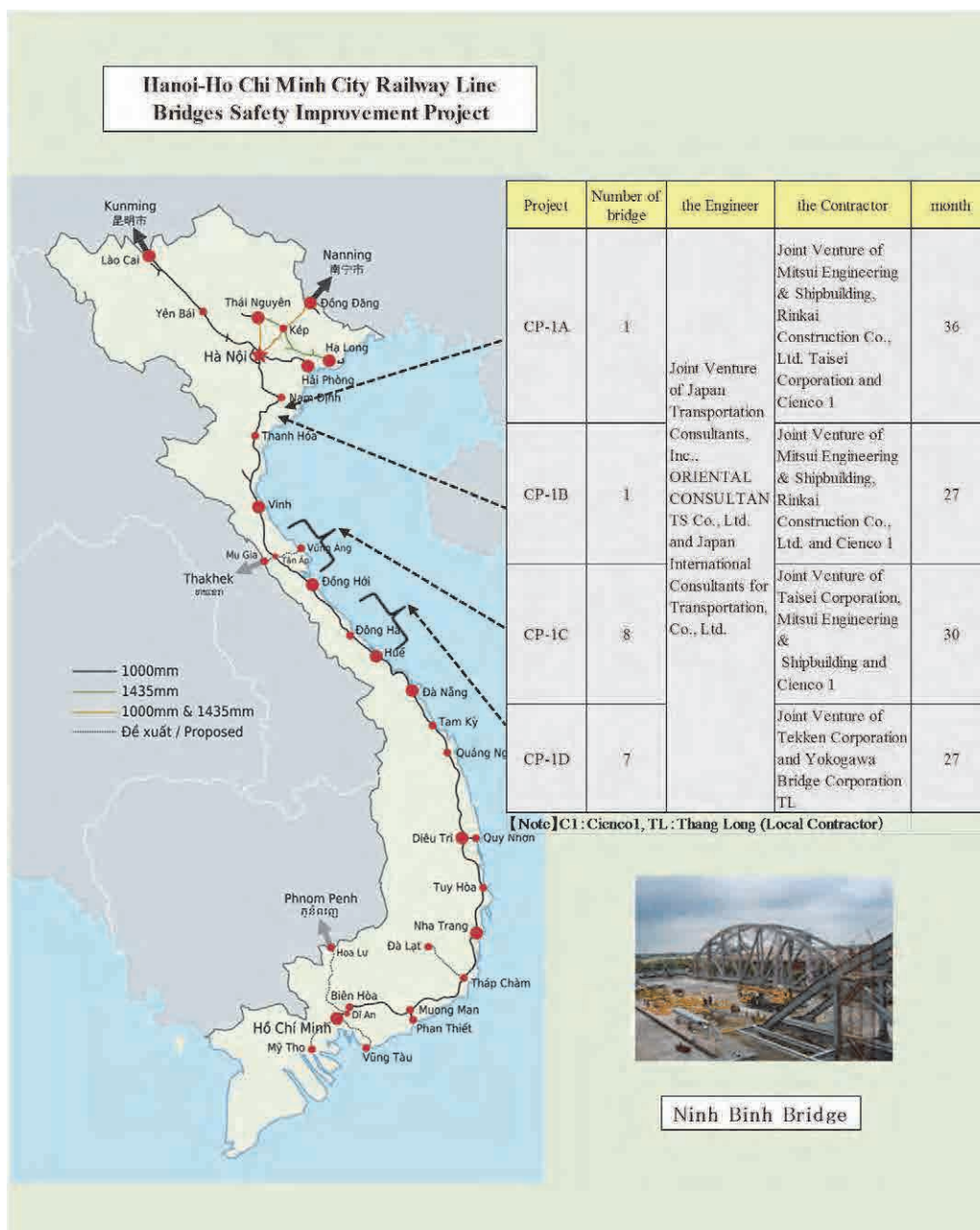


Fig 3-1 Site location map

3.2 Stakeholders of the project

Stakeholders of this Project are as follows.

- (1) Employer : Vietnam Railways, Ministry of Transport (VNR)
- (2) Executive agency: RPMU(Railway Project Management unit)
- (3) Engineer : Joint Venture of Japan Transportation Consultants, Inc.,
Oriental Consultants Co., Ltd. and Japan International
Consultants for Transportation, Co., Ltd. hereinafter called[JOJ]
- (4) CP1A Contractor : Joint Venture of Mitsui Engineering & Shipbuilding, Rinkai
Construction Co., Ltd. Taisei Corporation and Cienco 1
hereinafter called [MRTC-JV].
- (5) CP1C Contractor: Joint Venture of Taisei Corporation, Mitsui Engineering &
Shipbuilding and Cienco 1 hereinafter called[TMC-JV].

3.3 Safety management system

Study team has reviewed the following 9 points of stakeholder’s safety management system based on questions and answers made to each stakeholder prior to the site safety review, interview at site and office, and JICA safety seminar 2014 conducted by study team in VNR office.

- (1) Safety Policy and Target
- (2) Safety Organization
- (3) Safety role
- (4) Safety Management Plan
- (5) Routine safety activities
- (6) Safety Promotion and Training
- (7) Incentive and Penalty Scheme
- (8) Emergency Response Plan
- (9) List of subcontractor

Major 5 items out of the above 9 items are as follows,

- (1) Safety Policy and Target

	Policy	Target
RPMU	Zero Accident. To ensure the safety of the train operation and workers in project sites	Not specified
JOJ	To ensure the safety of the train operation	Construction in a secure manner
MRTC-JV	Safety First	“No Crane Accident” and “No Fall-down Accident”(2014)

TMC-JV	Let's get back to basics	Death Accident “ 0 “ Heavy equipment-related accident “0” (2013)
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(2) Safety Organization

RPMU	VNR has Railway Accident Rescue(RAR) who inspects and supervises the implementation of safety of Railway Management Companies, and Contractors. RPMU does not have specific department in charge of safety, but each Project Management Team carries out safety control.
JOJ	It does not have particular safety organization. The Environment Specialist of the Consultant takes care of safety matters.
MRTC-JV	HSE engineer is in charge of safety control.

(3) Safety role

RPMU	<ul style="list-style-type: none"> • To secure the safety of the train in operation and the safety on the construction site is a top priority for the Employer. • The Engineer and the Contractors take responsibility for safety control. The Engineer supervises and records the Contractor's activity for safety control including photographic records. • In bidding Documents of each package, the Employer sets forth requirements and evaluation criteria concerning safety policies, safety awareness and the safety performance record of each bidder to ensure the safety of railway traffic, road, river, and labor. Only those bidders who have a good understanding of the work safety and other requirements in the Bidder Documents should be selected.
JOJ	<ul style="list-style-type: none"> • The Engineer is responsible for the supervision of the Contractor(s) in accordance with the contract(s) to meet Employer's requirements in respect of quality, timing, price and safety; and other requirements. • To audit the Quality Assurance Plan, Safety Control Plan and review, monitor the Contractor's performance of the contract.
MRTC-JV	In accordance with the General Conditions and Particular Conditions, the Contractor shall control site safety and labor safety and prevent third party accidents.
TMC-JV	The Contractor shall take full responsibility for the adequacy, stability and safety of all Site operations and methods of construction.

(4) Safety Management Plan

RPMU	The Contractor is required to submit a Safety Management Plan for the Engineer to review and for the Employer to approve.
JOJ	The Engineer reviews the Safety Management Plan submitted by the Contractor

	and takes necessary procedures for the Employer's approval. The Engineer also examines Method Statements and, from time to time, requests the Contractor to amend it if necessary.
MRTC-JV	Incorporated in the HSE Document
TMC-JV	Ditto. The Safety Control Plan was submitted on 9/July/2012 and approved on 9/Aug/2012.

(5) Routine safety activities

RPMU	The Employer appoints his representative to participate in the Safety Patrol which is held once a month. The Employer also regularly issues an instruction letter to the Engineer and the Contractor to enhance inspection and supervision to secure site safety, especially during the holiday.
JOJ	It has been held on a daily basis by persons in charge. Especially, for the safety train operation, the Engineer requests and checks the railway facility's movement such as track, bridges and railway bed on or adjacent to the train operation line every month to detect risks of derailment.
MRTC-JV	Tool Box Meeting is held on a daily basis, but all subcontractors do not hold meetings. Safety patrol has been held on a daily basis
TMC-JV	Tool Box Meeting is held on a daily basis.

3.4 Current situation of the project

(1) Current status

Lot & Contractor	Commencement date & work progress as of end of 2013
CP1A(MRTC-JV)	<ul style="list-style-type: none"> • Commencement date: April 2012 • Work progress:36.38%
CP1C(TMC-JV)	<ul style="list-style-type: none"> • Commencement date: July 2011 • Work progress: 100.0% (January2014)

- Work progress of CP1A is 36.38%. Rate of progress is expected to rise up with the start of the erection work of steel arch truss bridge. The EOT's claim against the delay in handover of the construction area had been submitted and still to be approved.
- No fatal accident has been reported.
- No major accident affecting progress of the Works has occurred.

(2) Accident records and its descriptions

(a) Accident records

① MRTC-JV

As of the end of November 2013, 1 year and 8 months has passed and total working hours

have exceeded 0.7 million hours. According to the monthly safety report submitted by MRTC-JV accident records of the project as of the end of November 2013 are as follows,

Accident records as of the end of November 2013

Total working hours ①	Lost time accident (>4days off) ②	Workdays lost (>4days) (Days) ③	Frequency Rate (>4days) ④	Severity Rate ⑤
700,552	0	0	0.00	0.00

Frequency Rate :④=(②÷①)x 1,000,000 = 0.00,Severity Rate:⑤=(③÷①)x 1,000 = 0.00

② TMC-JV

As of the end of November 2013, 2 years and 5 months have passed and total working hours have exceeded 1.4 million hours. TMC-JV submitted monthly safety report every month. Accident records of the project as of the end of November 2013 is as follows,

Accident records as of the end of November 2013

Total working hours ①	Lost time accident (>4days off) ②	Workdays lost (>4days) (Days) ③	Frequency Rate (>4days) ④	Severity Rate ⑤
1,411,200	0	0	0.00	0.00

Frequency Rate :④=(②÷①)x 1,000,000 = 0.00,Severity Rate:⑤=(③÷①)x 1,000 = 0.00

<Observations>

According to the accident records, no accident has been reported by both contractors. The accident rates of these two projects are better than those of similar railway and track construction projects in Japan in 2011(Table 3.4-5).

Judging from the monthly safety reports, the overall situation of the site safety is generally very well. However, as in the case with minor accidents, there would be a possibility that workers and/or sub-contractors have not reported their accidents to the Contractors. Therefore the contractors should carefully review the accident reports made by sub-contractors.

In addition, safety review team recommends that the Contractor should record “near miss cases” on the monthly safety reports.

Frequency rate and Severity rate in Japan in 2011(Reference)

	Frequency Rate (>4days)	Severity Rate
General construction works	0.49	0.21
Civil works	1.19	0.60
Railway and Track works	1.15	0.85

Source: Statistics Bureau, Ministry of Internal affairs and Communications in Japan.
Occupational Safety and Health study as of 2011(General Construction)

3.5 On-site safety reviews, findings and recognition

Safety review team has conducted the on-site safety review for 2 days(on 13th and 14th January). The current situations of the Project, safety activities of the Contractors and the safety review team's comments and impression after the on-site safety review are as follows:

(1)MRTC-JV (CP1A)

(a) Progress of the works

- ①As of the end of November 2013, the progress of work is 36.38%.
- ②The number of JV staff and workers is about 40 and 200 respectively.
- ③The working time is from 6:30 to sunset except lunch time(11:30-13:30).

Ninh Binh Bridge(photo3-1), New Ninh Binh Station, platform and refuge tracks area(photo3-2) and the end of flyover bridge over railway are shown in the photos below.



photo3-1(Ninh Binh bridge)



photo3-2(New Station)



photo3-3(Flyover Bridge)

(b)Safety activities by MRTC-JV

- ①Morning assembly and Tool Box Meeting is held at 6:30 every day(photo 3-4,5)
- ②Deputy project manager of subcontractor made a explanation for today's works and hazard prediction(KYK), then passed a note to each working group(photo-3-6).
- ③Induction training has been conducted for newcomers at the site. In case safety training is not considered enough for workers, safety training will be conducted again.



photo3-4(Morning assembly)



photo3-5(Tool Box Meeting)



photo3-6(KYK)

④The briefing for the safety was held at site office after the tool box meeting(photo 3-7).First Aid facility was located next to the site office (photo 3-8). “Safety and Health Manual in Construction (Vietnamese version)” published by Ministry of Construction in Vietnam was placed on the meeting table.



photo3-7(Briefing)



photo3-8(First aid)



photo3-9(Safety leaflet)

⑤There are many signboards, signage, and posters warning about openings and calling for prevention of electrical accident and also a monthly slogan written in Vietnamese and English.(photo 3-10,11,12)



photo3-10(Safety sign)



photo3-11(Signage)



photo3-12(safety slogan)

(c) Findings and improvement of measures to be made by the Contractor

①Tool Box Meeting

Tool box meeting has not been held by all subcontractors but only by some financially sound subcontractors. Since the tool box meeting is quite useful as a tool to improve the safety control in the site, the Contractor should instruct small-sized subcontractors to implement safety activities such as KYK through tool box meeting.

② Prevention measures against public accident involving a third party

There were railway crossings without a crossing gate (photo 3-13,14). Some parts of the access road to and/or from the site were for public use (photo 3-15,16). Access roads for construction should be strictly separated from roads for public use as much as possible, and when

circumstances do not permit it, a flagman or a security guard should be arranged. The Contractor should provide accident preventive measures at the place of a ladder without handrail area or unstable walkway (photo 3-17,18). The permanent fence adjacent to the new station, which has been planned by the Contract, should be built as soon as possible to separate the construction area from public use.



photo3-13(Rail crossing)



photo3-14(Crossing)



photo3-15(Works site)



photo3-16(Road)



photo3-17(Way to barge)



photo3-18(Stairway)

③ Since the site is near the coast where strong wind is always blowing, special safety measures should be taken against the strong wind, for instance, preventive measures for falling hazard and blow-off hazard such as safety sign boards, blue plastic sheets and timbers plates for formwork as shown below (photo 3-19,20,21).



photo3-19(Swinging sign)



photo3-20(Blue-sheet)



photo3-21(Form materials)

④ Concerning the heavy equipment, safety education and training for crane has been given to all crane operators and flagman by using the manual prepared from a crane manufacturer's documents. At lifting work in the site, all persons concerned are notified the center gravity of the lifting-material.

Because of its lower reliability of the cranes used in Vietnam, it is generally said that Vietnamese crane operators carefully handle their machines. It is, however, recommended not

to depend heavily on crane operators' experience but to equip with the overload prevention device in accordance with relevant rules and regulations in Vietnam.

⑤The project should be successfully completed without accident.

It is admirable that the project has been proceeding without accident under the circumstances such as poor PPE (personal protection equipment), unsafe facilities, low-performance equipment compared with those used in Japan. A staff of the Contractor has pointed out that, in general, local crane operators handle its heavy equipment with due care and workers are hesitant in working in high places where they feel sense of fear.

(2)TMC-JV(CP1C)

(a) Progress of the works

As of 14th January 2014, the progress of work is 100.00%.

Right bank (photo3-22), left bank (photo3-23) of Ngan Son Bridge and memorial plate(photo3-24) are as shown in the photos below.



photo3-22(HCMC side)



photo3-23(Hanoi side)



photo3-24(Memorial plate)

(b) Safety activities by TMC-JV

①The project is at the stage of handing over, and some maintenance works are ongoing.

②The site was hit by the typhoon which caused terrible damage to Philippines last year, however no real damages to the works were reported.

③No worker-related accident has occurred in the site. In addition neither accident involving local residents nor traffic accident on public road has been recorded. Access road to the Ngan Son Bridge site are as shown in the photos below (photo 3-25,26).

④There were no access road separated from public roads used by local residents passengers. TMC-JV has carried out the works with arranging traffic guard for local residents and flagman for heavy machinery to prevent local residents from involving in accident (photo3-27).

⑤ Limiting over-load device stipulated in TCVN 4244:1986 Article5.11.3.11was not equipped with heavy machinery in this project.



photo3-25(Access to site)



photo3-26(Access road)



photo3-27(ROW)

(c) Findings and improvement measures to be made by the Contractor

- ① TMC-JV will proceed with a new project in Hanoi-Ho Chi Minh City Railway Line Bridges Safety Improvement Project. The new project should also be successfully completed without accident.
- ② It is strongly recommended to not heavily depend on crane operators' experience but to equip with the overload prevention device in accordance with relevant rules and regulations in Vietnam.

Chapter 4. Current situations of OSH in Indonesia

4.1 Work-related accidents and fatalities

The transition of occupational accident is shown on table4-1. The number of occupational accidents has been increasing since 2007, and reached 98,711 in 2010. It includes 2,191 cases of death.

Table4-1 Transition of Occupational Disaster in Indonesia

	2006	2007	2008	2009	2010
Number of disaster	95,624	83,714	94,736	96,314	98,711
Number of Death	1,784	1,883	2,136	2,144	2,191

Source: Ministry of Health, Labour and Welfare, Japan

The occupational accident on the construction industry is occupying 2 to 9 percent in all the sectors (1995-1998). It is ranked next to agriculture, pasture, spinning and weaving, and positions on higher of all the sectors. Moreover the number of death is reaching 1.7 to 15.7 percent. This indicates the tendency toward serious disaster.⁸

4.2 Occupational Safety and Health administrative organization

(1) Ministry of Manpower and Transmigration

In Indonesia, Directorate General of Labour Inspection which belongs to Ministry of Manpower and Transmigration (MoMT) are in charge of occupational safety and health administration.



