

6-2 安全管理セミナー報告書

アジスアベバ市道路維持管理機材整備計画準備調査

2019年8月30日

八千代エンジニアリング株式会社

安全管理セミナー開催のご報告

1. 目的

独立法人国際協力機構（以下、「JICA」という）は、我が国 ODA による公共施設等の建設事業における労働災害の防止を図るため、安全管理における基本方針及び具体的な安全施工に関する技術指針等を取りまとめた「ODA 建設工事安全管理ガイドンス」を 2014 年 9 月に策定し、我が国支援事業において広く普及促進している。かかる状況を踏まえ、我が国無償資金協力による機材調達後、本計画のエチオピア国実施機関であるアジスアベバ市道路公社が適切な安全対策のもとに道路整備事業を推進するよう、同ガイドンスに対する道路公社の理解獲得と安全意識向上を目的とし、本件準備調査において「安全管理セミナー」を開催した。

本件セミナーは、室内研修及び屋外研修により構成し、室内講義として①上記ガイドンスの基本方針、建設機械の事故事例紹介等をテーマとした講義、②危険予知活動に関する受講者参加型演習、ならびに屋外研修として③建設機械の実演による危険作業及び安全対策紹介等、幅広い研修活動を実施した。

これら一連の活動を通じて、我が国建設工事の安全管理に係る知見・技術を広くエチオピア国関係者に普及するとともに、本件無償資金協力に係るアジスアベバ市道路公社の実施機関としての事業実施能力向上を図るものである。

2. 開催日程

室内研修： 8月27日（火） 9時～15時30分

屋外研修： 8月28日（水） 9時30分～12時

3. 開催場所

室内研修： アジスアベバ市内ホテルの大会議室

屋外研修： アジスアベバ市内の道路公社直営メンテナンス部第1メンテナンス基地敷地内

4. 実施機関側参加者

道路公社機材担当部所（機材供給・管理・メンテナンス部）、工事担当部所（直営メンテナンス部、直営建設部）等より職員計 136 名

5. セミナー概要

(1) 室内研修

1) ODA 建設工事安全管理ガイドンス

題目：The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects

概要：JICA が策定した「ODA 建設工事安全管理ガイドンス」の概要説明、ならびに同ガイドンスに関連した実際の現場安全管理手法について実例を交えて紹介した。

2) 危険予知活動（KY 活動）に関するグループディスカッション

題目：”Exercise KY” in group works

概要：一般車両が通行する道路空間での排水側溝工事を想定した演習問題を課題とし、工事期間中に潜在する危険箇所の抽出ならびに有効な予防措置について、受講者参加型によるグループディスカッションを行い、その後参加者による発表会を行った。

3) 建設機械災害の防止対策

題目：Prevention of Machine Accident (Excavator, Crane)

概要：「ODA 建設工事安全管理ガイドランス」の“第六章 安全施工技術指針 建設機械・設備災害の防止対策”について、日本の建設現場で発生した実際の事故事例紹介と事故原因の説明、ならびに事故を教訓に講じられた安全対策や活動等について紹介した。

(2) 屋外研修

概要：道路公社が保有する建設機械（エクスカベータ、キャブバッククレーン）を用いて危険作業の実例をデモンストレーションし、事故防止のための具体的な安全対策を紹介した。

6. 開催結果報告

今般「安全管理セミナー」を通じて、参加者は一貫して研修活動に集中し、必要に応じてメモをとるなど、工事の安全に対する関心の高さがうかがえた。とりわけ、室内研修において実施した危険予知活動（KY 活動）に関するグループディスカッションでは、実際の工事を想定した演習問題（図 1 参照）に対して参加者が積極的に意見交換を行い、その後の発表会においても各グループが取りまとめた安全対策案を紹介するなど、道路公社及び同公社職員がセミナー活動を通じて安全向上を考え、積極的に取り組んだ点が特筆される。

また、2 日間にわたる安全管理セミナーの開催後、道路公社は、セミナーを通じて習得した知見や経験を組織内に水平展開するため、セミナーに参加できなかった職員や現場作業員を 4 日間（9 月第 1 週予定）招集し、セミナー受講者による講義を行うとともに、今般セミナー教材とした安全マニュアルを今後の道路公社の「工事安全対策マニュアル」として活用していくとしている。

以上より、今般の「安全管理セミナー」は、アジスアベバ市の道路管理者である道路公社が道路建設事業における安全管理への意識改革及び今後の取り組みを推進する契機となったものとする。



図 1 参加者グループによる演習問題

別添：セミナー状況写真

セミナー状況写真



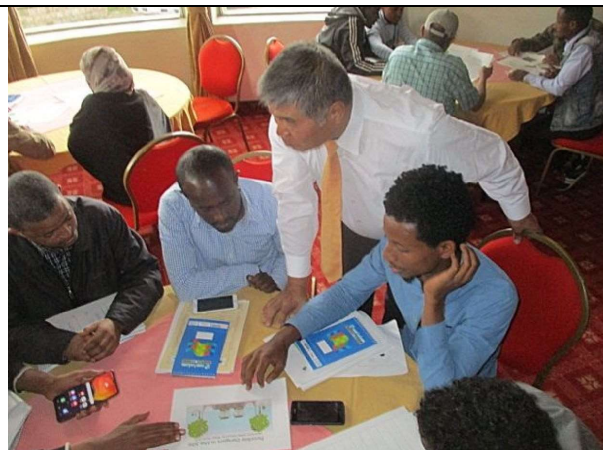
道路公社局長による開会挨拶



JICA エチオピア事務所松山次長による開会挨拶



危険予知活動のグループディスカッション



グループ毎に演習問題に取り組み、意見交換を行った。



グループディスカッション後の発表会



建設機械を用いた屋外研修

THE PROJECT FOR UPGRADING ROAD MAINTENANCE
EQUIPMENT IN ADDIS ABABA CITY
IN THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

Report
On
Safety Management Seminar
And
Field Study

August 2019

Japan International Cooperation Agency (JICA)



Yachiyo Engineering Co., Ltd.

Contents

Introduction

1. Safety Management Seminar
 - 1.1 Venue
 - 1.2 Program
 - 1.3 Participants
 - 1.4 Summary of questionnaires

2. Field Study
 - 2.1 Venue
 - 2.2 Program
 - 2.3 Participants
 - 2.4 Contents and Results

3. Summary

4. Considerations

ATTACHMENT

- ATTACHMENT 1 : Program
- ATTACHMENT 2 : Participants divided according to Department of AACRA
- ATTACHMENT 3 : Attendance Sheets signed by participants
- ATTACHMENT 4 : Photos
- ATTACHMENT 5 : Power Point for Safety Management Seminar
- ATTACHMENT 6 : Safety Management Manual

Introduction

Safety Management Seminar and the subsequent Field Study on Machine Safety were conducted on 27th and 28th August 2019 under THE PROJECT FOR UPGRADING ROAD MAINTENANCE EQUIPMENT IN ADDIS ABABA CITY IN THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA in cooperation between Japan International Cooperation Agency (JICA) and Addis Ababa City Roads Authority (AACRA).