Figure4-1 Organization of Ministry of Manpower and Transmigration⁹

MoMT, which aims to promote competitive and productive manpower and social transmigration , is

⁸ Japan International Center for Occupational Safety and Health

<http://www.jniosh.go.jp/icpro/jicosh-old/japanese/country/indonesia/statistics/1.htm>

⁹Source Labour Administration in Indonesia

implementing the following measures: extension of employment including abroad, improvement of placement service, strengthening of labour market information, equal employment opportunities, capacity and productivity improvements, development of employer and employee relation, improvement of social securities, improvement of labour inspection, development of terms of employment, inspection of labour safety and health.

Official inspection

Legislation provides for an official inspection for workplaces by a safety inspector. The power and obligation of the safety inspector is shown on the followings.

Power of safety inspector

- (a) Entry into the all workspaces
- (b) To be provided with the information of terms of labour safety and health from employers, a managers and an employees.
- (c) To direct employers, managers and employees to satisfy the terms of labour safety and health.
- (d) To inspect directly the observance of the Act and regulations regarding the machinery, equipment, material, work environment and condition, work method and process.
- (e) To inspect improvement, modification and alternation to satisfy the terms of labour safety and health
- (f) To ban the operation of hazardous equipment, and production processes.
- (g) To investigate the offenses on labour safety and health based on Act No.3 1951

Obligation of safety inspector

- (a) To inspect the all workplaces
- (b) To inspect protective equipment
- (c) To direct and explain the all terms of labour safety and health to the employer, the manager and the employee
- (d) To report the results of inspection to the director general, and to keep the trade secrets obtained on the job protect

(2) National Tripartite Occupational Safety and Health Council : DK3N

DK3N is an organization which MoMT established as an advisory body for the government in 1982, and consists of the members of key organizations on labour safety and health including the representatives of the employer and employee. The main tasks of DK3N are the followings: data collection and analysis of labour safety and health on national and provincial level, planning of education and seminar programs. Through the implementation of these tasks, DK3N is assisting the

execution of labour safety and health policies.¹⁰

(3) Social Security for the Workforce: PT Jamsostek

PT Jamsostek is a state owned company which was established to manage the social security for the private sector. It is providing health insurance to formal sector's labour (one third of the all labour) . On four projects by Jamsostek, employment injury insurance, life insurance and old age savings are mandatory. On the other hand, despite the fact that it is mandatory, participation in those programs is considerably low. In 2010, of around 34 million formal sector workers in Indonesia, only 9.3 million were active members of these programs.¹¹

4.3 Occupational Safety and Health legislation

The legislation of Indonesia is shown on the web site of OVTA¹² as the followings.

The legislation rank in Indonesia is stipulated on Law No. 10/2004 concerning the Enactment of Legislation

- 1) The Constitution 1945 (UDD1945)
- 2) Law (Undang-Undang / PERPU)
- 3) Government regulation (Peraturan Pemerintah)
- 4) Decision of President (Keputusan Presiden)
- 5) Provincial regulation (Peraturan Daerah)

The primary law of Indonesia is basically the Constitution established in 1945. The principle of lower law must not be contradictory to higher law. Moreover there is decisions of Ministry which describe details and regulations of Ministry which guide officers.

(1) Act No.1 on Safety (1970)

This is the fundamental legislation on OSH, and stipulates scope, conditions, employer's obligation and employee's interests and obligation regarding OSH. The outlines of Act No.1 on Safety are shown on table4-2.

Table4-2 Outlines of Act No.1 on Safety

Chapter	Contents
Preamble	a. That all workers are entitled to the protection of their safety in performing work for their wellbeing, an increase in national production and productivity, b. That the safety of every other person in the work place should be ensured, c. That every source of production should be used and applied safely and

¹⁰ Pia K. Markkanen. Occupational Safety and Health in Indonesia: International Labour Organization, April 2004

¹¹ ILO web site: Social Security Department, Indonesia.

http://www.ilo.org/dyn/illossi/ssimain.viewScheme?p_lang=en&p_scheme_id=344&p_geoaid=360

¹² Overseas Vocational Training Association, www.ovta.or.jp/info/asia/indonesia/pdf/05laborlaw.pdf

Chapter	Contents
	efficiently, d. That for this it is necessary to make every effort to develop labour protection standards, e. That for the development of these standards it is deemed necessary to determine an act which contains general provisions on safety appropriate to social changes, industrialization, changing techniques and technology.
1 Definitions	workplace, manager, employer, director, safety inspector, safety expert
2 Scope	To regulate safety in all workplaces in Indonesia
3 Safety Conditions	(1)prevent or reduce the possibility of accidents; (2)prevent or reduce the possibility of danger from extinguish fires; (3)prevent or reduce the possibility of danger from explosion; (4)provide means of escape from fire or other danger; (5)provide first aid in the event of injury; (6)ensure that workers are provided with protective equipment; (prevent or control the incidence of the spread of temperature variations, humidity, dust, dirt, smoke, vapor, gas emissions, variable weather conditions, rays or radiance, sound and /or vibrations; (7)prevent or control the incidence of occupational diseases, whether physical or psychological, poisoning, infection or contagion; (8)provide adequate and suitable lighting; (9)provide satisfactory temperature and humidity levels; (10)provide satisfactory air circulation; (11)maintain cleanliness health and good order; (12)achieve the unison of worker and work tools, environment, work methods and processes; (13)safeguard and facilitate the transportation of men, animals, plants or goods; (14)safeguard and maintain construction of all kinds; (15)safeguard and facilitate the loading, unloading, handling and storage of goods; (16)prevent electric shocks; (17)adjust and develop safety measures in accordance with the requirements of decreasing accident rates.
4 Supervision	The Director shall carry out the general implementation of the Act. And the Safety Inspectors and Safety experts shall assist in its implementation.
5 Guidance	Guidance for new worker Training in accident prevention and fire fighting, promotion of safety and health, and administration of first aid
6 Safety and Health Committees	The matters on setting up the Safety and Health Committees
7 Accidents	Obligation on the reporting of accidents
8 Obligations and Rights of Workers	To accurate information upon request by a Safety Inspector or Safety Expert. To use obligatory personal protective equipment. To raise objections to any work which, in their opinion, is doubtful regarding obligatory safety, health and personal protective equipment requirements which are in the manager's area of responsibility.
9 Obligations when entering a Workplace	Any person entering a workplace shall obey all the safety instructions and use personal protective equipment obligatory by law.
10 Obligations of the Manager	Post notices on OSH, providing personal protective equipment
11 Concluding Provisions	Provisions on penalty

(2) Relevant Legislation

The Act No. 3/1992 on worker compensation Act

The Act provides for the matters on worker compensation.

Regulation of the Minister of Manpower and Transmigration No. PER-01/MEN/1980 on safety and health in building construction

The Regulation stipulates the followings of construction projects: workplace environment, equipment, scaffold, ladder and stairs, lifting equipment, machinery, underground work, excavation, piling, casting, other construction work, demolition, safety facility, personal protector, penalty.

Regulation of the Minister of Manpower No. Per. 01/Men/ 1989 on Qualification and Requirements for Lifting Crane Operator

The Regulation stipulates qualifications and requirements for operators who operates high risk cranes, and also stipulates other essential work for operators. The operator is categorized in three classes in accordance with machine scale, and in case of non-performance of his/her obligations he/her might be fined or imprisoned.

Table4-3 Qualification and Requirement for Crane Operator

Item	Class I	Class II	Class III
Educational background	At least Senior High School degree from Mechanical Engineering Department, Electrical Engineering Department, or Natural Science.	At least Junior High School degree, particularly from Mechanical Engineering, or Electrical Engineering	
Experience	Having experience in the field of lifting crane operation at least 2 years in accordance with its type with capacity of 50 tons	Having experience as operator for 3 years with the capacity of 25-50 tons;	Having experience as co-operator for 1 year with the capacity of 25 tons;
Age	Minimum 23 years of age	Minimum 21 years of age	Minimum 20 years of age
Qualification	Passed packet A1+A2+A3	Passed packet A1+A2	Passed packet A1
Behavior	Having certificate of good conduct from the police		
Health	Good physical condition from the Physician		
Examination	Passed from the examination which is held by Department of Manpower cq. Directorate General of Binawas.		
Qualification	Capacity more than 50tons	Capacity more than 25 to 50tons	Maximum capacity of 25tons

Chapter 5. On site safety review in Indonesia

-Railway Electrification and Double-Double Tracking of Java Main Line Project (I)-

5.1 Project outline

- (1) Project Name : Railway Electrification and Double-Double Tracking of Java Main Line Project(I)
- (2) L/A :Date of L/A December 13, 2001
 :Amount of L/A 41,034Million Yen
 :Condition Special Japanese ODA loan (Construction/Japan tied, Consulting service/two countries tied)
- (3) Project aim: The objective of the project is to enhance transport capacity and increase operational efficiency of two railway lines by eliminating the level crossing and double-double tracking to separate Jabotabek Railway line (commuter line) from the Java Main Line (long-distance line) in the section where the two lines share the same rail tracks. In addition, the scope of the project also includes electrification and extension of Bekasi line (commuter line) from Bekasi Station to Cikarang Station. This is expected to increase transport capacity in response to the expanding commuting zone, thereby contributing to sustainable socio-economic development in the target region.
- (4) Location : DKI Jakarta in Indonesia (Manggarai station-Bekasi-Cikarang)
- (5) Employer : Directorate General of Railways, Ministry of Transportation
- (6) Engineer: Joint-Venture of Oriental Consultants Co. Ltd., Japan Railway Technical Service and Japan Transportation Consultants , Inc. in association with PT. Inti Era Cipta, PT Irec Rekayasa, PT. Inti Daya Kreasicitra and PT. Jaya CM.
- (7) Demarcation: (a) Package-A (No commencement of works)
 (b) Package B-1
 (c) Package B-2(No commencement of works)
 This report is described about Package B-1 only.
- (8) Contractors :Package B-1, Joint Operation of Mitsubishi Heavy Industries Ltd and Sumitomo Corporation.
- (9) Construction Period: Package B-1 1st January 2012-August 2016.
- (10) Dimensional data & works volume: Package B-1

Table5-1 Package B-1

Works	Description
(1) Civil Works	Civil work(embankment for new track, embankment improvement for existing track), Bridges, Retaining wall, Drainage work, Passenger Bridge.
(2) Building Works	Demolition of existing station and construction of new station

Works	Description
	including platform, bridges over railway, entrance area), substation, signal hut, rail crossing hut
(3) Track Works	Track rehabilitation(Bekasi-Cikarang17km), Rail crossing, New track at station area
(4) Substation	Substation, Control station, Control system, Cables, interior lightings
(5) Signal System	Signal system(New and rehabilitation)
(6) Telecom Network	Optical Communication Cable, Telecom Network
(7) Electrification OHC	Electrification OHC Installation(New and Rehabilitation)

Site location map is shown in the fig 5-1.

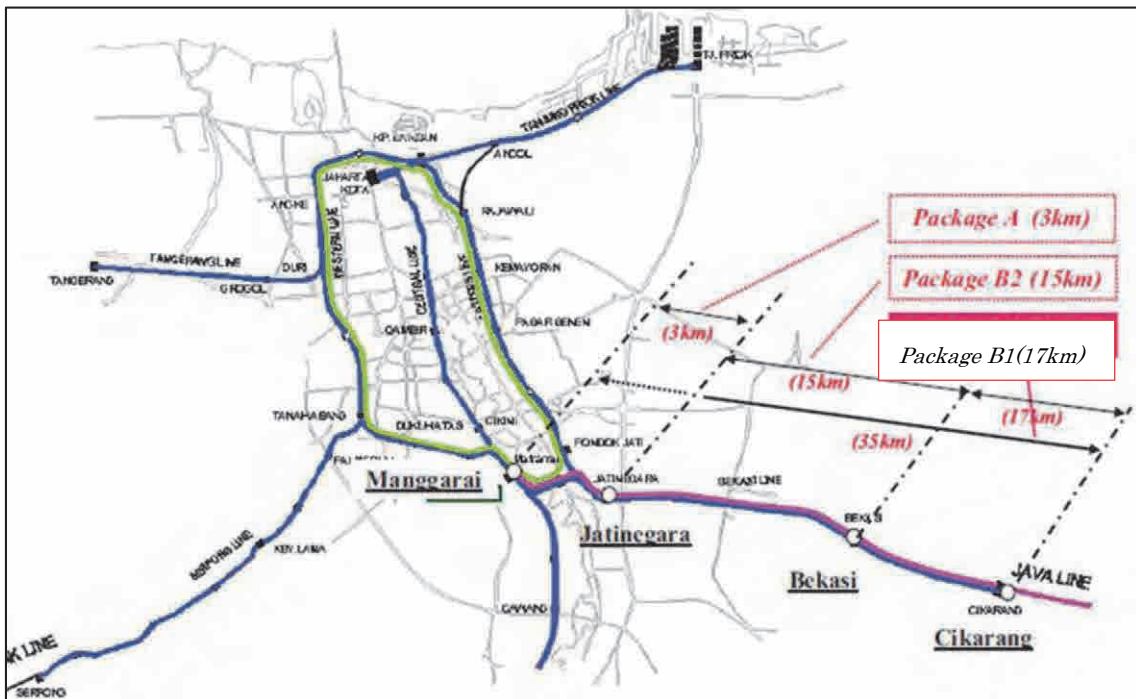


fig 5-1

5.2 Stakeholders of the project

Stakeholders of this Project are as follows.

- (1) Employer: Directorate General of Railways, Ministry of Transportation (DGR)
- (2) Engineer: Joint-Venture of Oriental Consultants Co. Ltd., Japan Railway Technical Service and Japan Transportation Consultants, Inc. in association with PT. Inti Era Cipta, PT Irec Rekayasa, PT. Inti Daya Kreasicitra and PT. Jaya CM. (OCJV)
- (3) Contractor: Joint Operation of Mitsubishi Heavy Industries Ltd and Sumitomo Corporation. (MSJO)

5.3 Safety management system

Safety review team has reviewed the following 9 points of stakeholder's safety management system based on questions and answers made to each stakeholder prior to the site safety review, interview at site and office, and JICA safety seminar 2014 conducted by safety review team in DGR Manggarai office.

(1) Safety Policy and Target

	Policy	Target
DGR	DGR's goal of a workplace health and safety is to maintain a safe work environment for all employees	Zero accident
OCJV	Continuously improve safe work conditions	Minimize risks for accident and incident and zero fatality
MSJO	MSJO has prepared Project Safety and Health Policy consisted of eight items.	Zero safety-related accident and incidents / Every accident is preventable.

(2) Safety Organization

DGR	<p>1) Commitment Officer of "Working Unit," as project-execution-agency plays a role to coordinate with Railway Operator (PT. KAI) and consult with Engineer regarding the work-related matters of the project. This Working unit is directly appointed by Ministry of Transportation while this Working unit reports to Directorate of Infrastructure under Directorate General of Railway.</p> <p>2) Safety Officer was designated but was not on full-time basis.</p>
OCJV	1) Safety Control Expert (SCE) is scheduled to be designated as the position under PM.

OCJV	<p>2) The Engineer should assign Safety Control Expert (SCE), scheduled for 5man/month, but have not been assigned yet. The SCE shall advise, instruct to each inspector in respect of safety control matters at site. The SCE will be assigned on semi-annual basis and mainly conduct a safety audit. Even though there is no specific requirements of the SCE in the TOR, the SCE shall be qualified person having an international certificate for safety.</p> <p>3) Inspectors who were employed as quality control staff would undertake the safety control at site. But they could not keep the same level of the international standard due to insufficient experience for safety.</p> <p>4) According to this situation, Chief engineer (Japanese) of each section is instructing each inspector to be able to supervise the important caution point -described in the method of statement submitted by the Contractor.</p>
MSJO	<p>1) Safety staffs are designated at each station site.</p> <p>2) One Coordination Train Watcher and one Train Watcher are designated between Bekasi station and Cikarang station.</p> <p>3) MSJO will instruct each subcontractor to designate safety officer.</p>

(3) Safety role

DGR	<p>DGR facilitates coordination between PT.KAI (Railway operator) and the Engineer for Safety control and approves the method of statement submitted by the Contractor and have the Engineer to supervise Contractor's performance.</p>
OCJV	<p>1) OCJV inspects the safety activities in accordance with the approved Safety Management Plan which was submitted by the Contractor, checked by the Engineer and then approved by the Employer. At site, inspectors check the safety items in accordance with the Contractor's method of statement following Japanese engineer's instruction.</p> <p>2) The role of Safety Control Expert (SCE) is secondary character of the contractor's HSE Manager. The HSE Manager of the Contractor is an authorized person in respect of all the health, safety and environment matters at the site.</p>
MSJO	<p>1) The Contractor shall assume a primary responsibility of the site safety.</p> <p>2) The HSE Manager shall be deemed to be Accident Prevention Officer (APO) defined in the Contract. APO shall assume a responsibility of the site safety and protect the Contractor's, the Employer's and the Engineer's staff and labor from accidents.</p>

(4) Safety Management Plan

OCJV	<p>The Engineer prepared Engineer's Safety management System in accordance with the Contract and the Employer approved it. It mainly described the safety duties of</p>
------	---

	the Contractor. The Engineer's role of safety is to supervise, review and check the Contractor's performance in respect of safety matters.
MSJO	MSJO's Site Health and Safety Plan was prepared in accordance with the Contract and local laws and regulations. Safety Management Program as Site Health and Safety Plan was submitted to the Engineer on January 2013 and was checked by the Engineer and then was approved on 15 th April 2013.

(5) Routine safety activities

DGR	The Employer coordinates with Railway Operator (PT. KAI) and the Engineer as routine safety activities.
OCJV	Even though the Engineer's main duty is to secure quality assurance, but also pays a careful attention to the safety control by giving advice to the Contractor.
MSJO	Routine safety activities have been conducted in accordance with Site Health and Safety Plan. The method of statement describes Tool Box Talk(Meeting), KYK Activities(K=kiken or danger, Y=yochi or prediction, K=katsudo or activities).

5.4 Current situation of the project

(1) Current status

Table 5-2 Current status

Lot & Contractor	Commencement date & work progress as of end of 2013
Package B1,MSJO	<ul style="list-style-type: none"> • Signing the Contract: December 2012 • Commencement date: September 2013 • Work progress: 6.83%

- The Site had handed over to the Contractor, however there are still some containers of the Employer. At the JICA safety seminar the Employer explained that those containers are to be removed from the site soon.
- No major accidents involving loss of life have been reported.
- No major accident affecting progress of the Works have also reported.

(2) Accident records and its description

(a) Accident records

① Package B-1

As of the end of December 2013, 4 months has passed and total working hours exceeded 20,000 hours. According to the monthly safety report submitted by MSJO accident records of the project as of the end of December 2013 are as follows,

Accident records as of the end of December 2013

Total working hours ①	Lost time accident (>4days off) ②	Workdays lost (>4days) (Days) ③	Frequency Rate (>4days) ④	Severity Rate ⑤
26,616	0	0	0.00	0.00

Frequency Rate : ④=(②÷①)x 1,000,000 = 0.00, Severity Rate:⑤=(③÷①)x 1,000 = 0.00

<Observations>

- According to the accident records, no accident has been reported.
- It is crucially important for the Contractor to prevent any work-related accident whether or not involving those who work at the project site and accidents involving those who are peddling or lingering around railway, for instance neighboring children, vendors and passengers.

5.5 On-site safety reviews, findings and recognition

Safety review team has conducted the on-site review for 2days (on 20th and 21th January). The current situation of the Project, safety activities of the Contractor and the safety review team's comments and impression after the on-site review are as follows:

(1) Package B-1

(a) Progress of work

- As of the end of December 2013, the progress of work is 6.83%.

Cikarang station area where a new station building is to be built (photo5-1), substation area(photo5-2) and existing railway bridge area(photo 5-3) are as shown in the photos below.



photo5-1(Station area)

photo5-2(Substation area)

photo5-3(Railway Bridge)

Bekasi station area, children are lingering around railway(Photo5-4), platform (Photo5-5) and there are still some Employer's containers in the construction area to be removed (Photo 5-6) as shown in the photos below.



photo5-4(Playing children)



photo5-5(Passengers)



photo5-6(Works area)

(b) Safety activities by MSJO

Four months has passed since the commencement of the works, only preparation work is now on-going. There are signboard, signage and posters warning hazards, raising safety awareness (photo 5-7,8,9). MSJO elaborates safety measure to prevent staff from malaria and dengue fever.



photo5-7(Signboard)



photo5-8(Safety sign)



photo5-9(Safety sign)

(c) Findings and improvement of measures to be made by the Contractor

① Necessity for paying special precaution to local residents

Railway crossing in the site (photo 5-10), rail-side vendors (photo 5-11), crowded platform at Bekasi station where some passengers are walking on or around rail track (photo 5-12) are as shown in the photos below. Local residents, who generally do not have an opportunity of receiving safety training, would likely be exposed to risks due to lack of safety awareness and experiences. The Contractor should prevent accidents involving local residents in collaboration with the Employer and the Engineer. Now entering the project in full swing, the Contractor should install permanent fences and gates as much as possible, otherwise the Contractor should arrange flagmen or security guards to prevent the train passengers or neighborhood residents from trespass into the construction area of the station or electrification-overhead cable installation area along a long distance of railway line.



photo5-10(Rail Crossing)



photo5-11(Rail side Vender)



photo5-12(Bekasi Station)

② Special precaution to reduce railway accident risks

Many trains are passing at higher speed at Cikarang station than Bekasi station, the Employer should coordinate with PT. KAI to reduce railway accident risks by taking measures such as providing a speed-limit-area in ROW.

③ Safety training and induction training

The Contractor mobilizes many workers required at the peak of the construction. As a general trend, newcomers to the site are likely to be involved in work-related accidents. Therefore the Contractor should conduct thorough periodical safety trainings and induction trainings to minimize such accident risks. The Contractor has to pay careful attention to the fact that it would raise the risk of accidents much further when the workers in the site are composed of mixed-workforce of skilled and unskilled workers, and subcontractors apt to recruit workers from one village regardless of skilled or unskilled.

④ Build up communicate-well network (easy-to-share information)

In addition to securing site safety, the stakeholders should maintain smooth train operation in safety. It is necessary for stakeholders to build up well-communicate network among the stakeholders and within each stakeholder itself in respect of site safety control. In order to that, at least those who are in charge of site safety should fully understand its role, duty and authority concerning safety.

Those people who do have same mother tongue do not communicate perfectly each other. On the top of that, it is further difficult for Indonesian people and Japanese people with having different mother tongue to communicate effectively. Therefore it is very important for the stakeholders to have regular meetings and opportunities to maintain smooth communication to avoid possible misunderstandings each other. Tool box meeting should be conducted daily to confirm the conceivable hazard activities among those who are working at same site to prevent accidents. In order to share information in respect of safety matters, periodical meetings, attended by relevant persons working on 35kilometer-long site, should be held.

⑤ Continuous improvement in safety by implementing PDCA cycle

As for accident prevention measures at site, all of the stakeholders should continuously make an effort to improve safety environment by implementing PDCA cycle [Plan-Do-Check-Action (Adjust)].

⑥ Forge a relationship of trust at early stage of the project

The stakeholders of the project including subcontractors should forge a relationship of trust at early stage of the project.

Chapter 6. Safety Seminar

As one of the objectives of this safety review, the safety review team has conducted the safety seminar jointly with JICA Project Formulation Adviser who, for the same period, has been visiting the project sites in Vietnam and Indonesia.

(1) Safety seminar in Vietnam

(a) Time : January 16(Thu), 2014 16:00~18:30

(b) Venue: Vietnam Railways Office near Hanoi station

(c) Attendance: Mr. Tao (Vietnam Railway), Mr. Duy (RPMU)

with attendance of approx. 35 persons concerned

(d) Subjects

- On site safety review report by safety review team
- Report by safety review team on accident prevention measures adopted in many construction sites in Japan

(e) Question and answer: Nothing in particular

(f) Comments by attendance: After the safety seminar, Mr. Duy of RPMU and Mr. Tao of Vietnam Railways made following comments regarding the safety matters of this project.

➤ Mr. Duy of RPMU

Good safety performance has been recorded so far with no major accidents occurred. However, there are some very minor incidents that may potentially lead to accidents. RPMU will draw the experience and pay more attention to recording minor incidents and preventing their occurrence.

➤ Mr. Tao of Vietnam Railways

As a representative of Vietnam Railways, RPMU must take measures for ensuring safe for train operation, safety for workers and safety in terms of explosion fire. VNR shall request Contractors, Subcontractors to organize tool box meeting on safety and assign officers to be responsible for safety at the site. RPMU coordinate with the safety review team and JICA for learning good experiences in safety management in order to apply them to the Project implementation.

(g) Others: Introduction of the booklet about safety

Two booklets on safety, titled “Safety and Health Manual in Construction” and “Case studies on accidents and near misses in construction” (Vietnamese and English version respectively) which were issued by Ministry of Construction, Vietnam in cooperation with JICA were introduced by the safety review team. They are very useful for prevention of potential

accidents and injuries on construction site, and two projects have been using these booklets.



photo 6-1(Booklet)

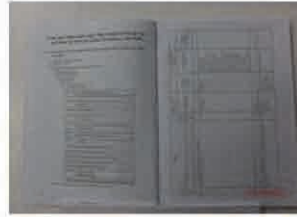


photo 6-2(Laws, regulation)



photo 6-3(Scaffold work)



photo 6-4(Crane)



photo 6-5(Heavy machinery)



photo 6-6(Slinging work)

(2) Safety seminar in Indonesia

(a) Time: January 22(Wed), 2014 14:00~16:20

(b) Venue: DDT Working Unit office near Manggarai Station, Jakarta

(c) Attendance: Mr. Widodo of DDT Working Unit

with attendance of approx. 25 persons concerned

(d) Subjects

- Report by JICA Project Formulation Adviser
- On site safety review report by safety review team
- Report by safety review team on accident prevention measures adopted in many construction sites in Japan

(e) Question and answer: Nothing in particular

(f) Comments by attendance: After the safety seminar, Mr. Widodo of DDT made the following comments regarding the safety matters of this project.

- Safety control is not easy to be performed in the field practice. One of the reasons is that site is separated area and the site is also open area which is difficult to control especially regarding to the local activities near the site area.
- Keep a coordination and communication among train watcher, safety officer and train coordinator at site in order to keep site safely from train accident.
- Although not explained in detail in the seminar, daily safety meeting (morning safety meeting, danger prediction activities and site inspection) is conducted every day at each site.
- Effort step by step in approaching Japanese safety management to be applied: begin from daily safety activities.

- Everyone has a responsibility to make an environment so that other people also can work safely.
- All workers are encouraged to state their opinion regarding to safety.
- Generally participants are satisfied with the explanation of presenters and it is suggested that this kind of activities (hearing and seminar) are better to be held routinely in the next future.



photo 6-7(Vietnam)



photo 6-8(Indonesia)

Comments by the safety review team

There were many participants in the seminar in Vietnam and Indonesia. It was a good opportunity to know the Employer's stance toward safety from their comments on safety after the seminar.

Chapter 7. Construction safety management guidelines

7.1 Background of the proposed guidelines

In response to Can Tho bridge collapsed accident, “The review committee to discuss the measures to prevent re-occurrence of the similar accident as that of Can Tho bridge collapsed accident” was established in the Ministry of Foreign Affairs of Japan. The causes of accident and prevention measures of re-occurrence were studied through cooperation with “The Accident Investigation Board” established in Vietnam Government. In consequence thereof, JICA has come up with various accident prevention measures, however, there have been many accidents as used to be in the project sites financed by JICA.

In light of the lessons learned from the above, JICA has been deploying various efforts to solve the problem of the construction safety management in the project sites financed by JICA. JICA has proposed to review project selection criteria of the ODA project which is required to pay a special attention for the site safety, and has adopted a new standard for the construction safety management. One of those efforts of JICA is the project study report named “Report of ODA Construction Safety Management Guidelines” (hereinafter referred to as “ODA CSMG”)

7.2 Expected effects and problems by adopting ODA CSMG

ODA CSMG consists of the following chapters.

Chapter 1 General

Chapter 2 Basic policy of safety management

Chapter 3 Contents of safety management plan at tender stage

Chapter 4 Contents of safety construction plan at construction stage

Chapter 5 Safety construction technical guideline (Construction type)

Chapter 6 Safety construction technical guideline (Accident type)

In the implementation of applying ODA CSMG to the two projects in Vietnam and Indonesia, which is one of the objectives of this safety review, following five items described in “The study for the operation of ODA CSMG” are reviewed and evaluated.

- (a) Safety management plan at tender stage
- (b) Safety construction plan at construction stage
- (c) Safety consultant
- (d) Temporary works
- (e) Safety prevention measures cost

Supposing that ODA CSMG adopts for the two projects, present status, expected effects and

expected problems can be summarized as follows.

Table 7-1

Item	Present status	Expected effects	Expected problems
Safety management plan at tender stage	• Some projects are not required to submit the safety plan based on the "Safety management plan at tender stage"	• Items of safety plan become clear at tender stage. • Safety measure fee can be itemized at budgeting stage.	• Experts who can evaluate a safety plan is required. • Safety consultant should involve from tender stage.
Safety construction plan at construction stage	• "Safety construction plan" is prepared by the Contractor at construction stage	• Safety measure items become clear. • Cost control of safety measure becomes easier.	Safety control in charge are required in both the Engineer and contractor.
Safety consultant	There is no safety consultant employed by the Employer	Safety consultant can be, being independent from supervisory consultant, devoted to the safety matters in the project sites	• Clear demarcation between supervisory consultant and safety consultant is required • There are few safety experts in the consultant industry. • Management cost may increase.
Temporary works	Contractor is responsible for design and construction of temporary works except designated temporary works	If safety consultant is employed, he is responsible for design of specified temporary works. Scope of the works becomes clearer.	• Scope of the works should be made clear between permanent design works and temporary design works.
Safety prevention measure cost	Cost control is difficult because the safety cost is included in temporary works and can not be identified	• Cost control become easier as the safety cost can be identified easily. • Safety awareness would be promoted among persons concerned.	• The Employer would be unwilling to accept the safety prevention measure cost when it boosts the Employer's budget.

7.3 Feedback from the stakeholders at the interview in Vietnam and Indonesia

(a) At tender stage

- The Employer should request tenderers to submit a safety plan and evaluate it at tender stage.
- It should be confirmed in the Minutes of Discussion that the safety measure cost is included in BQ items.
- In Vietnam, the Employer likely to cut down the safety prevention measure cost aiming to reduce the construction price of the tenderer.
- The Employer often requests to cut down the safety cost and the number of Japanese safety experts at negotiation stage before signing the contract in order to hold down the overall construction cost. Therefore, it is difficult to maintain the safety level such as those implemented in many Japanese construction sites.

(b) BQ items

- Payment items for safety management cost are defined in the Preamble and the Technical Specification on lump-sum basis. Since its definition seems to be insufficient, clear definition is required.
- Basic safety facilities should be quantified.
- The payment item for temporary works of safety should be separately prepared in BQ.

Chapter 8. Recommendations

In accordance with the findings from this safety review, the safety review team makes the following recommendations for the ODA-loan project.

(1) Establish the safety management system with full participation of all the stakeholders

The Contractor assumes a primary responsibility for ensuring the site safety. As a result, in many projects, the site-safety-control is highly dependent upon the Contractor itself. In these project sites, it is hardly said that the supervision and instruction by the Employer and the Engineer in respect of the safety are being done properly. According to the interview conducted by the safety review team, the Engineer is not necessarily obliged to arrange safety experts in order to supervise or make instruction in respect of the safety matter to the Contractor. And even when the Engineer is obliged to arrange safety experts, the budget of the Employer is so limited that the safety management cost and the number of the safety expert are likely to be cut down during the negotiation stage before signing the consultant contract. Due consideration should be given to the safety management especially in terms of its budget.

Not only the ODA-loan project but also international construction projects, the safety management should be implemented with the vigor participation of the Employer, the Engineer, the Contractor and the Sub-contractor, so called “the tetra-une¹”. In order to make sure that the Contractor and the Sub-contractors fulfill their contractual obligation to secure the site safety, as described in the ODA CSMG, the safety management plan and the safety construction plan should be prepared and submitted by the Contractor at the tender stage and the construction stage respectively. Then the Employer and the Engineer should review and evaluate its effectiveness and, during the construction stage, closely monitor the implementation of these safety plans and whenever necessary the Employer and/or the Engineer should issue instructions to rectify its non-conformance.

(2) The safety management cost should be paid under separated and independent payment item

As pointed out by the ODA CSMG, the safety management cost is usually included in the general payment item, for instance, the payment item for excavation work, concrete work, etc. and not provided for under the separated payment item. And the amount of the general payment item is hardly split up into the safety management cost and other costs. In addition, the safety management cost is likely to be cut down during the negotiation stage before signing the contract and the Contractor would suffer from a lack of funding for the safety management.

As pointed out by ODA CSMG, the payment item of the safety management cost should be provided

¹ ODA Construction Safety Management Guideline emphasizes the importance of the triune (except the sub-contractor) cooperating with each other for the site safety. Guideline volume 1 of 3 page121

for under a separate payment item and its interim payment should be made subject to the Engineer evaluation to the performance of the construction safety plan prepared by the Contractor.

(3) It is recommended to conduct the on-site safety review and the safety seminar periodically

The safety review team has conducted a half-day-safety seminar jointly with JICA Project Formulation Advisor. In the seminar, the safety review team has provided feedback about the findings of the on-site safety review to the stakeholders and introduced various efforts to prevent work-related accidents in Japan. One of the Employers expressed their intention to adopt, by taking a step-by-step approach, the accident prevention measures which are widely used in Japanese construction sites and commented that the conducting the on-site safety review from third parties' point of view and the safety seminar on a regular basis might be useful.

In order to prevent workplace accidents, it is crucially important to continue daily safety activities, which seem to be taken for granted, on a routine basis. The on-site safety review and the safety seminar conducted by third parties would provide a good opportunity for all the stakeholders to reaffirm the significance of continuing daily safety activities.

As the ODA Safety Guideline and JICA Project Formulation Advisor emphasize, it is quite important to implement the Safety-PDCA cycle[Plan-Do-Check-Action/Adjust] at project sites in order to reduce the risk of accidents.

Non-performance of contract on the Employer side, such as delayed handover of the project site, likely results in a reduction of lead-time and budget on the Contractor side which would be jeopardizing the site safety. From this point of view, the Employer plays a far more important role in securing the site safety than what the Employer thinks of himself. This role should be emphasized at the on-site safety review meeting and the safety seminar.

As mentioned above, it is highly recommended to conduct periodically the on-site safety review and /or the safety seminar by third parties with the following agendas.

- (a) lecturing and training for how to implement the Safety-PDCA cycle
- (b) lecturing and training for a risk prediction activity(KYK), and how to improve daily safety activities such as “Tool Box Meeting” and “Safety patrol”
- (c) lecturing for how the Employer should play his role to prevent accidents in the project site

(4) Adopting the safety consultant system

It might be difficult to demarcate the scope of work between the Engineer and the safety consultant, and, once the safety consultant being employed, a management system in the site would not work

properly due to confusion in the reporting line of the site. Therefore, careful consideration should be given before adopting the safety consultant system for the project site. However, examining the site safety from a third party's point of view independent from the Engineer is so important that careful studies should be made accordingly.

Appendix-1 : The Materials of JICA Safety Seminar 2014

JICA Safety Seminar 2014 in Vietnam

Part-I Report for the on-site safety review

January 16, 2014

**International Project Management Service Co., Ltd.
Katahira & Engineers International**

I-1 Background & objectives of the on-site safety review

(1) Background

- September 2007 The Can Tho Bridge incident happened in Vietnam
- The committee deployed by Ministry of Foreign affairs, Japan, after the incident, has made a recommendation to prevent re-occurrence of the similar incident.