This is to report on the Safety Management Seminar and the Field Study.

1. Safety Management Seminar

1.1 Venue :

GION HOTEL

1.2 Program

Date: 27th August 2019

Time Schedule actually executed

8:30 Registration

9:30 Opening Address by Eng. Moges Tibebe Director General Addis Ababa City Roads Authority and Mr. Takeshi Matsuyama Senior Representative JICA Ethiopia Office

9:40 Safety Seminar Vol. 1-1 : “The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects” presented by Mr. Koji Masuda Yachiyo Engineering Co., Ltd

10:45 Break

11:00 Safety Seminar Vol. 1-2 : The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects” presented by Mr. Koji Masuda Yachiyo Engineering Co., Ltd

12:00 Lunch

13:00 Safety Seminar Vol .2 : “Exercise KY” in group works. 3 groups out of 14 groups in total gave presentation to the audience for the results of KY exercise.

14:15 Safety Seminar Vol. 3 : “Prevention of Machine Accidents (Excavator, Crane)” presented by Mr. Koji Masuda Yachiyo Engineering Co., Ltd

15:15 Question and Answer, Questionnaire Investigation

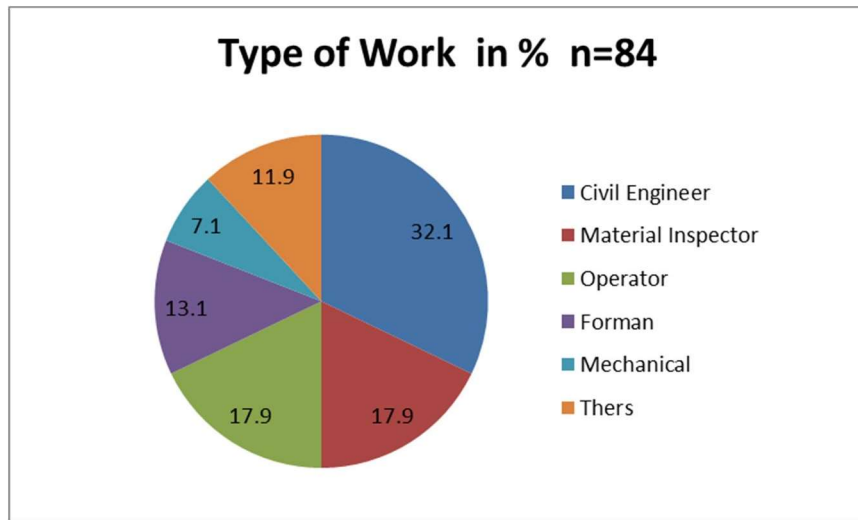
15:45 Closing Address

Program distributed at the seminar is provided in ATTACHMENT 1.

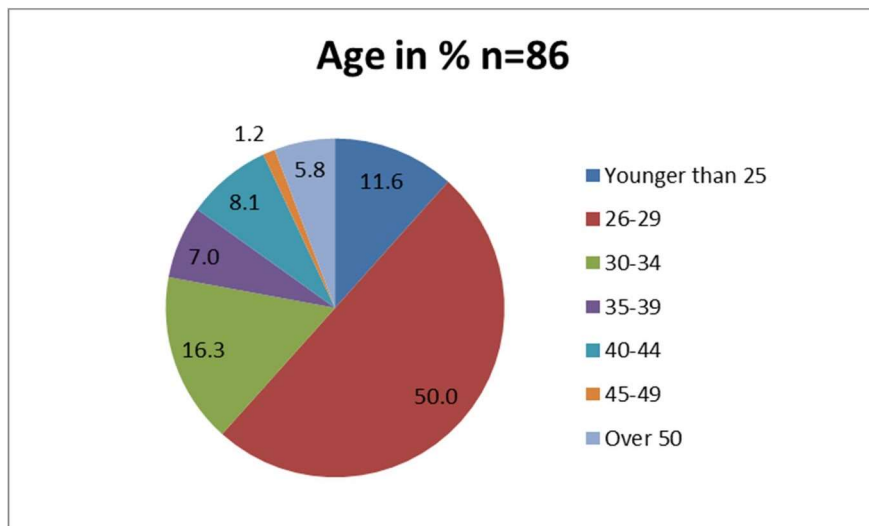
1.3 Participants

136 persons participated in the seminar. Name list of participants along with Department and Position is provided in ATTACHMENT 2. Attendance sheet signed by the participants is also provided in ATTACHMENT 3.

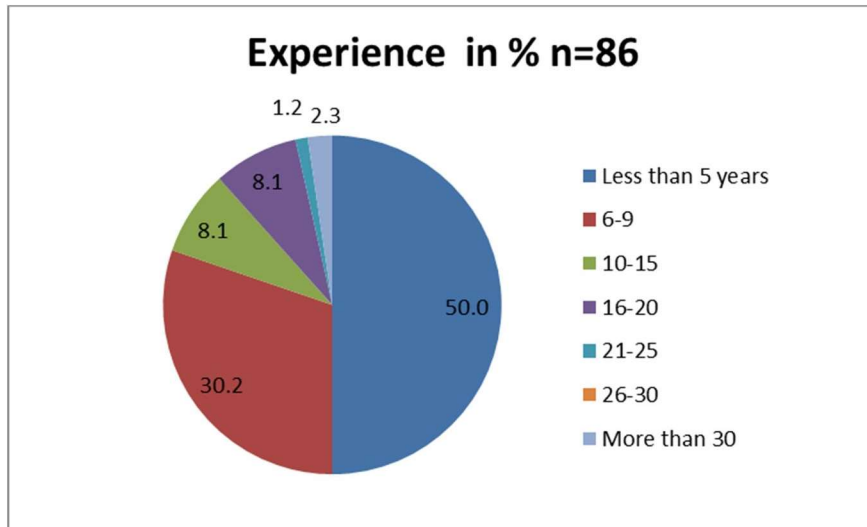
- 1) Breakdown of participants in terms of “Type of Work” (based on questionnaire investigation)



- 2) Breakdown of participants in terms of “Age” (based on questionnaire investigation)



3) Breakdown of participants in terms of “Experience” (based on questionnaire investigation)



1.4 Summary of Questionnaire Investigation

At the end of the seminar, questionnaire investigation on the seminar was conducted by giving questionnaires shown below.