➤ As recommended by the committee, JICA has carried out interim reviews in respect of eight on-going projects since 2008. Of the eight project, three in Vietnam and one in Turkey, Uzbekistan, Philippines, Sri Lanka and Malaysia respectively.

Can Tho bridge collapsed in Vietnam
54 people dead, 80 people injured
worst accident in Vietnam



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- I-5 Schedule for the safety review
- I-6 On site safety review report
- I-7 On-site photographs
- I-8 Safe management system of the projects
- I-9 Leaflet for safety manual and case studies in Vietnam
- I-10 Heinrich Theory
- I-11 Key Points

I-1 Background & objectives of the on-site safety review

(2) Objectives

- to conduct a survey of up-to-date information on occupational health and safety laws and regulations of Vietnam, and a review for safety management on ODA loan projects designated by JICA.
- to encourage stakeholders to make greater efforts towards the reduction and prevention of occupational accidents and public accidents by feeding back the findings to stakeholders.
- to make recommendations for improvement, if any, and check the status of implementation of safety management and compliance of laws and regulations through visiting the project sites.
- to hold a safety seminar after the on-site safety review

I-2 Safety review team members

- Team leader/Safety specialist : Hiroaki TOMITA
(International Project Management Service Co., Ltd.)
- Civil work specialist : Akira IWASHITA
(Katahira & Engineers International)

I-4 Outline of the projects

Hanoi –Ho Chi Minh City Railway Line Bridges Safety Improvement Project

The purpose of this project is to ensure the safety of railway service, shorten passenger and freight transport time, and boost transport volume by replacing 44 severely deteriorated bridges on the railway line between Hanoi and Ho Chi Minh City

Project Name	Nr. of Bridges	Engineer	Contractors
CP-1A	1	<ul style="list-style-type: none"> ● Japan Transportation Consultants ● Oriental Consultants ● JIC Japan International Consultants for Transportation Co., Ltd. 	Mitsui/Rinkai/Taisei/Cienco 1
CP-1B	1		Mitsui/Rinkai/Cienco 1
CP-1C	8		Taisei/Mitsui/Cienco 1
CP-1D	7		TEKKEN/Yokogawa/Thang Long

Mitsui: Mitsui Engineering & Shipbuilding Co.,Ltd.
Rinkai: Nissan Rinkai Construction Co.,Ltd.
Yokogawa: Yokogawa Bridge Corp.

Taisei: Taisei Corporation
TEKKEN: Tekken Corporation

I-3 Location map of projects to be reviewed

Hanoi –Ho Chi Minh City
Railway Line Bridges Safety
Improvement Project



Construction Packages No. 1A
Ninh Binh Bridge @ 113k480
Ninh Binh Province

Construction Packages No. 1C
Nang Song Bridge @ 487k745
Quang Binh Province

I-5 Schedule for the safety review

Schedule of Site Visit for Vietnam						Date: 13 Jan. 2014
No	ID	Loc	Time	Event/Activity	Unit/Involvement	Remarks
1	1	Hanoi	10:00	Departure Hanoi for Ninh Binh	Departure Hanoi/Arrival Ninh Binh	Site at Hanoi
2	1	Hanoi	10:00	Meeting with JICA	JICA/JICA Vietnam Office	Site at Hanoi
			14:00	Meeting with JICA Vietnam Office		
			16:00	Meeting with The Contractor		
3	1	Ninh Binh	08:00	Hanoi → Ninh Binh	Mitsui/Rinkai/Taisei/Cienco 1	Site at Ninh Binh
			10:00	Meeting Item for Contractor - MRV-IV (CP1A)		
			12:00	Meeting Item for Contractor (CP1A)		
4	1	Ninh Binh	08:00	Data Completion and Preparation for Summary		Site at Ninh Binh
5	1	Hanoi	08:00	Arrival at work base/starting of sub-construction	Mitsui/Rinkai/Taisei/Cienco 1	Site at Hanoi
			09:00	Discussion review at MRV-IV (CP1A)		
			10:00	Meeting at the Engineer (CP1A) site office		
			11:00	Site Visit		
			14:00	Meeting from the Engineer (CP1A)		
			16:00	Meeting with MRV-IV (CP1A)		
6	1	Hanoi	08:00	Departure Hanoi to Hanoi/Arrival Hanoi (14/01/2014)	Mitsui/Rinkai/Taisei/Cienco 1	Site at Hanoi
			09:00	Meeting with The Engineer (CP1C)		
			10:00	Meeting with The Engineer (CP1C)		
			11:00	Meeting with The Engineer (CP1C)		
			12:00	Meeting with The Engineer (CP1C)		
			13:00	Meeting with The Engineer (CP1C)		
7	1	Hanoi	08:00	Meeting and discussion review with the Contractor (CP1C)	Mitsui/Rinkai/Taisei/Cienco 1	Site at Hanoi
			10:00	Meeting with the Engineer (CP1C)		
			12:00	Meeting with the Engineer (CP1C)		
8	1	Hanoi	08:00	Preparation for Summary	Mitsui/Rinkai/Taisei/Cienco 1	Site at Hanoi
			10:00	Summary at VNSR office		

I-6 On sites safety review report

(1) Safety policy & target

- **The Employer** : Vietnam Railways (VNR) controlling the execution of the Project through its representing agency, the Railway Projects Management Unit (RPMU)
 - ◆ Policy :The parties involve into project shall undertake all measures to ensure safety for train operation and labour safety in the working sites with absolutely manner.
 - ◆ Target : No Accident and No Incident
- **The Engineer** : JOJ JV
 - ◆ Policy : Train Operation Safety and Safe Workmanship

I-6 On sites safety review report

(2) Safety organization

- **The Employer**
 - VNR has “Railway Accident Rescue (RAR)”
 - RAR is formed by “Railway Traffic Safety Department” and “The Center for Emergency Response of Natural Disaster and Railway Rescue” to inspect and supervise the implementation of safety of the Railway Management Companies and the Contractors carrying out the construction on all track routes of VNR.
 - RPMU has no specific department in charge of safety but **Quality Management Division** is involved in Construction Safety as well.
 - Each Project Management Team of RPMU shall carry out Safety Control for each project.
- **The Engineer**
 - No particular safety organization, but the **Environmental Specialist** takes care of safety matter.

I-6 On sites safety review report

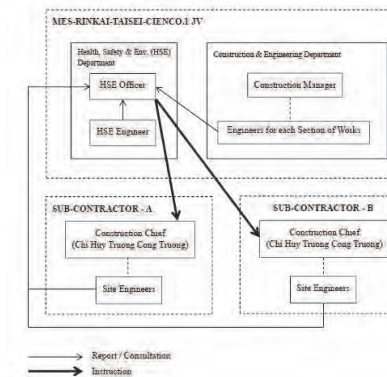
(1) Safety policy & target

- **The Contractor for CP1A** : MES-RINKAI-TAISEI-CIENCO.1 Joint Venture
 - ◆ Policy : Safety First
 - ◆ Target in 2012 : “No Equipment Accident”
 - ◆ Target in 2013 : “No Crane Accident” and “No Fall-down Accident”
 - ◆ Target in 2014 : “No Crane Accident” and “No Fall-down Accident”
- **The Contractor for CP1C** : TAISEI-MES-CIENCO.1 Joint Venture
 - ◆ Policy : Let’s get back to basics.
 - Start by Good Housekeeping for a Steady operation
 - ◆ Target in 2013 : Death Accident “0” and Machinery Accident “0”

I-6 On sites safety review report

(2) Safety organization

■ The Contractor



I-6 On sites safety review report

(3) Safety track record

	CP 1 A (As of 30/Nov/2013)	CP 1C (As of 30/Nov/2013)
Total Man-hours Worked	700,552	1,411,200
No of Lost Time Accidents (>4days)	0	0
Fatality		
Total Workdays Lost	0	0
FREQUENCY RATE		
Frequency Rate (Japan, Civil works)	0.00 (Civil :1.19, Railway: 1.15)	0.00 (Civil :1.19, Railway: 1.15)
SEVERITY RATE		
Severity Rate (Japan, Civil works)	0.00 (Civil: 0.60, Railway: 0.85)	0.00 (Civil: 0.60, Railway: 0.85)

I-7 On-site photographs (CP1A)



Tool Box Meeting

I-7 On-site photographs (CP1A)



Tool Box Meeting

I-7 On-site photographs (CP1A)



Site Access Road

I-7 On-site photographs (CP1A)



Site Access Road

I-7 On-site photographs (CP1A)



Working Platform

I-7 On-site photographs (CP1A)



Stairway

I-7 On-site photographs (CP1A)



Flyover under Construction

I-7 On-site photographs (CP1C)



Distance View from the Right Bank (HCM Side)

I-7 On-site photographs (CP1C)



Old Bridge from the Right Bank (HCM Side)

I-7 On-site photographs (CP1C)



Track from the Right Bank (HCM Side)

I-7 On-site photographs (CP1C)



Track from the Left Bank (Hanoi Side)

I-7 On-site photographs (CP1C)



Track Vicinity Work at the Left Bank

I-8 Safe management system of the projects

(1) Stakeholders' safety role

■ The Contractor

- To take full responsibility for the adequacy, stability and **safety of all site operations and method of construction** (to ensure the Safety of Railway Traffic, Road Traffic and Waterway Traffic and Labour Safety). (GCC 8.2, PCC 30.5-7)
- To have full regard for the safety of all persons entitled to be upon the site and keep the Site and the Works in an orderly state appropriate to the avoidance of danger to such persons.. GCC 19.1(a)
- To provide and maintain at his own cost all lights, guards, fencing, warning signs..for the protection of the Works or for **the safety** and convenience of the public or others.. (GCC 19.1(b))
- To have on his staff at the Site an officer dealing only with questions regarding **the safety and protection against accidents** of all staff and labour. (PCC 34.6)

I-8 Safe management system of the projects

(1) Stakeholders' safety role

■ The Employer (refer to reply to questionnaire)

- To set forth requirements and evaluation criteria specifically to policies, awareness and experience of each bidder to ensure the safety of railway traffic, road and river and labour safety.
 - Only bidders who have a good understanding of **work safety** and other requirements of the Bidding Documents shall be selected.

■ The Engineer (refer to TOR)

- General responsibilities of the Engineer are supervision of Contractor(s) basing on approved construction contract(s) to meet the Employer's requirements in aspects of quality, timing, price and **safety**, and other requirements as stated hereunder.... (Chapter IV, Section 2)
- 5) To audit of the Quality Assurance Plan, **Safety Control Plan** and review, monitoring of the procedures executed by the Contractor(s).
- Monthly report to outline any problem encountered including of quality, scheduling and **safety indicators**, and give recommendations on how these problems may be overcome... (Chapter VI, 2)

I-8 Safe management system of the projects

(1) Stakeholders' safety role

■ The Contractor

General Conditions of Contract (Clause 4.1 Subcontracting)

- The Contractor shall not subcontract the whole of the Works.
- Except where otherwise provided by the Contract, the Contractor shall not subcontract any part of the Works without the prior consent of the Engineer.
- Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and
- he shall be responsible for the acts, defaults and neglects of any Subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

I-8 Safe management system of the projects

(2) Safety Management Plan

- The Contractor shall submit his Project Safety Plan (PSP) within twenty eight days of the date of the Notification of Award. (PS 10.2)
- The contents of PSP shall include:- (PS 10.2)
 - ① Safety Organizations and Communication
 - ② Measures for compliance of Subcontractors
 - ③ Safety equipment and facilities
 - ④ Protection of visitors to the site
 - ⑤ Supervision of Safe Systems
 - ⑥ Safety of Construction methods
 - ⑦ Hazards and Emergency
- The Safety Control Plan was submitted on 9/Jul/12 and approved on 9/Aug/12.

I-8 Safe management system of the projects

(3) Routine safety activities (CPIC) : Inspection / Monitoring

Activity	Frequency	Attendance	Media of Record/Report
Routine Safety Inspection	Monthly	PM, PSM, CM	Safety Report
Regular Statutory Inspection for Plant, Cranes, Lifting Equip. and Electrical Equip	Monthly	Construction Engineer, HSE officer and Supervisor of the Engineer	Acceptance minutes of work item
Routine Inspection for Scaffolding and Working Platform	Monthly	PM, PSM, CM	Safety Report
Environment, Health and Safety Inspection	Monthly	PM, PSM, CM	Environment Report
Weekly Monitoring	Weekly	HSE officer	

I-8 Safe management system of the projects

(3) Routine safety activities (CP1A)

Activity	Frequency	Attendance
Daily Coordination Meeting	Daily	Contractor / Subcontractor
Weekly Internal Meeting	Weekly	Contractor / All Subcontractors / Petty Contractors
Monthly Internal Meeting	Monthly	Contractor / All Subcontractors / Petty Contractors
Joint Safety Patrol	Bimonthly	Consultant / Contractor / All Subcontractors / Petty Contractors
Daily Safety Patrol	Daily	Contractor / HSE Officer

I-8 Safe management system of the projects

(3) Routine safety activities (CP1C) : Communication

Meeting	Frequency	Attendance
Pre-start Meetings on award of packages	Before start Project	PM, PSM, CM, Site Engineer and Directors of subcontractors
Progress Meetings	Bimonthly	PM, PSM, CM, Site Engineer and Directors and Team Leaders of sub contractors
Health and Safety Committee Meetings	Bimonthly	Same of Progress Meeting
Serious Accident / incident Meeting	No (On occasion)	PM, PSM, CM, Site Engineer and Directors and Team Leaders of sub contractors
Environment, Health and safety Consultation Meetings	Bimonthly	Same of Progress Meeting
Management Meeting	Bimonthly	Same of Progress Meeting
Construction Meeting	Bimonthly	Same of Progress Meeting
Safety Meeting to inform of Preventive and Mitigate Action for Safety	Before start new work	PM, PSM, CM, Site Engineer and Directors and Team Leaders of sub contractors
Tool Box Meeting	Daily	Team Leader and workers
Task Briefing	Before start new work	Team Leader and workers

I-8 Safe management system of the projects

(4) Safety promotion and training

■ **The Employer : Training Session and Training** (by the Railway Vocational Training) for:-

- Site Manager of the Contractors,
- The Engineer,
- The person in charge of the project management of the Employer in order to enhance the capacity of inspection and supervision to secure safety for train operation during construction on the track

I-8 Safe management system of the projects

(5) Incentive and penalty scheme

■ **The Employer :**

- ◆ **To be fined and pay damages** under the provisions of the Railway Vietnam, if the Contractors fail in ensuring the construction safety and train operation safety, and the relevant units directly involved in the construction
- ◆ To be added to **the list of poor performance Contractors** of the Employer

I-8 Safe management system of the projects

(4) Safety promotion and training

■ **The Contractor (CP1A) : Training** for:-

- Crane Operator on 25/Apr/2013

■ **The Contractor (CP1C)**

◆ **Rail Way Construction Safety Seminar** organized and certified by VNR for:-

- Project Site Manager,
- Technical Manager,
- Technical Engineer,
- HSE officer,
- QA QC Specialist and
- Team Leaders of Subcontractors

◆ **Crane operation safety seminar** organized by Joint Venture for:-

- All crane operators

◆ **Operation and safety seminar** organized by Joint Venture, before carrying out track switching

I-8 Safe management system of the projects

(5) Incentive and penalty scheme

■ **The Contractor (CP1A)**

- ◆ Penalty : **Notification, Request, Warning, Instruction, Replacement**

■ **The Contractor (CP1C)**

- ◆ Incentive : **Safety award (gift and bonus)**

I-8 Safe management system of the projects

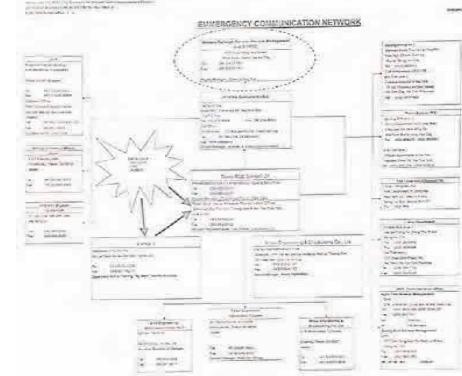
(6) Emergency Procedure

■ The Employer :

- ◆ In case of serious accident or death, the Contractor shall immediately notify the Engineer, the Employer and the relevant functional units of local authorities as the Safety Control Plan.

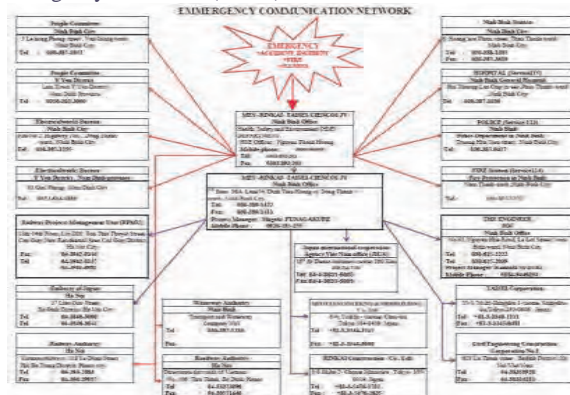
I-8 Safe management system of the projects

(6) Emergency Procedure (CPIC)



I-8 Safe management system of the projects

(6) Emergency Procedure (CP1A)



I-9 Leaflet for safety manual and case studies in Vietnam



Leaflets above have been published by Ministry of Construction of Vietnam with technical support from JICA.

I-9 Leaflet for safety manual and case studies in Vietnam

II.2.1 Rights and obligations of the Employer:

This employer is obliged
(Refer to: Decree 06/1995/ND-CP, Chapter IV, Article 13)

- To include a plan of action for ensuring occupational safety and health and for working conditions improvement into annual plan for development of production and business of the undertaking
- To provide the workers with sufficient personal protective devices and to carry out other measures ensuring occupational safety and health for them at conformity with laws and regulations
- To assign an officer to supervise the implementation of regulations, work rules and measures ensuring occupational safety and health in the undertaking, to coordinate with the undertaking's Trade Union in setting up and maintaining a network of workers' safety and health representatives
- To draw up appropriate rules and processes of occupational safety and health for different kinds of machinery, equipment and material, even in the case of change in technology, machinery, equipment, material and workplace in conformity with the national standards
- To undertake education and training for the workers on standards, regulations and measures ensuring occupational safety and health
- To provide the workers with periodical medical examinations, in accordance with State standards and regulations
- To strictly observe the regulations on declaration and investigation of all the cases of occupational accidents and diseases and duly submit the mid-year and annual reports on the actual status of occupational safety and health matters in the undertaking to the local Department of Labour, Injuries and Social Affairs

I-9 Leaflet for safety manual and case studies in Vietnam

II.2.2 Client (POs):

(Reference law: Circular 22/2010/TT-BXD, Chapter III, Article 5.)

- Set up a full-time or part-time division for examining the observance of labour safety rules by the construction contractor at the construction site.
- Select a capable contractor suitable to the jobs he/she/it will perform under the construction law.
- Suspend the construction and request the contractor to take remedies, when detecting the contractor's violations of labour safety rules. If the contractor fails to take remedies, stop the construction or terminate the contract.
- Coordinate with the contractor in taking handling measures in case of labour incidents or accidents and concurrently report on the labour safety situation of the project or work to functional agencies

I-9 Leaflet for safety manual and case studies in Vietnam

The employer has the rights:

(Refer to: Decree 06/1995/ND-CP, Chapter IV, Article 14)

- To compel the worker to observe regulations, work rules and measures ensuring occupational safety and health;
- To accord praises and rewards to those who duly observe, and to sanction those who fail to observe regulations, work rules and measures on occupational safety and health;
- To appeal to competent authorities for reconsideration of the decisions imposed by State Labour Inspectors' Committee, while duly observing them in practice.

I-9 Leaflet for safety manual and case studies in Vietnam

II.2.3 PMU and Consultant:

(Reference law: Circular 22/2010/TT-BXD, Chapter III, Article 7.)

- Supervise contractors' observance of approved construction and safety measures and compliance with technical regulations on construction safety.
- Notify POs of dangers that might affect construction safety in order to take remedies and change construction measures as appropriate.
- Examine, and report to POs for handling violations, stop construction and request remedies when construction contractors violate safety rules at the construction site.

I-9 Leaflet for safety manual and case studies in Vietnam

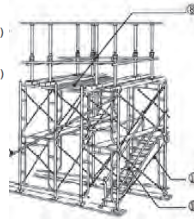
3. Prevention of danger caused by collapse/rolling

3.1 Assembling/Disassembling Supports

The following points are required to check before assembling/disassembling formworks.

Check points: (Refer to TCVN 5308:1991 Code of practice for building safety technique; TCVN 4453:1995 Monolithic concrete and reinforced concrete structures - Codes for construction, check and acceptance)

- (8) Working platform must be set up at the top of scaffold
- (9) A diagonal brace must be set up (TCVN 4453:1995, Article 3.5.1)
- (10) A stair must be set up to the place higher than 1.5m
- (11) All braces must be set up at the right place. (TCVN 4453:1995, Article 3.5.1)



I-9 Leaflet for safety manual and case studies in Vietnam

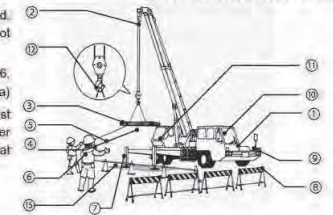
4.7 Mobile crane

Precautions to use a mobile crane and/or other type of cranes are highlighted in this clause.

Check points: (Refer to TCVN 4244:1986 Code for the safe technique of crane Equipment; TCVN 5308:1991 Code of practice for safety building technique)

- (11) A safe working load must be exhibited at the crane.
- (12) Is the latch of hook working well (TCVN 4244:1986, Article 5.1.10)
- (13) Crane works must be stopped when the wind speed from 5 grade (TCVN 5308:1991, Article 17.1.5)

- (14) While hanging the load, the operator cannot leave a machine. (TCVN 4244:1986, Article 6.5.15.a)
- (15) Steel plates must be laid down under the outriggers at the soft ground.



I-9 Leaflet for safety manual and case studies in Vietnam

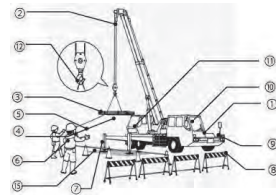
4. Prevention of danger caused by general construction equipment

4.7 Mobile crane

Precautions to use a mobile crane and/or other type of cranes are highlighted in this clause.

Check points: (Refer to TCVN 4244:1986 Code for the safe technique of crane Equipment; TCVN 5308:1991 Code of practice for safety building technique)

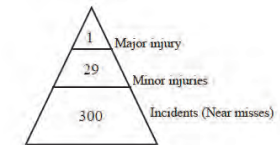
- (1) Worker shall not ride on machine except operator sheet (TCVN 4244:1986, Article 6.5.15, n)
- (2) An over-winding prevention device is working correctly or not.
- (3) The weight of loads must be less than the safe working load (TCVN 4244:1986, Article 6.4.7)
- (4) No person can stand under the loads. (TCVN 4244:1986, Article 6.5.14, g)
- (5) A lead rope must be used to handle the long load.
- (6) A signalman must be arranged for the crane works. (TCVN 4244:1986, Article 6.4.7)
- (7) Outriggers must be extended to the maximum length position.
- (8) "Keep Out" sign must be set up where necessary. (TCVN 5308:1991, Article 6.9)
- (9) A mobile crane must be placed at level on the stable ground.
- (10) An overloading prevention device is working correctly or not. (TCVN 4244:1986, Article 5.11.3.11)



I-10 Heinrich Theory

Behind one major injury accident, there are **29** minor injury accidents and **300** minor incidents (**Near Misses**) accidents that do not result in injuries as shown below

- The "Near Misses" are the potential to be more serious incidents.
- Of course, not all Near Misses cause fatal or serious injury.
- However, if appropriate actions are taken at this level, potential of more serious injuries will be reduced dramatically.



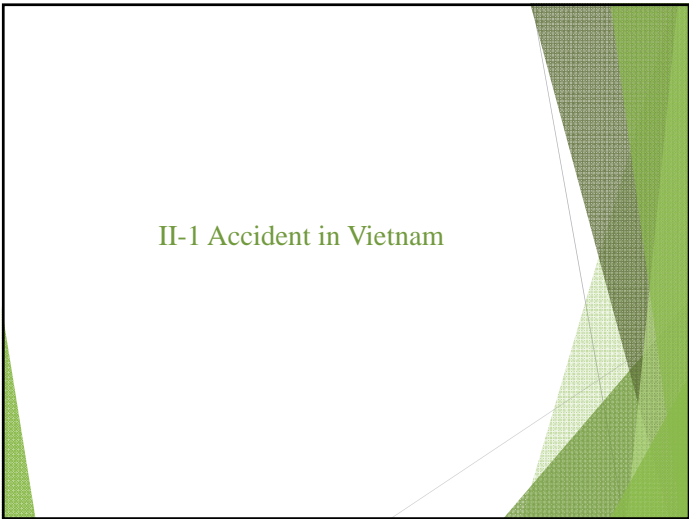
I-11 Key Points

- **Division of Labour** : Specialization
 - Among Stakeholders
 - Among JV Organization
- **Harmonization System** of Japanese and Vietnamese
 - Complicated works in tight schedule with experienced workers and modern machinery
 - Simple cautious works with time allowance with young workers and old-fashioned machinery
- **Communication** in PDCA Process
 - C: **CHECK** and A: **Action** are essential

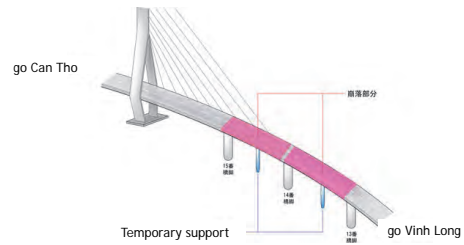


- **Recognition of Roles**
- **Patient and Repetition**

End
of
Part I



Can Tho bridge collapsed portion



Accident in Japan case 1 Girder collapsed in Gunma prefecture (Jun.2002)



II-2 Accidents in Japan

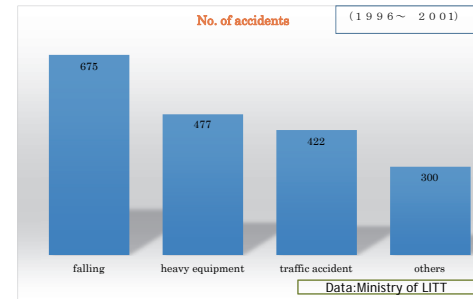
Accident in Japan case 2 Scaffolding falling down in Shizuoka prefecture



Accident in Japan case 3
Crane falling down in Kagawa prefecture(Oct.2001)

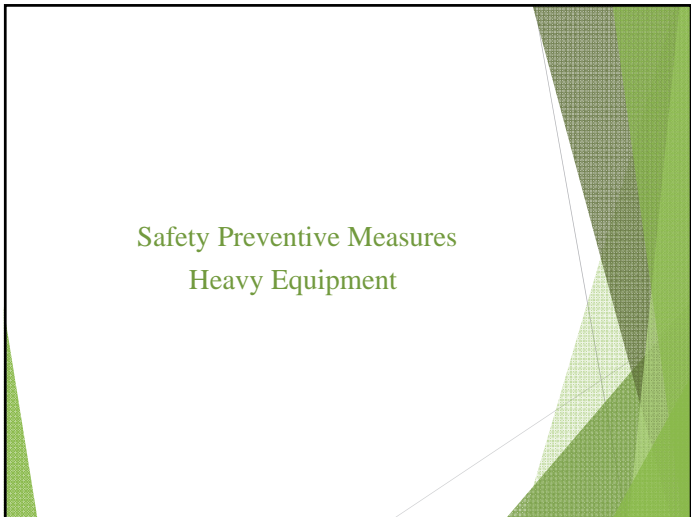
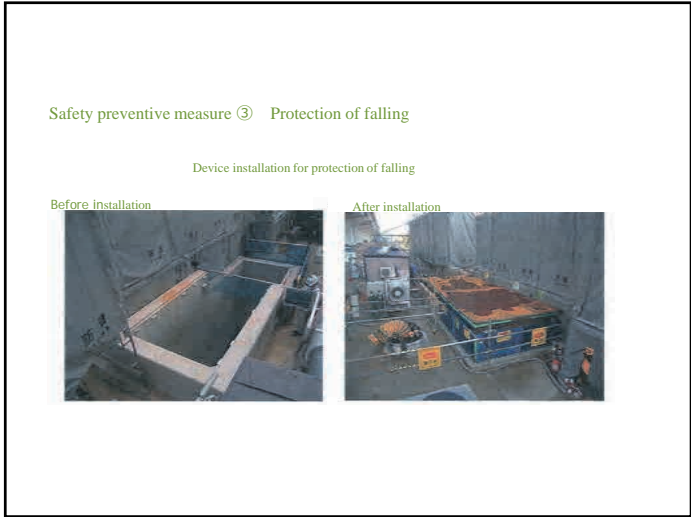


Three main category of construction accidents



II-3 Safety Preventive Measures
in Japan

Safety Preventive Measures
Falling



Safety preventive measure ④ Protection of tumbling

Device installation for protection of pinching



Safety preventive measure ⑥ Protection of stealing

Device installation for protection against stealing



Safety preventive measure ⑤ Protection of catching

Device installation for protection of catching



Safety Preventive Measures
Traffic Accidents

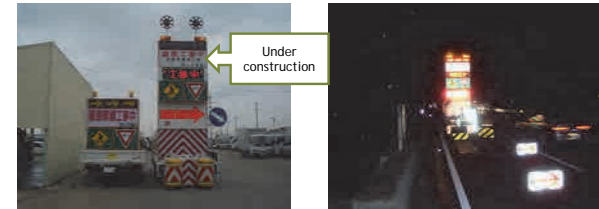
Safety preventive measure ⑦ Protection of traffic accident

Installation of traffic control robot



Safety preventive measure ⑨ Protection of traffic accident

Traffic control vehicle



Safety preventive measure ⑧ Protection of traffic accident

Installation of movable guard rail



Safety Preventive Measures Meeting

Safety preventive measure ⑩ Safety meeting

Education and training meeting for safety



End
of
Part II

Safety preventive measure ⑪ Morning meeting

Daily kickoff meeting for safety



JICA Safety Seminar 2014 in Indonesia

Part-I Report for the on-site safety review

January 22, 2014

**International Project Management Service Co., Ltd.
Katahira & Engineers International**

Table of Contents

- I-1 Background & Objectives of the on-site safety review
- I-2 Safety review team members
- I-3 Location map of projects to be reviewed
- I-4 Outline of the projects
- I-5 Schedule for the safety review
- I-6 On site safety review report
- I-7 On-site photographs
- I-8 Safe management system of the projects
- I-9 Leaflet for safety manual and case studies in Vietnam
- I-10 Heinrich Law
- I-11 Key Points

3

I-1 Background & objectives of the on-site safety review

(1) Background

➤ September 2007, **Can Tho Bridge collapsed in Vietnam**

- 54 people dead
- 80 people injured



- #### ➤ The committee deployed by Ministry of Foreign affairs, Japan, after the incident, has made a recommendation to prevent re-occurrence of the similar incident.

- #### ➤ As recommended by the committee, JICA has carried out interim reviews in respect of eight on-going projects since 2008. Of the eight project, three in Vietnam and one in Turkey, Uzbekistan, Philippines, Sri Lanka and Malaysia respectively.

4

I-1 Background & objectives of the on-site safety review

(2) Objectives

- to conduct a survey of up-to-date information on occupational health and safety laws and regulations of Vietnam, and a review for safety management on ODA loan projects designated by JICA.
- to encourage stakeholders to make greater efforts towards the reduction and prevention of occupational accidents and public accidents by feeding back the findings to stakeholders.
- to make recommendations for improvement, if any, and check the status of implementation of safety management and compliance of laws and regulations through visiting the project sites.
- to hold a safety seminar after the on-site safety review

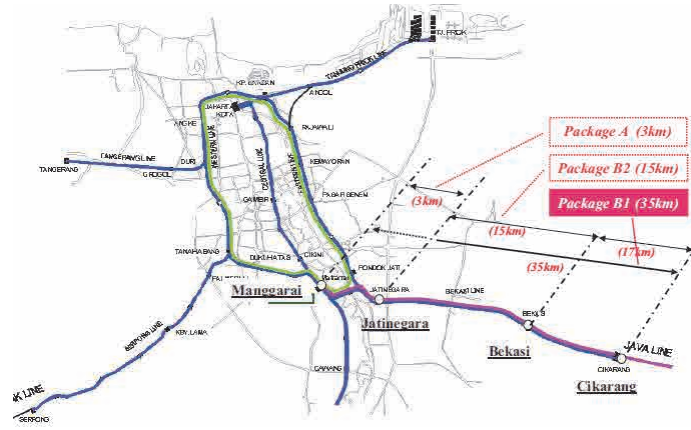
I-2 Safety review team members

- Team leader/Safety specialist : Hiroaki TOMITA
(International Project Management Service Co., Ltd.)
- Civil work specialist : Akira IWASHITA
(Katahira & Engineers International)

I-4 Outline of the projects

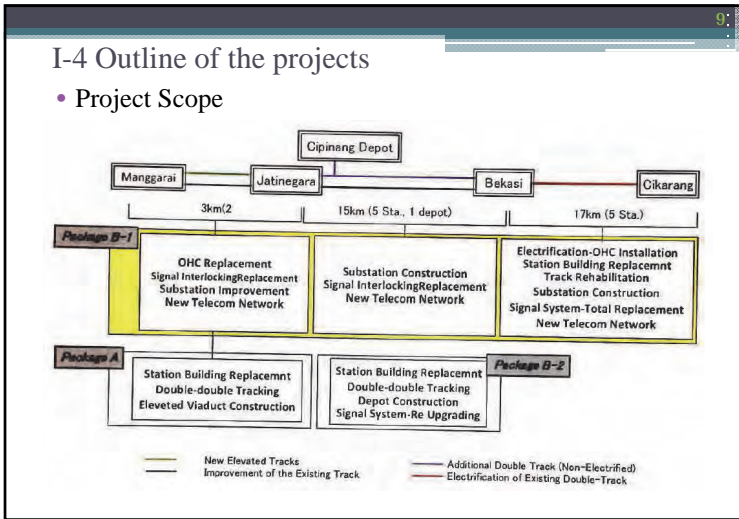
- Project Name
 - Railway Electrification and Double-Double Tracking of Java Main Line Project (I), Package B-1, Railway Facility Construction for Bekasi to Cikarang
- The Employer
 - Commitment Officer, Working Unit of Double Double Track (Ministry of Transport, Directorate General of Railways)
- The Engineer
 - Joint-Venture of
 - Oriental Consultants Co., Ltd. (OC)
 - Japan Railway Technical Service (JARTS(JIC))
 - Japan Transportation Consultants, Inc. (JTC)in association with PT. Inti Era Cipta, PT. Irec Rekayasa, PT. Inti Daya Kreasicitra and PT. Jaya CM
- The Contractor
 - MITUBISHI - SUMITOMO JOINT OPERATION (MSJO)
 - Mitsubishi Heavy Industries Ltd.
 - Sumitomo Corporation

I-3 Location map of projects to be reviewed



I-4 Outline of the projects

- Project Aims
 - To enhance transportation capacity and efficiency by separating a commuter line from a long-distance line along Bekasi Line of Java Main Line.
 - The scope of the project also includes electrification and extension of a commuter line from Bekasi to Cikarang, to deal with rapid increasing of transportation demand.