92 participants out of 136 (ratio of answer is 68%) submitted the answer.

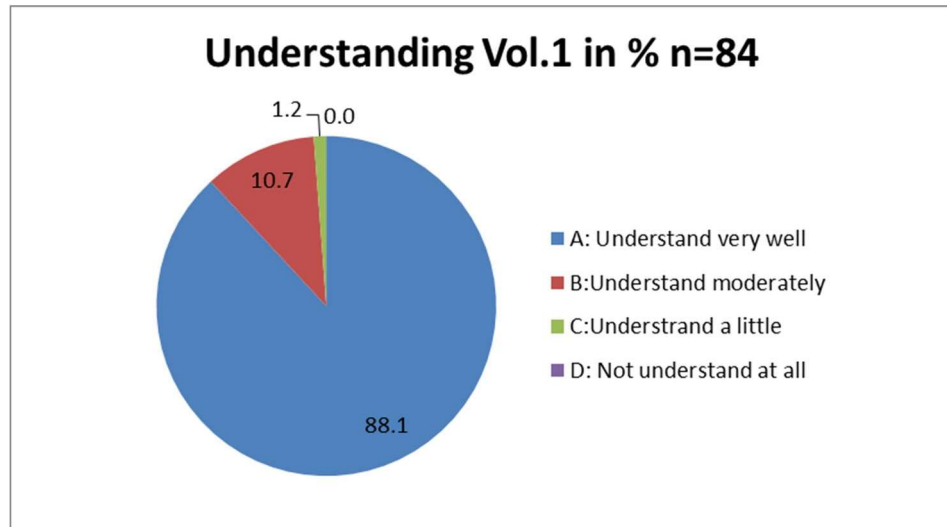
No.	Questionnaires
I	<p>Did you understand the seminar? Please select one out of 4 answers below.</p> <p>Seminar Part 1(10:15-12:00) : Safety Guidance</p> <p>1 . Understand very well 3 . Understand a little (with many questions)</p> <p>2 . Understand moderately (with some questions) 4 . Not understand at all</p> <p>Seminar Part 2(13:00-13:50) : Practice of KY Activity</p> <p>1 . Understand very well 3 . Understand a little (with many questions)</p> <p>2 . Understand moderately (with some questions) 4 . Not understand at all</p> <p>Seminar Part 3(14:00-15:10) : Prevention of Machine Accidents</p> <p>1 . Understand very well 3 . Understand a little (with many questions)</p> <p>2 . Understand moderately (with some questions) 4 . Not understand at all</p>
II	<p>Do you want to learn more about Safety?</p> <p>1 . YES</p> <p>2 . NO</p>
III	<p>What subjects about Safety do you want to learn more, or are you interested in?</p> <p> </p> <p> </p> <p> </p> <p> </p>
IV	<p>Please write your opinion about the seminar if any.</p> <p> </p> <p> </p> <p> </p> <p> </p>

Thank you for your cooperation.

(1) Question I:” Did you understand the seminar? Please select one out of 4 answers below”.

a) Vol.1 :“The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects”

84/92 answered.

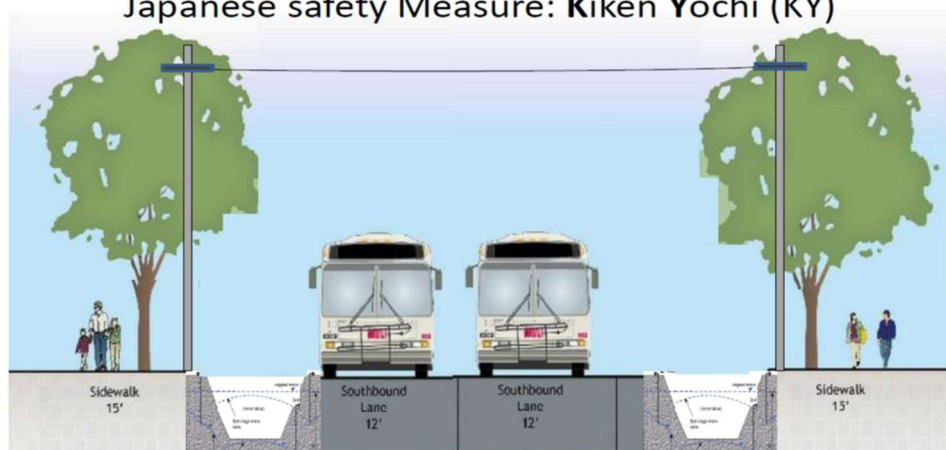


b) Vol.2 “Exercise KY” in group works.

136 participants were separated into 14 groups to exercise “KY activity”. Being given a sample construction condition, participants found out hidden dangers in implementing the works and decided measures to be taken in order to prevent possible accidents by discussing in the group.

Possible Dangers in the Site

Japanese safety Measure: Kiken Yochi (KY)



Sample work for KY exercise

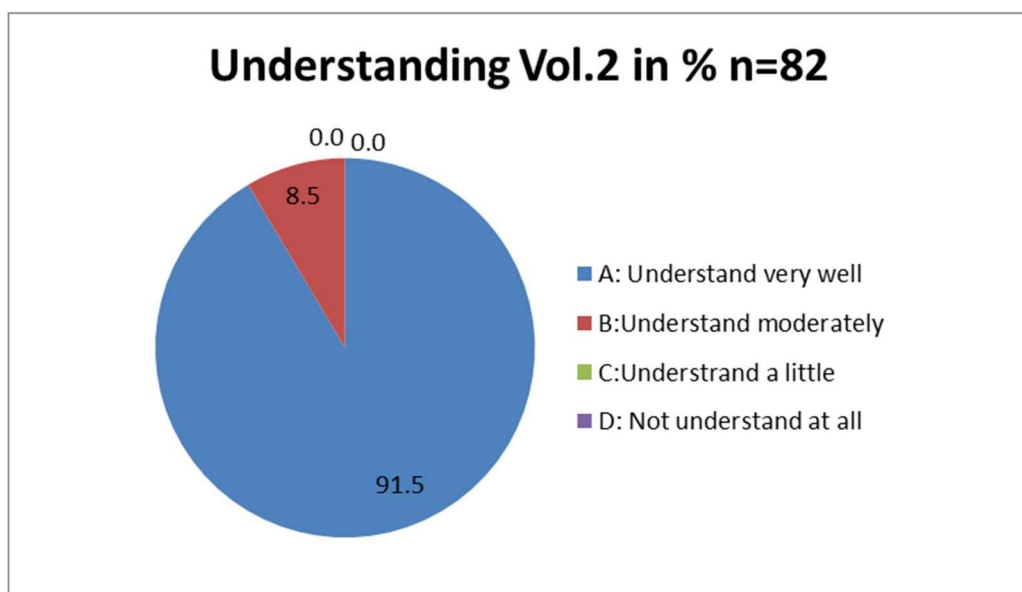
(Construction of Side Ditches within the existing road)

3 groups gave the presentation for the results of KY activity . A sample KY is shown in the table.