I-6 On sites safety review report

(1) Safety policy & target

- The Employer** : Commitment Officer, Working Unit of Double Double Track (Ministry of Transport, Directorate General of Railways)
 - Policy : Construction taking into account railway operation schedule
 - Target : Zero Accident

I-5 Schedule for the safety review

M	D	Time	Team Leader/Safety	Chief/Architect
		9:00 ~ 10:00	Mr. Masaki TOMITA	Mr. Akira FUJISHITA
			Departure for Naara (via Singapore) Arrival in Jakarta SQ175 ETD 13:40 ETA 17:10 SQ669 ETD 18:40 ETA 19:25	
		20:00 ~ 21:30	Traveling by car	
F	19	8:00 ~ 18:00	Draw Completion and Preparation for Report	
		8:00 ~ 10:00	Traveling by car	
F	19	10:00 ~ 11:30	Meeting with JICA	
		11:30 ~ 13:00	Traveling by car	
		13:00 ~ 14:30	Meeting with the Bosses	
		15:00 ~ 17:00	Stop Work	
		17:00 ~ 18:00	Traveling by car	
		18:00 ~ 19:00	Draw Completion	
		9:00 ~ 10:00	Traveling by car	
		10:00 ~ 11:30	Meeting with the Employer	
		11:30 ~ 13:00	Traveling by car	
		13:00 ~ 18:00	Drawing and document review with the Commission	
		16:00 ~ 17:00	Traveling by car	
		17:00 ~ 18:00	Draw Completion	
		8:30 ~ 9:30	Traveling by car	
		9:30 ~ 12:00	Preparation for Seminar	
		12:00 ~ 13:00	Traveling by car and hotel	
		13:00 ~ 16:00	Seminar at Employer's office (Singapore)	
		16:00 ~ 17:30	Traveling by car	
		17:30 ~ 19:30	Draw Completion	
			Departure for Jakarta JL 228 ETA 12:11 (13:30)	Departure for Jakarta PKS: 08 ETA 13:00 (16:30)
F	23	06:30 ~ 08:30	Arrival at Naara, Tokyo ETA 08:35	Arrival at Manila, Philippines ETA 05:25

I-6 On sites safety review report

(1) Safety policy & target

- The Engineer** : OC , JARTS (JIC) and JTC JV
 - Policy
 - To set the following clear and unambiguous terms of references to safety commitment and approach :-
 - Minimize accidents and incidents with zero fatality!
 - Continuously improve safe work conditions!
 - To familiarize and train, through the Main Contractor, all workers to understand the safety requirements for railway construction operations.
 - To instil, through the Main Contractor, into all workers that safety is a collective responsibility as Life is precious and priceless and therefore should be protected.
 - To have all policies implemented and enforced at all levels of organization.
 - To periodically review and analyze safety programmes for improvement, and upgrading should be done as a Management exercise.

I-6 On sites safety review report

(1) Safety policy & target

■ The Contractor : MSJO

◆ Policy :

- 1) To recognize that occupational health and safety will be given the highest practicable priority in all aspects of the Contract and in the discharge of our contractual obligations.
- 2) To assign a General Superintendent will be directly accountable in all matters of safety of the Site.
- 3) To recognize that every manager and personnel working on the project has a duty and responsibility for safety & health.
- 4) To abide by safety & health regulations throughout the project execution from design, engineering, procurement and construction through the completion of the Work.
- 5) To establish a safety & health management organization with clear definition of responsibilities and functions to ensure implementation of the safety & health management system.
- 6) To promote safety design in order to provide plant and facilities to Engineer with safety.
- 7) To perform safety & health activities of accident prevention at the construction site by reducing accident causes through specifying and assessment of hazardous elements and risk management.
- 8) To promote safety & health education and training for Mitsubishi-Sumitomo Joint Operation ("MSJO"), subcontractor and vendor personnel involved in the construction site in order to ensure understanding of the Project Safety & Health Policy and message awareness of safety & health matters.

I-6 On sites safety review report

(1) Safety policy & target

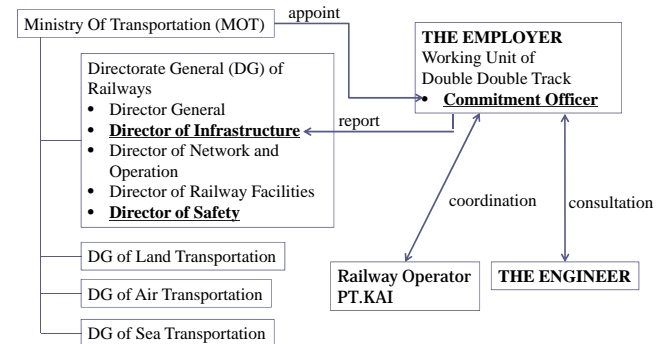
■ The Contractor : MSJO

◆ Target : No Accidents or Safety-Related Incidents, Every Accident is Preventable.

I-6 On sites safety review report

(2) Safety organization

■ The Employer



I-6 On sites safety review report

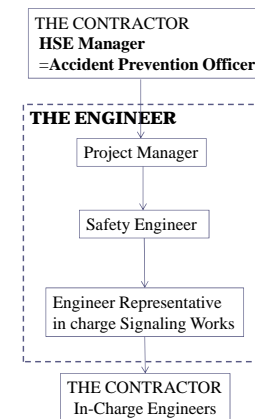
(2) Safety organization

■ The Engineer

The Contractor shall have...a **superintending officer** dealing only with all aspects regarding the **safety and protection against accidents** of all the Contractor's, the Employer's and the Engineer's staff and labor.

This officer shall be **qualified for the work** and shall **have authority to issue instruction to his own personnel** and **advise** the Employer and the Engineer with regard to their personnel and shall take all protective measures to prevent accidents.

(GCC Clause 34.7 **Accident Prevention Officer**)

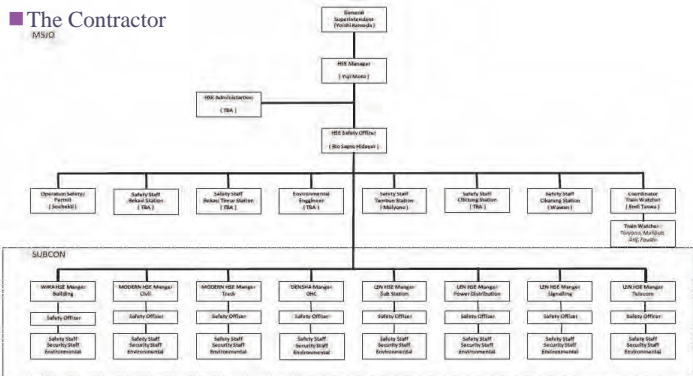


I-6 On sites safety review report

(2) Safety organization

The Contractor

MSJC



I-7 On-site photographs



Bekasi Station - Platform

I-6 On sites safety review report

(3) Safety track record

	The Contractor – Package B-1 (As of 31/Dec/2013)
Total Man-hours Worked	26,616
No of Lost Time Accidents (>4days)	0
Fatality	
Total Workdays Lost	0
FREQUENCY RATE	
Frequency Rate (Japan, Civil works)	0.00 (Civil :1.19, Railway: 1.15)
SEVERITY RATE	
Severity Rate (Japan, Civil works)	0.00 (Civil: 0.60, Railway: 0.85)

I-7 On-site photographs



Bekasi Station - Railway

I-7 On-site photographs



Bekasi Station - Train

I-7 On-site photographs



Cikarang Office - Signage

I-7 On-site photographs (CP1A)



Cikarang Station - Train

I-7 On-site photographs



Cikarang Office - Signage

I-7 On-site photographs



Cikarang Office - Signage

I-8 Safe management system of the projects

(1) Stakeholders' safety role

- The Employer (refer to reply to questionnaire)
 - Coordination with PT. KAI (Railway Operator)
- The Engineer (refer to the Engineer's Safety Management System)
 - Safety Work Practices
 - To **review and check** the contents of the procedures and give advice.
 - To **check** the list of statutory requirements to confirm the maintenance of the documents.
 - Safety Training
 - To **check** the records of training
 - Safety Committees
 - To **assign the Engineer's Safety Officer** to be the member of the committee
 - Safety Inspection
 - To **receive the results of safety inspections** carried out by the Contractor's competent person by the Engineer's Safety Officer

I-7 On-site photographs



Bekasi Station – Loadig Area

I-8 Safe management system of the projects

(1) Stakeholders' safety role

- The Contractor
 - General
 - In general **fully responsible** for all the temporary works and permanent works designed, constructed or installed by the Contractor... This responsibility includes **safety**. (GCC 8.2 (a))
 - To **give full regard to the safety of all persons** who has the authority to enter the work sites. This responsibility includes the installation of all signage, warning lights, posters, fencing, hoardings, posting of guards for the protection... and reporting .. (GCC 19.1)
 - To bear the burden of avoiding damage to roads or bridges attributable to the execution of the works and the immediate repair of such where damage do occur. (GCC 30.1)
 - To maintain health and safety at the work sites... ensuring that first aid and emergency facilities are in place.. (GCC 34.10)

I-8 Safe management system of the projects

(1) Stakeholders' safety role

■ The Contractor

Third Party Guarantees

- To has the contractual responsibility to indemnify the Engineer and the Employer against all claims through a third party insurer under the terms approved by the Employer, with most of the works to be performed under an operating railway system. (GCC 23.4)
- To has the contractual responsibility to insure against all claims emanating from or death of workmen through a third party insurer approved by the Employer. (GCC 24.1)

I-8 Safe management system of the projects

(1) Stakeholders' safety role

■ The Contractor

General Conditions of Contract (Clause 4.1 Subcontracting)

- The Contractor shall not subcontract the whole of the Works.
- Except where otherwise provided by the Contract, the Contractor shall not subcontract any part of the Works without the prior consent of the Engineer.
- Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and
- he shall be responsible for the acts, defaults and neglects of any Subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

I-8 Safe management system of the projects

(1) Stakeholders' safety role

■ The Contractor

Specific Duty Allocation

- Within the DDT Package B1 projects, the HSE Manager is the Accident Prevention Officer or any of his designates. (GCC 34.7)

Implementation

- To prepare the project's Safety Management Program which is generated, submitted and approved as "Site Health and Safety Plan".
- The plan covers:-
 - The project's safety organization,
 - Safety measurement points and control,
 - Inspection and monitoring,
 - Accident prevention measures and
 - The reporting and maintenance of safety records

I-8 Safe management system of the projects

(2) Safety Management Plan

- The Contractor prepares the project's Safety Management Program which is generated, submitted and approved as "Site Health and Safety Plan. (TS 1.04 (3) Safety Management Program)
- The plan shall cover:-
 - ① Safety Organizations and Communication
 - ② Safety Measurement Points and Control
 - ③ Inspection and Monitoring
 - ④ Accident Prevention Measures
 - ⑤ Reporting and Maintenance of Safety Records
- The Safety Management Program was submitted on 30/Jan/13 and approved on 15/Apr/13.

I-8 Safe management system of the projects

(3) Routine safety activities : Inspection / Monitoring

Activity	Frequency	Attendance	Media of Record/Report	Reference
Routine Safety Inspection	Daily	MSJO Safety Officer	Job Safety Analysis Sheet	Presidential Decree
Regular Statutory Inspection for Plant, Cranes, Lifting Equip. and Electrical Equip	As required	MSJO Safety Officer	Daily Report	Inspection Certificate
Routine Inspection for Scaffolding and Working Platform	Daily	MSJO Safety Officer	Under review	Site Health & Safety Plan
Environment, Health and Safety Inspection	Weekly and Monthly	MSJO and Subcontractor's Safety Officer	Under review	Site Health & Safety Plan
Weekly Monitoring	Weekly	MSJO and Subcontractor's Safety Officer	Under review	Site Health & Safety Plan

I-8 Safe management system of the projects

(4) Safety promotion and training

■ The Employer : Training (by Director of Safety) for:-

- Site Manager of the Contractors?,
 - The Engineer?,
 - The person in charge of the project management of the Employer?
- in order to enhance the capacity of inspection and supervision to secure safety for train operation during construction on the track?

I-8 Safe management system of the projects

(3) Routine safety activities : Communication

Meeting	Frequency	Attendance	Reference
Pre-start Meetings on award of packages	As needed	MSJO and Subcontractor	
Progress Meetings	Monthly	MSJO and Subcontractor	Monthly Progress Report
Health and Safety Committee Meetings	Monthly	MSJO and Subcontractor	Site Health & Safety Plan
Serious Accident / incident Meeting	As needed	MSJO and Subcontractor	Site Health & Safety Plan
Environment, Health and safety Consultation Meetings	As needed	MSJO	Site Health & Safety Plan
Management Meeting	Semi annual	MSJO	Management Review Procedure
Construction Meeting	Weekly	MSJO and Subcontractor	Site Health & Safety Plan
Safety Meeting to inform of Preventive and Mitigate Action for Safety	As needed	MSJO and Subcontractor	Site Health & Safety Plan
Tool Box Meeting	Daily	MSJO and Subcontractor	Site Health & Safety Plan
Task Briefing	As needed	MSJO and Subcontractor	

I-8 Safe management system of the projects

(4) Safety promotion and training

■ The Contractor : Safety Induction Training for New Staffs.

- All person must complete this safety induction before enter to the site.
- Purpose and Scope

The purpose of this procedure is to ensure that all employees and sub-contractors personnel are generally aware of the safety and health regulations and requirement being enforced at the workplace. The safety induction shall also cover action required during incident or emergency and emergency evacuation procedure. This procedure shall apply to all worksite where the company operates.

I-8 Safe management system of the projects

(4) Safety promotion and training

■ **The Contractor : Safety Induction Training for New Staffs.**

➢ Safety Induction Objectives

- To ensure each and every individual, understands the basic requirements of HSE, prior to commencing of works
- **ZERO ACCIDENTS**
- Understand the Hazards & Risk involved in the construction, electrification and testing process
- Permit to work system
- Emergency response Environmental control
- A clean site is a safe site
- Safety is everybody's responsibility Understand

I-8 Safe management system of the projects

(5) Incentive and penalty scheme

■ **The Employer :**

- ◆ To be fined and pay damages, if the Contractors fail in completion within window time agreed causing delay in railway operation
- ◆ To be added to the list of poor performance Contractors of the Employer

I-8 Safe management system of the projects

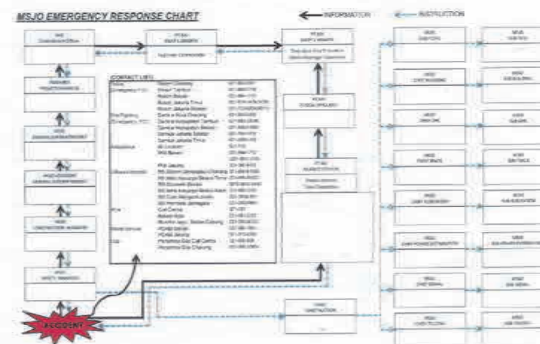
(5) Incentive and penalty scheme

■ **The Contractor**

- ◆ Penalty : To follow in clause 13.5 of "Site Health and Safety Plan" whenever they had any safety violations at site.
- ◆ Incentive : **Safety award** ceremony inviting the best result of subcontractor at every month.

I-8 Safe management system of the projects

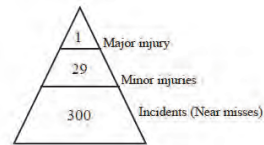
(6) Emergency Procedure



I-10 Heinrich's Law

Behind one major injury accident, there are **29** minor injury accidents and **300** minor incidents (**Near Misses**) accidents that do not result in injuries as shown below

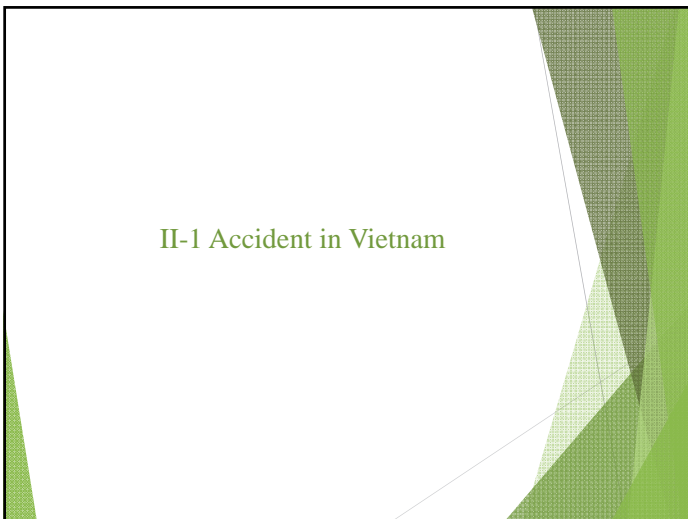
- The "**Near Misses**" are the potential to be more serious incidents.
- Of course, not all **Near Misses** cause fatal or serious injury.
- However, if appropriate actions are taken at this level, potential of more serious injuries will be reduced dramatically.



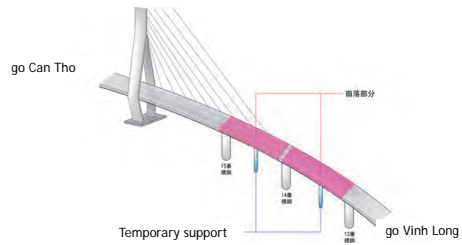
End
of
Part I

I-11 Key Points

- **Information Sharing** among stakeholders and among each organization
 - To ensure role of each stakeholders and each element of organization to allow them to recognize their role and fulfil their obligation
 - Establishment of workplace in free atmosphere is essential.
- **Bottom Up from Site** to verify actual safety management situation and find facts at site to enhance communication system among stakeholders
 - Final products to be provided at site
 - Safety management to be implemented at site
- **Continual improvement** by applying **PDCA**.(Plan-Do-Check-Action cycle)
 - "A" may be "Adjust" to rectify the difference between the current and the planned and/or modify PLAN to meet the actual condition at site.



Can Tho bridge collapsed portion

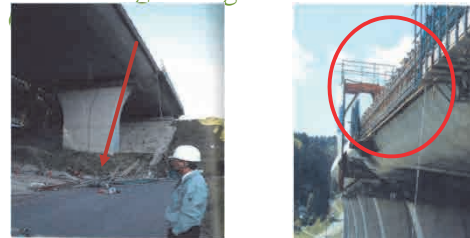


II-2 Accidents in Japan

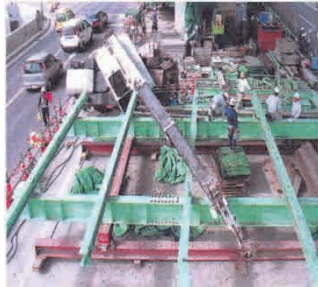
Accident in Japan case 1 Girder collapsed in Gunma prefecture (Jun.2002)



Accident in Japan case 2 Scaffolding falling down in Shizuoka prefecture

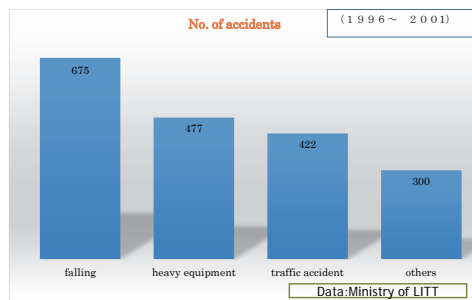


Accident in Japan case 3
Crane falling down in Kagawa
prefecture(Oct.2001)



II-3 Safety Preventive Measures
in Japan

Three main category of construction accidents



Safety Preventive Measures
Falling

Safety preventive measure ① Falling protection net



Pre-installation of falling protection net



Pre-installation of handrail



Installation completed

Safety preventive measure ② Protection of tumbling

Device installation for protection of tumbling



Safety preventive measure ③ Protection of falling

Device installation for protection of falling

Before installation



After installation



Safety Preventive Measures
Heavy Equipment

Safety preventive measure ④ Protection of tumbling

Device installation for protection of pinching



Safety preventive measure ⑤ Protection of catching

Device installation for protection of catching



Safety preventive measure ⑥ Protection of stealing

Device installation for protection against stealing



Safety Preventive Measures
Traffic Accidents

Safety preventive measure ⑦ Protection of traffic accident

Installation of traffic control robot



Safety preventive measure ⑧ Protection of traffic accident

Installation of movable guard rail



Safety preventive measure ⑨ Protection of traffic accident

Traffic control vehicle



Safety Preventive Measures Meeting

Safety preventive measure ⑩ Safety meeting

Education and training meeting for safety



Safety preventive measure ⑪ Morning meeting

Daily kickoff meeting for safety



End
of
Part II

Appendix-2 : Questionnaires and answers

Questionnaire for Safety Control/Management for the Employer

(1) Safety Policy & Target: Please explain the Employer's safety policy & target

The parties involve into project comprising the Employer, Supervision Engineer, Contractors and Sub-contractors shall undertake all measures to ensure safety for train operation and labor safety in the working sites with absolutely manner.

(2) Safety Organization: Please explain the Employer's safety organization such as department, staff members

VNR has Railway Traffic Safety Department and the Center for Emergency Response of Natural Disaster and Railway Rescue. These units inspect and supervise the implementation of safety of Railway Management Companies, Contractors carrying out the construction on all track routes of VNR.

RPMU does not have specific department in charge of safety, but each Project Management Team shall carry out safety control for each project and follow general safety policies as mentioned above.

(3) Safety Track Record: Please provide statistic data related construction accident, if any

None.

(4) Employer's Safety Role: Please explain safety role for this project

As mentioned above, train operation safety and safety on the construction sites is a top priority of the Employer. In Bidding Documents of each package, the Employer set forth requirements and evaluation criteria specifically to policies, awareness and experience of each bidder to ensure the safety railway traffic, road, river and labor safety. Only bidders who have a good understanding of work safety and other requirements of the Bidding Documents shall be selected.

(5) Routine Safety Activities: Please explain safety activities for this project

Before starting the implementation of each package, the contractor is required to submit a Safety Control Plan for the Consultant to review & acceptance and for the Employer to approve prior to implementation of construction at site.

During construction process, the Contractors, Employer often appoint their representatives to involve in the Safety Patrol which are held once a month. And in order to serve for the inspection and supervision of activities for construction safety, safety of the train operation of the Contractors, the Supervision Consultant shall prepare form to assess the risky level of each work items undertaken by the Contractors and then give recommendations to ensure safety.

The Employer also regularly issue instruction letter to Consultants & Contractors to enhance inspection and supervision to ensure safety, especially during the holidays.

(6) Safety Promotion and Training: Please explain safety promotion and training for this project

In order to enhance the capacity of inspection and supervision to secure safety for train operation during construction on the track, the Employer held training session, training (by the Railway Vocational Training) for the Site Managers of the construction Contractors, Supervision Consultants, the person in charge of the project management of the Employer. Participants are trained, tested and provided with certificates in 2011.

(7) Incentive and Penalty Scheme: Please explain incentive and penalty scheme

During the construction process, if the Contractors fail in ensuring the construction safety and train operation safety, and the relevant units directly involved in the construction will be fined and have to pay damages under the provisions of the Railway Vietnam. At the same time, such Contractors and the construction companies will be added to the list of poor performance Contractors of Employer.

(8) Emergency Procedures: Please explain procedure if emergency has happened

The Contract clearly specified that the Contractor shall immediately report detailed consultation accidents and preventive measures similar types of accidents. In case of serious accident or death, the Contractor shall immediately notify the Consultant, the Employer and the relevant functional units of local authorities. The way the message will be discussed and agreed to include in the Safety Control Plan.

End.

Questionnaire for Safety Control/Management for Engineer in Vietnam

(1) Safety Policy & Target: Please describe it by means of Email.

1. Train operation safety
2. Safe workmanship
- 3.

(2) Safety organization: Please provide it by means of Email.

No particular safety organization, but the Environment Specialist of the Consultants takes also care of safety matter.

(3) Safety track record: Please fill up below.

	CP 1 A (As of 30/Nov/2013)	CP 1C (As of 30/Nov/2013)
Total Man-hours Worked	627,000 man-hours	1,201,600 man-hours
No of Lost Time Accidents (>4days)	No reported	No reported
Fatality		
Total Workdays Lost		
FREQUENCY RATE	0	0
SEVERITY RATE	0	0

(4) Engineers' safety role: Please describe safety role stipulated in Contract.

In Consulting Contract, general descriptions for safety are described as follows:

“General responsibilities of the Engineer are supervision of Contractor(s) basing on approved construction contract(s) to meet Employer’s requirements in aspects of quality, timing, price and safety; and other requirements as stated hereunder. -----but not limited to; -----

No.5 . To audit of the Quality Assurance Plan, Safety Control Plan and review, monitoring of the procedures executed by Contractors”

(5) Safety Management Plan: Please describe it briefly or show us at the site.

Contractors of each package submit his Safety Management Plan before starting construction works for the Engineer’s acceptance and the Employer’s approval, but they are usually stereotype ones.

Beside, Method Statement for each work item submitted by the Contractor for approval by the Engineer also includes safety plan for each particular work item, and the Engineer sometimes requests to supplement some additional measures to prevent the accident.

(6) Routine safety activities: Please fill up an attached “Routine work”

Described in Safety Management Plan

Especially, for the train operation safety the Engineer requests and checks the survey of railway facility movements such as track, bridge and railway bed on or adjacent the train operation line every month to detect risks of derailment.

(7) Safety promotion and training: Please describe briefly by means of Email.

Described in Safety Management Plan

(8) Incentive and penalty scheme: Please describe it briefly by means of Email.

In this Project, primary target is train operation safety, and when some incidents happen to prevent the train operation some penalty is imposed to the relevant subcontractor and not to the main Contractor in accordance with the VNR regulations.

(9) Emergency procedures: Please describe it briefly by means of Email.

Described in Safety Management Plan as emergency communication scheme

End.

Engineer's routine Activity in Vietnam

Routine Activity

INSPECTION AND MONITORING				
Activity	Frequency	Attendance	Media of Record/Report	Reference
Routine Safety Inspection	every day	Environment/Safety Specialist and site supervisors	Notification letter of violence with photo	
Regular Statutory Inspection for Plant, Cranes, Lifting Equip. and Electrical Equip				
Routine Inspection for Scaffolding and Working Platform				
Environment, Health and Safety Inspection	Environment monitoring each 3 months	Environment/Safety Specialist	Notification letter of violence with photo	by the Contract
Weekly Monitoring				

The following regular meeting are established and being held to maintain timely and effective communication among management, staff, sub-contractors and workers.

COMMUNICATION			
Meeting	Frequency	Attendance	Reference
Pre-start Meetings on award of packages	1~2 times as kick-off meeting	all relevant staff from the Employer, the Engineer and Contractor	
Progress Meetings	each 2 months	all relevant staff from the Employer, the Engineer and Contractor	
Health and Safety Committee Meetings	safety patrol of each 2 months	all relevant staff from the Engineer and Contractor	
Serious Accident / incident Meeting			
Environment, Health and safety Consultation Meetings			
Management Meeting			
Construction Meeting	each another week	all relevant staff from the Engineer and Contractor	
Safety Meeting to inform of Preventive and Mitigate Action for Safety	Ad-hoc		
Tool Box Meeting			
Task Briefing			

Abbreviation

Questionnaire for Safety Control/Management for Contractor CPIA in Vietnam

(1) Safety Policy & Target: Please describe it by means of Email.

Safety Target:

- 2012 “No Equipment Accident”
- 2013 “No Crane Accident” and “No Fall-down Accident”
- 2014 “No Crane Accident” and “No Fall-down Accident”

(2) Safety organization: Please provide it by means of Email.

From Safety Control Plan

(3) Safety track record: Please fill up below.

	CP 1 A (As of 30/Nov/2013)	CP 1C(As of 30/Nov/2013)
Total Man-hours Worked	700.552,00	
No of Lost Time Accidents (>4days)	0,00	
Fatality	0,00	
Total Workdays Lost	0,00	
FREQUENCY RATE	0,00	
SEVERITY RATE	0,00	

(4) Contractors’ safety role: Please describe safety role stipulated in Contract.

Based on General Conditions and Particular Conditions - The Contractor shall, throughout the execution and completion of the Works and the remedying of any defects therein:

- (a) have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons,
- (b) provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others, and
- (c) take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation.
- (d) All legitimate measures shall be applied for protection of environment in and around the work site with proper steps of execution in compliance with the technical specifications and the recommendations shown in the Environmental Impact Assessment (EIA), which has been approved by Ministry of National Resource and Environment (MONRE) in relation with execution of the works in order to protect the environment in and around the work site to avoid harm to the people and public facilities or others due to pollution, noise and others generated by the Contractor’s construction method. The Contractor shall take his responsibilities for implementation of the Environment Management Program (EMP) as stipulated by EIA in Detailed Design stage. In case of seriously harmful impact occurring to surrounding environment due to execution of the works, the Contractor shall apply immediately correction without delay work progress and inform the impact to the Engineer, Employer and MONRE or local national resource and environment authority.

(5) Safety Management Plan: Please describe it briefly or show us at the site.

Filed in “HSE DOCUMENT” File

(6) Routine safety activities: Please fill up an attached “③Routine work”

1. Daily Coordination Meeting - JV & Representative of Subcontractor, Cienco 1
2. Weekly Internal Meeting - JV & Representative of Subcontractor, All Sub-contractors and petty-contractors
3. Monthly Internal Meeting - JV Site Representatives & Representative of All Sub-contractors and petty-contractors
4. Monthly Safety Patrol - JV Site Representatives & Representative of All Sub-contractors and

- petty-contractors
5. Joint Safety Patrol, every 02 months - JV Consultant Representative and JV Site Representatives & Representative of All Sub-contractors and petty-contractors
 6. Daily Safety Patrol, JV and HSE officer,

(7) Safety promotion and training: Please describe briefly by means of Email.

1. Training for Crane Operator on 2013/4/25
- 2.
- 3.

(8) Incentive and penalty scheme: Please describe it briefly by means of Email.

Notification, Request, Warning, Instruction, Replacement

(9) Emergency procedures: Please describe it briefly by means of Email.

Mentioned in "SAFETY CONTROL PLAN" of MRTC1 JV

(10) List of subcontractor: Please provide it by means of Email.

See "(10) 131221 List of Subcontractors for the Construction of CP1A"

End.

Routine Activity

INSPECTION AND MONITORING				
Activity	Frequency	Attendance	Media of Record/Report	Reference
Routine Safety Inspection	If necessary	JV Member HSE Officer Subcontractor		
Regular statutory inspection for Plant, Cranes, Lifting Equip. and Electrical Equip	If necessary	JV Member HSE Officer Subcontractor		
Routine Inspection for Scaffolding and Working Platform	If necessary	JV Member HSE Officer Subcontractor		
Environment, Health and Safety Inspection	If necessary	JV Member HSE Officer Subcontractor		
Weekly Monitoring	If necessary	JV Member HSE Officer Subcontractor		

The following regular meeting are established and being held to maintain timely and effective communication among management, staff, sub-contractors and workers.

COMMUNICATION				
Meeting	Frequency	Attendance		Reference
Pre-start Meetings on award of packages	If necessary	RPMU + JOJ + JV		Progress Report
Progress Meetings	If necessary	RPMU + JOJ + JV		Progress Report
Health and Safety Committee Meetings	If necessary	JV Member HSE Officer Subcontractor		
Serious Accident / incident Meeting	If necessary			
Environment, Health and safety Consultation Meetings	If necessary	JV Member Subcontractor	HSE Officer	
Management Meeting	If necessary	JV Board Member		
Construction Meeting	If necessary	JV Member HSE Officer Subcontractor		
Safety Meeting to inform of Preventive and Mitigate Action for Safety	If necessary	JV Member HSE Officer Subcontractor		
Tool Box Meeting	If necessary	JV Member HSE Officer Subcontractor		
Task Briefing	If necessary	JV Member HSE Officer Subcontractor		

Abbreviation

Questionnaire for Safety Control/Management for Contractor CP1C in Vietnam

(1) **Safety Policy & Target:** Please describe it by means of Email.

Death Accident “ 0 “

Machinery Accident “0”

(2) **Safety organization:** Please provide it by means of Email.

Project Manager, Project Site Manager, Construction Manager, Health, Safety and Environment Officer, Site Engineer, Sub Contractor and Operators / Workers have duties and responsibilities for safety individually.

(3) **Safety track record:** Please fill up below.

	CP 1 A (As of 30/Nov/2013)	CP 1C(As of 30/Nov/2013)
Total Man-hours Worked		1,411,200h
No of Lost Time Accidents (>4days)		0
Fatality		0
Total Workdays Lost		0
FREQUENCY RATE		0
SEVERITY RATE		

(4) **Contractors’ safety role:** Please describe safety role stipulated in Contract.

The Contractor shall take fully responsibility for the adequacy, stability and safety of all Site operations and methods of construction. (GCC. 8.2)

(5) **Safety Management Plan:** Please describe it briefly or show us at the site.

Safety Control Plan was prepared and describe over all safety plan for project. This document was submitted to the Engineer and approved by the Engineer.

(6) **Routine safety activities:** Please fill up an attached “③Routine work”

Please see attached 3 Routine work.

(7) **Safety promotion and training:** Please describe briefly by means of Email.

1. Project Site Manager, Technical Manager, Technical Engineer, HSE officer, QA QC Specialist and Team Leaders of Subcontractors were attended Rail Way Construction Safety Seminar which was organized by VNR, and got certificate form VNR.

2. Crane operation safety seminar was organized by Joint Venture. All crane operators were attended.

3. Before carrying out track switching, operation and safety seminar was organized by Joint Venture.

(8) **Incentive and penalty scheme:** Please describe it briefly by means of Email.

Joint Venture gave safety award (gift and bonus) for incentive

(9) **Emergency procedures:** Please describe it briefly by means of Email.

Emergency communication network and accident communication line and contact relation parties are mentioned in Safety Control Plan.

(10)**List of subcontractor:** Please provide it be means of Email.

Construction No.1 JSC – Cienco1

Construction 120 – Cienco1

Mechanical Construction 121 – Cienco1

Bridge 17 – Cienco1

Construction 116 – Cienco1

Rail way Construction Company

End.

Routine Activity

INSPECTION AND MONITORING				
Activity	Frequency	Attendance	Media of Record/Report	Reference
Routine Safety Inspection	Every month	PM, PSM, CM	Safety Report	
Regular Statutory Inspection for Plant, Cranes, Lifting Equip. and Electrical Equip	Every month	Construction Engineer, HSE officer and Supervisor of the Engineer	Acceptance minutes of work item	
Routine Inspection for Scaffolding and Working Platform	Every month	PM, PSM, CM	Safety Report	
Environment, Health and Safety Inspection	Every month	PM, PSM, CM	Environment Report	
Weekly Monitoring	Every week	HSE officer		

The following regular meeting are established and being held to maintain timely and effective communication among management, staff, sub-contractors and workers.

COMMUNICATION			
Meeting	Frequency	Attendance	Reference
Pre-start Meetings on award of packages	Before start Project	PM, PSM, CM, Site Engineer and Directors of sub contractors	
Progress Meetings	Every two month	PM, PSM, CM, Site Engineer and Directors and Team Leaders of sub contractors	
Health and Safety Committee Meetings	Every two month	Same of Progress Meeting	
Serious Accident / incident Meeting	No (On occasion)	PM, PSM, CM, Site Engineer and Directors and Team Leaders of sub contractors	
Environment, Health and safety Consultation Meetings	Every two month	Same of Progress Meeting	
Management Meeting	Every two month	Same of Progress Meeting	
Construction Meeting	Every two month	Same of Progress Meeting	
Safety Meeting to inform of Preventive and Mitigate Action for Safety	Before start new work	PM, PSM, CM, Site Engineer and Directors and Team Leaders of sub contractors	
Tool Box Meeting	Every day	Team Leader and workers	
Task Briefing	Before start new work	Team Leader and workers	

Questionnaire for Safety Control/Management for Engineer in Indonesia

(1) Safety Policy & Target: Please describe it by means of Email.