Sample of the KY activity

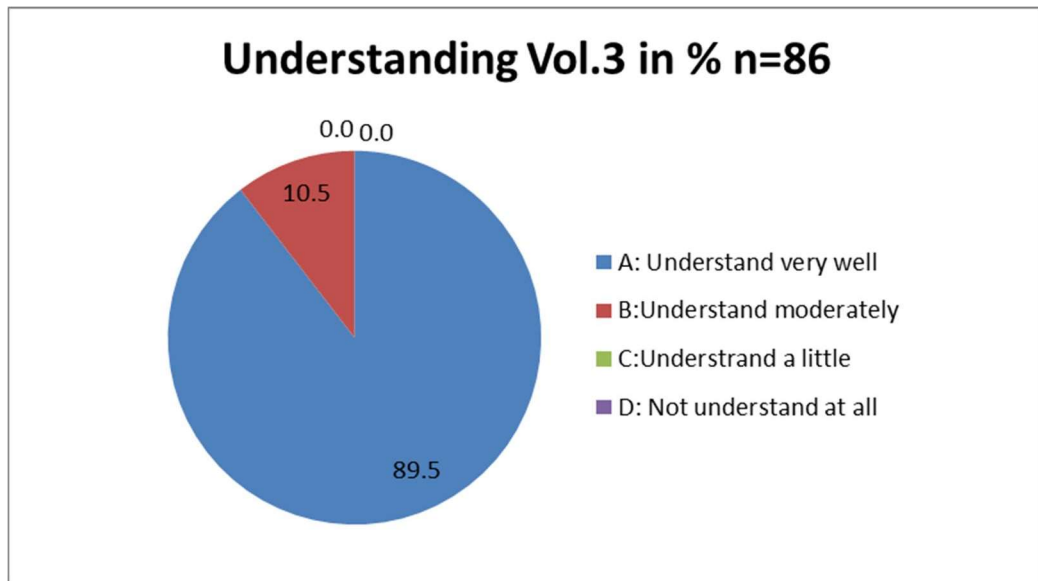
No.	Hidden Dangers	Prevention Measures
1	Facilities and trees standing adjacent to the excavation area may fall down to hit people or vehicle	• Remove obstacles before hand
		• Support facilities before excavation
2	Construction vehicle may hit pedestrian, traffic and facilities	• Install safety barriers to keep out
		• Allocate Flagmen to control passengers and traffic
3	Construction vehicle may hit worker	• Keep out of equipment working area
		• Indicate equipment working area by color cone
4	Pedestrian may fall down into excavated area	• Install safety barriers to keep out
		• Allocate Flagmen to control passengers and traffic
		• Install lighting at night
5	Worker may be hit by traffic	• Sufficient working area by controlling traffic
		• Prohibit workers to get out of the working area
6	Traffic vehicle may fall down into excavation area	• Install Safety Barriers
		• Install precaution sign boards for traffic
		• Install lighting at night
7	Underground utilities may be damaged	• Check under ground utilities by trial pits beforehand
		• If there are underground utilities which obstacle the works, consult with the relevant company
8	Over hung cable may be damaged by construction vehicles	• Remind operator of the over hanging cable
		• Install limit indication tape for operator to recognize easily
		• Protect or relocate the cable

82/92 answered.



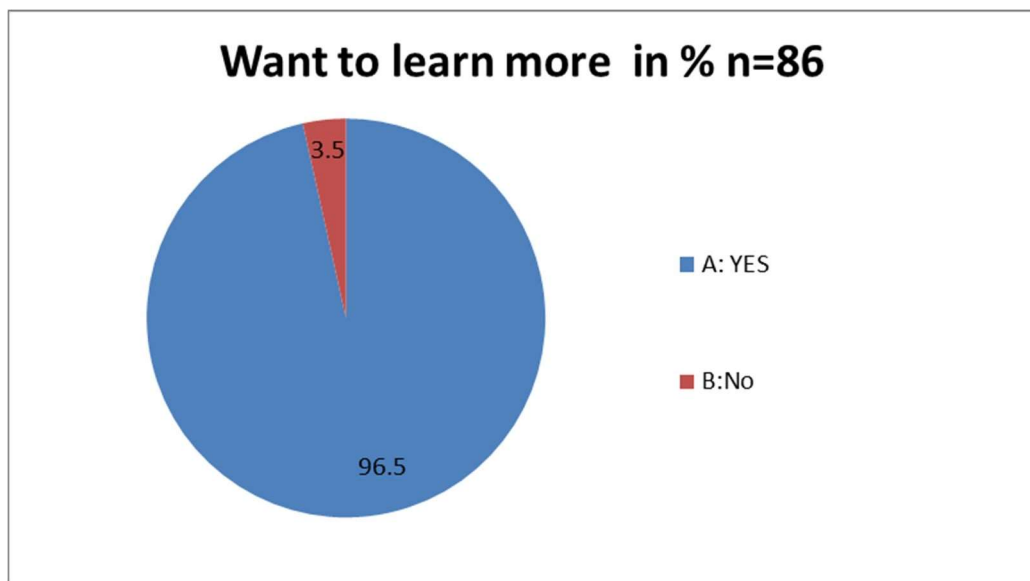
c) Vol. 3 “Prevention of Machine Accidents (Excavator, Crane)”

86/92 answered.



(2) Question II “Do you want to learn more about Safety?”

86/92 answered.



(3) Question III “What subjects about Safety do you want to learn more, or are you interested in?”

Multiple answers are allowed.

No.	Want to learn more about	N
1	Safety Management System and Plan	18
2	Safety of Machine Works	13
3	KY Activity	11
4	All about Safety	8
5	Safety Law	5
6	Safety Materials and Facilities	5
7	Construction Management	5
8	PDCA (KAIZEN)	4
9	5S	4
10	Road Maintenance	3
11	Cost for Safety	1
12	Safety in Electricity Work	1
13	Public Safety	1
14	Fish Bone Method	1
15	First Aid	1

(4) Question IV Please write your opinion about the seminar if any.

90/92 answered. Multiple answers are allowed.

No.	Opinions	N	% of 90
1	Very good seminar, Happy to attend the seminar, Learned a lot on Safety etc.	83	92.2
2	The seminar must be continued, Need more opportunities	43	47.8
3	Time for the seminar was too short	11	12.2
4	The contents are very important	9	10.0
5	Need to promote worker's Safety awareness	5	5.6
6	The manual can be applied to Safety Management	1	
7	Time for KY practice was too short	1	
8	We had little knowledge on Safety	1	
9	Senior staffs need to attend the seminar	1	
10	Encouraged	1	

2. Field Study

2.1 Venue

AACRA Own Force Road Maintenance Project Lot-1 site

2.2 Program

Date : 28th August 2019

Time Schedule actually executed

9:00 Registration

9:30 Safety on Excavator Works

10:30 Safety on Crane Works

11:30 Closing

2.3 Participants

96 persons out of 136 participants who attended the Safety Management Seminar held on 27th August 2019 participated in the Field Study. The attendance sheet signed by the participants is available in ATTACHMENT 3.

2.4 Contents and Results

Safety operations and instruction in using excavator, crane and lifting wire were given according to Safety Check Lists which are available in "Safety Management Manual".

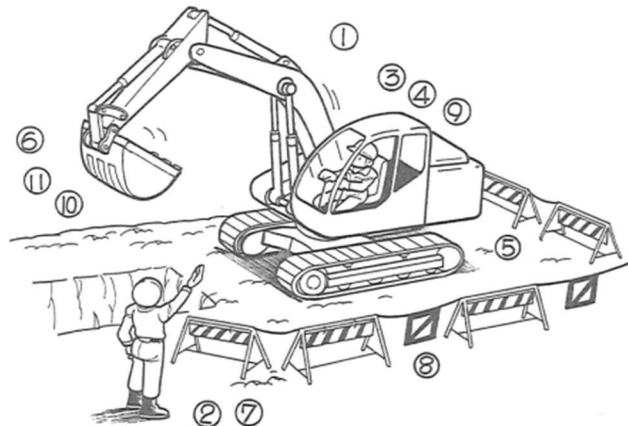
Equipment used for the Field Study ;

- ① Excavator : Wheel type , Capacity Safety :1.2 m³ , Made in Sverige (VOLVO)
- ② Cab Back Crane : Capacity 8t, Made in China

The contents and the results are shown in the tables below.

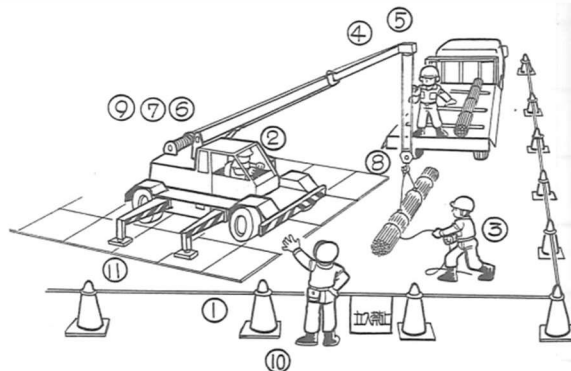
Field Study on Safety Works of Excavator

No	Item	Check Items	Check Result	
			O/ x /-	Description
3-1	Common	① Working plan for the equipment is prepared		
		• Name, type and capacity of equipment		
		• Transportation of equipment		
		• Working method and sequence		
		② Equipment check list		
		• Periodical check sheets	△	1.Periodical maintenance regulated by law : Not applicable 2.Periodical maintenance every 250 hours by AACRA: Certificate of maintenance to be issued and kept in the equipment
		• Pre-operation check sheets	△	1. Daily pre-operation check is conducted by operator 2. Records of daily pre-operation check to be kept in the equipment
		③ Allocate flagman and give predetermined sign	-	They understand
		④ Equipment is not used for wrong purposes	△	1. The excavator is equipped with hook for lifting material 2. However, wire stopper was removed from hook 3. The operator understand the capacity of the excavator
		⑤ Qualified operator operate equipment	O	1. The operator is qualified by license
		⑥ No one ride on equipment except side seat	-	They understand
		⑦ Operator turns off engine when leaving equipment	-	They understand
⑧ Operator remove key when leaving equipment	-	It is recommended that the key is always connected with trousers belt by string		
Excavator	① No one working within turning area of excavator	-	They understand that "Paper and Stone sign" is given each other when entering the equipment working area	
	② Keep-out barrier is installed around working area	-	Color Cones are installed around the working area of excavator	
	③ No over-hung excavation	-	They understand	
	④ Direction of caterpillar is proper when excavating	-	Excavator demonstrated	
	⑤ Excavator is working on stable ground	-	They understand	