- ✧ We will set clear & unambiguous terms of references to safety commitment and approach: They are,
 - Minimize accidents and incidents with zero fatality!
 - Continuously improve safe work conditions!
- ✧ We will familiarize and train, through the Main Contractor, all workers to understand the safety requirements for railway construction operations.
- ✧ We will instil, through the Main Contractor, into all workers that safety is a collective responsibility as Life is precious and priceless and therefore should be protected.
- ✧ We will have all policies implemented and enforced at all levels of organization.
- ✧ We will periodically review and analyze safety programmes for improvement, and upgrading should be done as a Management exercise.

(2) Safety organization: Please provide it by means of Email.

Please see attached safety organization for the Engineer.

(3) Safety track record: Please fill up below.

	As of 30/Nov/2013
Total Man-hours Worked	9,580 (As of 30/Nov/2013)
No of Lost Time Accidents (>4days)	
Fatality	0
Total Workdays Lost	0
FREQUENCY RATE	0
SEVERITY RATE	0

(4) Engineers' safety role: Please describe safety role stipulated in Contract.

(5) Safety Management Plan: Please describe it briefly or show us at the site.

Please refer to the attached "Engineer's Safety Management System".

(6) Routine safety activities: Please fill up an attached "Routine work"

Please refer to the attaché "Engineer's Safety Management System", Section 2: Safety Work Practices.

(7) Safety promotion and training: Please describe briefly by means of Email.

Please refer to the attaché "Engineer's Safety Management System", Section 3 and Section 7.

(8) Incentive and penalty scheme: Please describe it briefly by means of Email.

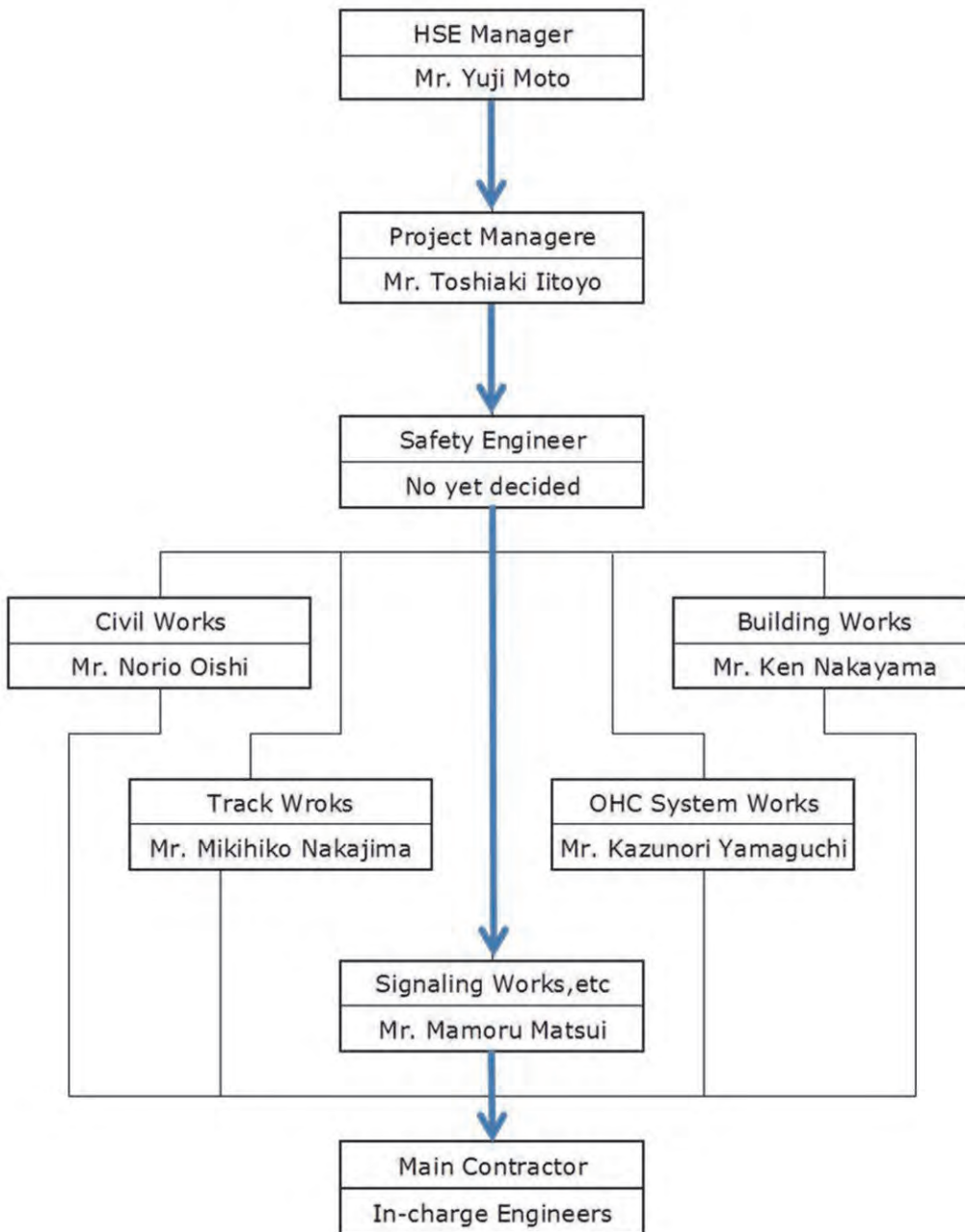
We do not have these schemes in our safety management system, because we will not directly handle labors on site.

(9) Emergency procedures: Please describe it briefly by means of Email.

Please refer to the attached "Engineer's Safety Management System", Section 10: Emergency Preparedness.

End.

Engineer's Safety Organization



Questionnaire for Safety Control/Management for Contractor

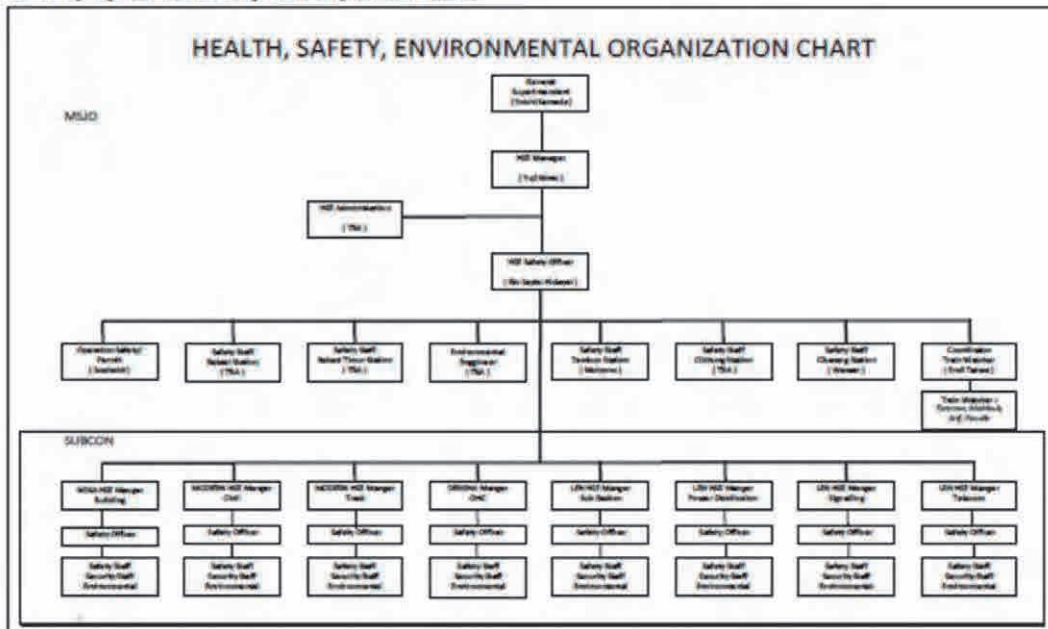
(1) **Safety Policy & Target:** Please describe it by means of Email

Project Safety & Health Policy

- 1) To recognize that occupational health and safety will be given the highest practicable priority in all aspects of the Contract and in the discharge of our contractual obligations.
- 2) To assign a General Superintendent will be directly accountable in all matters of safety at the Site.
- 3) To recognize that every manager and personnel working on the project has a duty and responsibility for safety & health.
- 4) To abide by safety & health regulations throughout the project execution from design, engineering, procurement and construction through the completion of the Work.
- 5) To establish a safety & health management organization with clear definition of responsibilities and functions to ensure implementation of the safety & health management system.
- 6) To promote safety design in order to provide plant and facilities to Engineer with safety.
- 7) To perform safety & health activities of accident prevention at the construction site by reducing accident causes through specifying and assessment of hazardous elements and risk management.
- 8) To promote safety & health education and training for Mitsubishi-Sumitomo Joint Operation ("MSJO"), subcontractor and vendor personnel involved in the construction site in order to ensure understanding of the Project Safety & Health Policy and increase awareness of safety & health matters.

MSJO's Safety & Health Goal : No Accidents or Safety-Related Incidents, Every accident is preventable.

(2) **Safety organization:** Please provide it by means of Email.



(3) Safety track record: Please fill up below.

	(As of 31/Dec/2013)
Total Man hours Worked	26,616
No of Lost Time Accidents (>4days)	0
Fatality	0
Total Workdays Lost	0
FREQUENCY RATE	0
SEVERITY RATE	0

(4) Contractors' safety role: Please describe safety role stipulated in Contract.

Responsibility Criteria	Contract Reference	MSJO's Safety Role Description
General	General Conditions of Contract, Clause 3.2 (a)-Site Operations and Methods of Construction	MSJO in general is fully responsible for all the temporary and permanent works we have designed and have constructed or installed. The Engineer, in approving such works, is not party to the liability for such works. This responsibility includes safety.
	General Conditions of Contract,	During the execution of the works until completion, MSJO gives full regard to the safety of

Responsibility Criteria	Contract Reference	MSJO's Safety Role Description
	Clause 19.1-Safety, Security and Protection of the Environment	all persons who has the authority to enter the work sites. This responsibility includes but are not limited to, the installation of all signage, warning lights, posters, fencing, boardings, posting of guards for the protection of the works, those with authority to access the sites and the public, and the reporting of incidents relating thereto. In the same manner, such provisions also covers the protection of the environment which include avoiding inconveniences to the riding public or to the inhabitants living close to the work sites, the aggravation of pollution of all forms or damage to private or public properties. The applicable laws or regulations in Indonesia governs this stated responsibilities.
	General Conditions of Contract, Clause 30.1-Avoidance of Damage to Roads	MSJO bears the burden of avoiding damage to roads or bridges attributable to the execution of the works and the immediate repair of such where damage do occur. This responsibility includes the careful study for the use of public or private roads and the management of the traffic therat.
Health Aspect	General Conditions of Contract, Clause 34.10-Health and Safety	MSJO maintains health and safety at the work sites in collaboration with the requirements of local health authorities, ensuring that first aid and emergency facilities are in place, including the prevention of disease outbreaks and epidemics as well as the practice and maintenance of proper hygiene.
	General Conditions of Contract, Clause 34.11-HIV Prevention Program	MSJO develops and implement a program for the prevention of HIV on the work sites and in its immediate vicinity. The program in general covers the education of personnel through class room instructional and posted/boxed advertisements, voluntary testing and

Responsibility Criteria	Contract Reference	MSJO's Safety Role Description
		counselling whenever necessary and endorsements to relevant government entities. Third party organizations or entities with proper experience and accreditation are to be utilized for this requirement.
	General Conditions of Contract, Clause 34.12-Control of Epidemics	MSJO cooperates with the mandate of relevant government entities on this particular aspect for the purpose of controlling and eradicating epidemics.
Third Party Guarantees	General Conditions of Contract, Clause 23.4-Accident to Railway, Freight and Passengers	With most of the works to be performed under an operating railway system, MSJO has the contractual responsibility to indemnify the Engineer and the Employer against all claims through a third party insurer under the terms approved by the Employer.
	General Conditions of Contract, Clause 24.1-Accident or Injury to Workmen and Clause 24.2-Insurance Against Accident etc. To Workman	MSJO has the contractual responsibility to insure against all claims emanating from injuries or death of workmen through a third party insurer approved by the Employer. The Employer will be indemnified in this respect.
Specific Duty Allocation	General Conditions of Contract, Clause 34.7-Accident Prevention Officer	The position mandates for the overseeing safety and protection against all accidents for all the MSJO, the Engineer's, the Employer's employees and all other persons and properties that is affected by the project. Within the DDT Package B1 project, the HSE Manager is the Accident Prevention Officer or any of his designates.
Orderliness, Discipline and Control	General Conditions of Contract, Clause 34.16-Disorderly Conduct	MSJO is responsible for the preservation of peace and order at its work sites, and the protection of properties thereof. This includes the prohibition of the use of alcoholic

Responsibility Criteria	Contract Reference	MSJO's Safety Role Description
	General Conditions of Contract, Clause 34.17-Alcoholic Liquor and Drugs	beverages, drugs and dangerous weapons at the work sites.
	General Conditions of Contract, Clause 34.18-Arms and Ammunition	
Implementation	Technical Specifications, Section 1.04, Clause (3)-Safety Management Program	MSJO prepares the project's Safety Management Program which is generated, submitted and approved as "Site Health and Safety Plan". The plan covers the project's safety organization, safety measurement points and control, inspection and monitoring, accident prevention measures, and the reporting and maintenance of safety records.

(5) Safety Management Plan: Please describe it briefly or show us at the site.

MSJO's Site Health and Safety Plan was conceived and generated with the requirements of the Contract and the local laws and regulation in mind.

The plan gives an insight into the following:

- a) Safety organization of the project.
- b) The allocation and definition of responsibilities for each person designate.

- c) The basic health and safety objectives of the project,
- d) Health and safety policies,
- e) Implementation scheme and policies;
- f) Interaction scheme with other project groups or entities,
- g) Inspection and monitoring policies, methods, procedures and frequencies,
- h) Routine, follow up and special or emergency meeting schedule and criteria,
- i) Health and safety aids for example posters, hand outs and information dissemination,
- j) First aid and emergency procedures,
- k) Traffic rules, control and protection of roads and other properties,
- l) Basic and important operational guidelines for equipment, work platforms, handtools, use of fuel or gas or compressed gasses,
- m) Periodic and daily reporting,
- n) Accident or incident investigation and reporting,
- o) Daily and routine health and safety meeting, Tool Box Talk as an example,
- p) Induction or training policies and programs,
- q) Fire prevention, drills or evacuation procedures,
- r) Assessment and mitigation of risks,
- s) Control policies for project subcontractors,

t) Keeping and maintenance of records,

(6) Routine safety activities: Please fill up an attached "Routine work"
Please refer to "Routine work".

(7) Safety promotion and training: Please describe briefly by means of Email.
MSJO conduct general safety training for new staffs. All person must complete this safety induction before enter to the site.

(8) Incentive and penalty scheme: Please describe it briefly by means of Email.
MSJO will follow in clause 13.5 of "Site Health and Safety Plan" whenever they had any safety violations at site. On the other hand, MSJO will plan to have safety award ceremony invite best result of sub-contractor at every month. This ceremony is for internal only.

(9) Emergency procedures: Please describe it briefly by means of Email.
MSJO prepared the emergency response chart when accident is occurred at site. The Emergency response chart is mentioned that communication route including hospital, police and fire fighting. Emergency action procedure will be attached each method statement. Accident/Incident investigation and reporting procedure will follow "Site Health and Safety Plan" at clause 11.

(10) List of subcontractor: Please provide it by means of Email.

- > Civil Work; PT. Modern Surya Jaya
- > Building Work; PT. Wijaya Karya

- Track Work: PT. Modern Surya Jaya
- OHC Work: PT. Densha Indoguna Jaya
- Sub-station System Work; PT. Len Industri Building
- Power Distribution System Work; PT Len Industri Building
- Signalling System Work; PT. Len Industri Building
- Telecommunication System Work; PT. Len Industri Building

End.

INSPECTION AND MONITORING				
Activity	Frequency	Attendance	Media of Record/Report	Reference
Routine Safety Inspection	Daily	MSJO Safety Officer	Job Safety Analysis Sheet	Presidential Decree
Regular Statutory Inspection for Plant, Cranes, Lifting Equip and Electrical Equip	As required	MSJO Safety Officer	Daily Report	Inspection Certificate
Routine Inspection for Scaffolding and Working Platform	Daily	MSJO Safety Officer	Not yet	Site Health & Safety Plan
Environment, Health and Safety Inspection	Weekly and Monthly	MSJO and Subcontractor Safety Officer	Not yet	Site Health & Safety Plan
Weekly Monitoring	Weekly	MSJO and Subcontractor Safety Officer	Not yet	Site Health & Safety Plan

The following regular meeting are established and being held to maintain timely and effective communication among management, staff, sub-contractors and workers.

COMMUNICATION			
Meeting	Frequency	Attendance	Reference
Pre-start Meetings on award of package(s)	As needed	MSJO and Subcontractor	Routine
Progress Meetings	Monthly	MSJO and Subcontractor	Monthly Progress Report
Health and Safety Committee Meetings	Monthly	MSJO and Subcontractor	Site Health & Safety Plan
Serious Accident / incident Meeting	As needed	MSJO and Subcontractor	Site Health & Safety Plan

Environment, Health and safety Consultation Meetings	As needed	MSJO and Subcontractor	Site Health & Safety Plan
Management Meeting	Semi Annual	MSJO	Management Review Procedure
Construction Meeting	Weekly	MSJO and Subcontractor	Site Health & Safety Plan
Safety Meeting to inform of Preventive and Mitigate Action for Safety	As needed	MSJO and Subcontractor	Site Health & Safety Plan
Tool Box Meeting	Daily	MSJO and Subcontractor	Site Health & Safety Plan
Task Briefing	As needed	MSJO and Subcontractor	Routine

Abbreviation