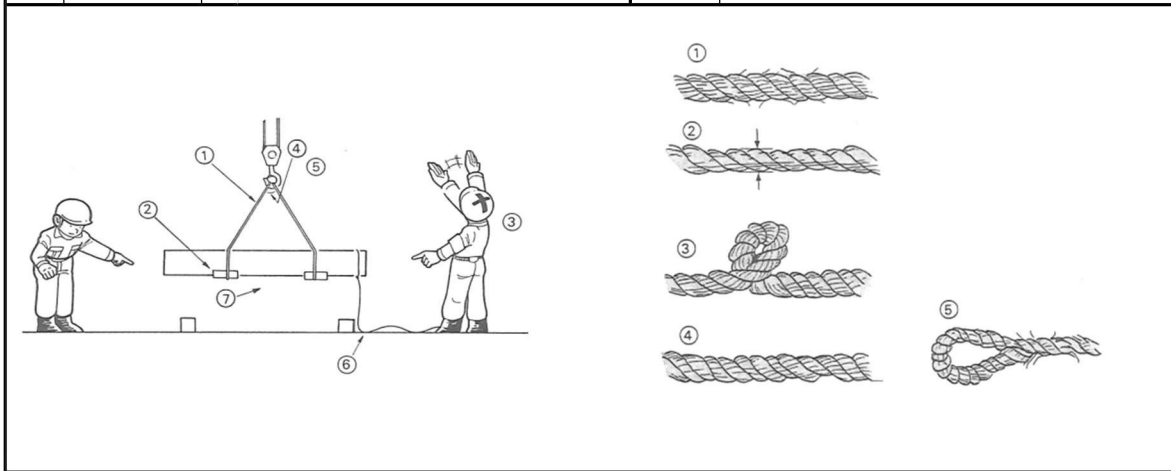
Field Study on Safety Works of Crane

No	Item	Check Items	Check Result	
			O/x/-	Description
3-2	Common	① Working plan for the equipment is prepared	/	
		• Name, type and capacity of equipment	/	
		• Transportation of equipment	/	
		• Working method and sequence	/	
		② Equipment check list		
		Periodical check sheets	△	1.Periodical maintenance regulated by law : Not applicable 2.Periodical maintenance monthly by AACRA: Certificate of maintenance to be issued and kept in the equipment
		• Pre-operation check sheets	△	1. Daily pre-operation check is conducted by operator 2. Records of daily pre-operation check to be kept in the equipment
		③ Allocate flagman and give predetermined sign	-	They understand
		④ Equipment is not used for wrong purposes	-	
		⑤ Qualified operator operate equipment	O	1. The operator is qualified by license
		⑥ No one ride on equipment except side seat	-	They understand
		⑦ Operator turns off engine when leaving equipment	-	They understand
⑧ Operator remove key when leaving equipment	-	It is recommended that the key is always connected with trousers belt by string		
Crane	① Working under instruction of working leader	-	They understand	
	② Flagman is allocated	-	They understand	
	③ Signs are standardized and given properly	x	Signs are not standardized	
	④ Capacity of crane is sufficient for the works	O	Operator understand how to check the capacity	
	⑤ Equipped with Anti over-winding device working properly	x	1. The care is not equipped with anti-over winding device	
	⑥ Equipped with Stopper device on hook	x	1. Wire stopper was broken 2. They understand the necessity of Wire stopper	
	⑦ Equipped with Automatic stop device working properly against over loading	x	1. The care is not equipped with Automatic stop device when over loading	
	⑧ Outrigger is set on firm ground or steel plate in case of soft ground	x	1. Timber is used for base plate of outrigger 2. Steel plate with more than 10mm thick is to be used	
	⑨ Outrigger is fully extended	-	They understand	
	⑩ Keep-out barrier is installed around working area	-	Color Cones are installed around the working area of crane	
	⑪ No one is under lifted material	-	They understand	
	⑫ Maximum capacity is indicated	x	1. Capacity is not indicated 2. Weight of hook is not indicated	



Field Study on Safety Works of Lifting Wire

No	Item	Check Items	Check Result	
			○/×/-	Description
3-3	Wiring for lift	① Type and size of wire are appropriate	/	Lifting material practice was not done
		② Use soft material such as rubber between wire and material at sharp angle		
		③ Qualified person prepare wiring for lift		
		④ Lifting angle of wire is less than 60 degree		
		⑤ Single wire is not used for lifting material		
		⑥ Leading rope is used when lifting long materials		
		⑦ Checking stability of materials when lifting up from the ground		
	Steel Wire	① More than 10% of element wires are not broken	×	Elements of wire are broken
		② Diameter of wire is not reduced more than 7%	×	Deformed
		③ Wire is not twisted	×	Twisted intentionally
		④ Wire is not seriously deformed and rusted	×	Deformed seriously at hook
		⑤ Wire at hook is not seriously deformed and broken	×	Connection of wire is not sufficient



3. Summary

3.1 Safety Management Seminar

(1) Participants

Participants consist mainly of Civil Engineers 32%, Material Inspectors 18% and Forman 18% which covers approximately 70% of total participants. Participants under 29 years old cover 66% of total participants, and Participants who have experience of less than 9 years cover 80% of total participants.

(2) Degree of understanding

Most of participants answered “ Understand very well”, and few participants answered “Understand a little” or “Not understand at all” in questionnaires. Degree of understanding in Vol.1 : “The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects” is relatively low in comparison with the other subjects,

(3) Motivation

Most of all (97%) answered “want to learn more about Safety”. It reveals that they have very high motivation.

(4) Interesting subjects

Subjects which participants are more interested in are Safety Management System and Plan, Safety of Machine Work, KY activity, Safety Law, Safety Facilities and Materials, PDCA(KAIZEN) and 5S in this order.

(5) Opinions

Most of all (92%) are satisfied with the seminar. On the other hand, approximately 50% of participants consider the necessity of continuous seminar. It is considered that the time of the seminar might have been too short for them to deepen their understanding.

It is interesting that a participant has an opinion that more senior officers should have the seminar.

3.2 Field Study

In the field study, equipment was used for practical training on Safety Machine Work according to Safety Check List.

“Seeing is believing”. The practical training deepened their understandings.

In addition, there found much to be desired to improve machine safety as the results of the field study.

4. Considerations

It is told that Ethiopian people values “Safety (Human Life)”.

However, it seems that they are still seeking how to establish “Safety” systematically in construction works.

Observing their dedication in the seminar, I believe that the seminar will be a cue to establish their own Culture of Safety.

ATTACHMENT 1 :

Program



THE PROJECT FOR UPGRADING ROAD MAINTENANCE EQUIPMENT
IN ADDIS ABABA CITY
IN THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

Safety Management Seminar Program

1st day: 27th August, 2019

- | | |
|--------------|---|
| 8:30- 9:00 | Registration |
| 9:00- 9:15 | Opening Address by Eng. Moges Tibebe Director General Addis Ababa City Roads Authority |
| | Opening Address by Mr. Takeshi Matsuyama Senior Representative JICA Ethiopia Office |
| 9:15-10:30 | Safety Seminar Vol.1-1
“The Guidance for the Management of Safety for Construction Works in Japanese ODA Projects”
Presenter: Koji MASUDA |
| 10:30- 10:40 | Break |
| 10:40- 12:00 | Safety Seminar Vol.1-2 |
| 12:00- 13:00 | Lunch Break |
| 13:00- 13:50 | Safety Seminar Vol.2
“Exercise KY” in group works
Presenter: Koji MASUDA |
| 13:50-14:00 | Break |
| 14:00-15:10 | Safety Seminar Vol.3
“Prevention of Machine Accidents (Excavator, Crane)”
Presenter: Koji MASUDA |
| 15:10-15:25 | Discussions |
| 15:25-15:30 | Closing Address |

2nd day: 28st August, 2019

- | | |
|------------|---|
| 9:30-12:00 | Field Exercise
Demonstration with Construction Equipment
Safety Measures
Discussions, etc. |
|------------|---|

Prepared by YACHIYO ENGINEERING CO., LTD., JAPAN

ATTACHMENT 2 :

**Participants Divided according to Department of
AACRA**

Safety Management Seminar (2019.08.27-28) Participants

No	Division	Department	No	Name	Position
1	Engineering Operation	1. Own Force Road Maintenance Directorate	1	Getachew Molla	Electrician
			2	Anwar Husen	Electrician
			3	Geto Gebre	Electrician
			4	Elyas Alemu	Construction Foreman
			5	Solomon Tsegaye	Electrician
		2. Own Force Road Maintenance Project Lot-1	1	Hailu Gobeze	Foreman
			2	Emnet Tasew	Foreman
			3	Simon Getachew	Civil Engineer
			4	Zelalem Tesfaye	Junior Civil Engineer
			5	Mesfin Endale	Foreman
			6	Lamesgin Eliyas	Junior Civil Engineer
			7	Ermiyas asfaw	Material Inspector
			8	Ayele Endashaw	Material Inspector
			9	Demise Derese	Material Inspector
			10	Tonja tolba	Machinery assistance
			11	G/tsadikan G/silasse	Data collector
			12	Ermiya Aschalew	Material Inspector
			13	Mesfin Asefa	Construction Foreman
			14	Kasahun Abere	Data collector
			15	Alemayehu Sintayehu	Material Inspector
			16	Wubitu Admasu	Construction Foreman
			17	Haregewoin Tesema	Construction Foreman
			18	Meseret Mare	Labour work
			19	Habtamu Chewaka	Building work
			20	Haillemariam Bekele	
			21	Yitbarek Zerihun	
			22	Tesfa Gebriel Tsega	
			23	Efrem Tadese	
			24	Eshetu Deme	
			25	Solomon Tesfaye	
			26	Daniel workineh	
			27	Teshager Gedamu	
			28	Solomon Mamo	
			29	Abebaw Alemneh	
			30	Kirubel Bekele	
			32	Hinsenu Lema	
			33	Shewangizaw G/michel	
			34	Abiy Feredenigus	
			35	Ermiyas Solomon	
36	Halima Tesfahun				
37	Seid Mola				
38	Nebiyu Daniel				
39	Minishu Beka	Team leader			

Safety Management Seminar (2019.08.27-28) Participants

No	Division	Department	No	Name	Position
		3. Own Force Road Maintenance Project Lot-2	1	Biruk Hiruy	Construction Foreman
			2	Tekeste Amera	Construction Foreman
			3	Yohenes Gonfa	Structural Forman
			4	Ashenafi Benti	Material Inspector
			5	Tewodros Zebene	Junior Civil engineer
			6	Hailemariam Abate	Junior Civil engineer
			7	Nigatu Alemu	Construction Foreman
			8	Adis Birhanu	Material Inspector
			9	Mohammednur Shermole	Data collector
			10	Bilisuma Beyecha	Junior Civil engineer
			11	Getnet Desalegn	Material Inspector
			12	Girma Negash	Director
		4. Machinery supply, Maintenance and Administration Directorate	1	Hailemeskel Chala	Equipment maint. Team leader
			2	Moges Dereje	Mechanical eng.
			3	Habtamu Kebede	Mechanical eng
			4	Semere Desalegn	Equipment maintenance Forman
			5	Yehenew Getenet	Equipment maintenance Forman
			6	Tesfaw Gobena	Plant maintenance Forman
			7	Yared Seyum	Equipment admn. A/team leader
			8	Tadele Mekonnen	
			9	Getahun Asefa	
			10	Biruk Fikru	
			11	Mikiyas abera	
			12	Meaza Girma	
			13	Sosina Mersha	

Safety Management Seminar (2019.08.27-28) Participants

No	Division	Department	No	Name	Position
		5. Own Force Road Construction Directorate	1	Matnael Endalemahu	Team leader ✓
			2	Semira Jemal	Junior Civil engineer
			3	Abraham Amare	Junior Civil engineer
			4	Zebene Ababu	Junior Civil engineer
			5	Mulugeta Gebre	Junior Civil engineer
			6	Hirut Mengesha	
			7	Dawit Tsegaye	
			8	Tesfaye Asnake	
		6. Own Force Road Construction Directorate lot-1	1	Solomon Tefera	Mechanical Engineer ✓
			2	Mesfin Kebede	Equip. Adm. & Maint. Team Leader ✓
			3	Kasahun Yitayih	Civil Engineer
			4	Henok Deneke	Civil Engineer
			5	Kebede Matiwos	Civil Engineer
			6	Solomon Birhane	Civil Engineer
			7	Meles Hailu	Civil Engineer
			8	Mohammed Worku	Civil Engineer
			9	Kidus Melaku	Civil Engineer
		7. Own Force Road Construction Directorate lot-2	1	Adissu Yergu	Project Manager
			2	Melaku Muniye	Engineering service Team Leader
			3	Tekuam Berhane	Work Execution Team Leader
			4	Tesfaye arega	Equip. Maintenance Team Leader
			5	Fesha Sebehat	Mechanic
			6	Mulatu Lema	Mechanical Engineer
			7	Samuel Abera	Site Engineer
			8	Sintayehu Amare	Site Engineer
			9	Bekele Tilahun	
		8. Own Force Road Construction Directorate lot-3	1	Worku Asres	
			2	Mulugeta yemanebirhan	
			3	Wasihun Yimer	
			4	Biruk Mamo	
			5	Zewdu Ayele	
			6	Ayele mihret	
			7	Menor Tefera	
			8	Adugna Tufa	
			9	Debesay Deme	
		9. Own Force Road Construction Directorate lot-4	1	Behaylu Lisanu	Construction Foreman
2	Emawayish Mulugeta		Structural Foreman		
3	Michel Mulugeta		Structural Foreman		
4	Tesfaye Asnake		Construction foreman		
5	Kaleab Goremes		Structural Foreman		
10. Occupational Health & safety Team	1	Belina Tamiru	Senior Occupational Health & Safety Expert ✓		
11. Construction Input Production & Supply Project Directorate	1	Tajuden Kasaye			
	2	Asmamaw Alemayehu			
	3	Hailu Kifle			

4/4

Safety Management Seminar (2019.08.27-28) Participants

No	Division	Department	No	Name	Position
2	Engineering Regulatory	12. Research, Technology Transfer and Laboratory Directorate	1	Samuel Ambaw	Junior Civil Engineer IX
			2	Meles Wudineh	Technician VIII
			3	Erimias Abate	Technician VIII
		13. Road Con. & Main. Design Revision Implementation Directorate	1	Milate Silasse Ayele	Surveyor
			2	Mahilet Worash	Surveyor
3	Road Asset Administration	14. Road Asset Data Base Mgt Directorate	1	Abel Wube	Civil Engineer
			2	Yihene Getachew	Senior GIS Expert
		15. South A.A Road Asset Directorate	1	Hafetom Lijalem	Junior Civil Engineer
			2	Girma Shewa	Junior Civil Engineer
		16. North A.A Road Asset Mgt Directorate	1	Biniyam Wendimkun	Material Inspector
			2	Fikadu Kidanemariyam	Material Inspector
			3	Mulualem Shiferaw	Material Inspector
		17. Central A.A Road Asset Mgt Directorate	1	Tewodros Dessie	Material Inspector
			2	Abdurazak Shafi	Material Inspector
			3	Mensur Megersa	Material Inspector
		18. East A.A Road Asset Mgt Directorate	1	Kidane Beyene	Material Inspector
			2	Erkyhun Lemma	Material Inspector
			3	Frealem Lemma	Civil Engineer
		19. West A.A Road Asset Mgt Directorate	1	Adonay T/haymanot	Junior Civil Engineer
		4	General Director	20. Quality Assurance Safety Inspection Directorate	1
2	Ayantu Mitiku				Junior Civil Engineer
5	Support	21. Human Resource and Facility Management Directorate	1	Hulumyifer Zemete	HR Adm. Team leader
		22. Communication Affairs Directorate	1	Getnet Tsegaye	
			2	Mengistu Yayeh	
			3	Workliul abrar	
			4	Eyob Bekele	

ATTACHMENT 3 :

Attendance Sheets Signed by participants

① 1/7

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011		Remark
			Morning	Afternoon	Morning	Afternoon	
1	Mulata Lemma	Lot 2 (Maintenance)	Present	Present	Present	Present	
2	Hailemariam Berete	Lot 1 (Maintenance)	Present	Present	Present	Present	
3	Abeyawork Abebe	JICA	Present	Present	Present	Present	
4	Tengae ASIAKE	007297 (HAMAN)	Present	Present	Present	Present	
5	HAILUL GORZE	AACRA (Lot 1)	Present	Present	Present	Present	
6	EMNET TASEW	AACRA (Lot 1)	Present	Present	Present	Present	
7	Amessah Enat	AACRA (Lot 1) Maintenance	Present	Present	Present	Present	
8	KIDANE BETENE	AACRA WEST ROAD/ASSEF	Present	Present	Present	Present	
9	SAKYHAN LEMMA	AACRA	Present	Present	Present	Present	
10	Frealen Lemma		Present	Present	Present	Present	
11	Yibaree Zerihun	AACRA Road Maintenance	Present	Present	Present	Present	
12	Ashenafi Beati	AACKH Road, main	Present	Present	Present	Present	
13	Yihenew Gertnet	AACKA (Lot 1) PROJECT	Present	Present	Present	Present	
14	Zelalem Teatey	AACKA Maintenance	Present	Present	Present	Present	
15	Mohammed Wabken	AACKA Road, Lot 1	Present	Present	Present	Present	
16	SOLMON JETERA	Lot 1 Project Office	Present	Present	Present	Present	
17	TEWODROS DESSIE	AARA ROAD construction	Present	Present	Present	Present	
18	Solomon Tsegay	Lot 2 structure	Present	Present	Present	Present	
19	Michael Muligeta	Lot 2 Project Office	Present	Present	Present	Present	
20	Addis Birhan	Lot 2 Multinational Project	Present	Present	Present	Present	
21	Melaku Munjo	Lot 2 Road Construction	Present	Present	Present	Present	

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011	Remark
			Morning	Afternoon		
1	Tedric Makkena	OPERATOR	[Signature]	[Signature]	[Signature]	
2	Getahun Assefa	SS	[Signature]	[Signature]	[Signature]	
3	Gekele Tilahun	OPERATOR	[Signature]	[Signature]	[Signature]	
4	Beke: ERCA	SS	[Signature]	[Signature]	[Signature]	
5	Fieha SEPHAT	OPERATOR	[Signature]	[Signature]	[Signature]	
6	Messia ENDAL	OPERATOR	[Signature]	[Signature]	[Signature]	
7	Mulugeta Yemaneberhan	OPERATOR	[Signature]	[Signature]	[Signature]	
8	Washion yimer	OPERATOR	[Signature]	[Signature]	[Signature]	
9	Zebane Abebu	OPERATOR	[Signature]	[Signature]	[Signature]	
10	Mulugeta Gebre	OPERATOR	[Signature]	[Signature]	[Signature]	
11	Kebede Matheos	OPERATOR	[Signature]	[Signature]	[Signature]	
12	KIDUS MELAKU	OPERATOR	[Signature]	[Signature]	[Signature]	
13	Eyob Berare	OPERATOR	[Signature]	[Signature]	[Signature]	
14	Moges Derese	OPERATOR	[Signature]	[Signature]	[Signature]	
15	Semere Dessalegn	OPERATOR	[Signature]	[Signature]	[Signature]	
16	Tadafemeal Besa	OPERATOR	[Signature]	[Signature]	[Signature]	
17	Mendot Berkew	OPERATOR	[Signature]	[Signature]	[Signature]	
18	Drak MAMO	OPERATOR	[Signature]	[Signature]	[Signature]	
19	Tesfaye Areye	OPERATOR	[Signature]	[Signature]	[Signature]	
20	Mulugeta Shidean	OPERATOR	[Signature]	[Signature]	[Signature]	
21			[Signature]	[Signature]	[Signature]	
22			[Signature]	[Signature]	[Signature]	
23			[Signature]	[Signature]	[Signature]	
24			[Signature]	[Signature]	[Signature]	

3/7

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011	Remark
			Morning	Afternoon		
1	Zewdu Ayele	00378 9377				
2	Ephrem Tadesse	00378 9375				
3	Ayele Endeshaw	" "				
4	Emmas Solomon	00378 9377				
5	Samuel Abera	Quality Assurance				
6	Isqar Kubabat	00378 9377				
7	Senira Temal	00378 9377				
8	Ayele Mihret	00378 9377				
9	Tonjo Tolba	00378 9375				
10	Eshetu Deme	00378 9375				
11	Tadesse Haile	lot one (Road work)				
12	Emmias Aschale	lot one (mentenafse)				
13	Abdurazak Shifa	Central Road Asset				
14	Selomon Toljako	00378 9375 d.1.1				
15	Getnet Tsegaye	Communication				
16	Habteam Kebede	00378 9375				
17	Passahon Yitayew	00378 9377 (107-1)				
18	Maryam Zewdu	00378 9375				
19	Abraham Amare	00378 9377				
20	Biniyam Wondimkun	00378 9377				
21	Mariam Kebede	AAEP-4 HRD				

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011	Remark
			Morning	Afternoon	Morning	
1	Dora WERKUEL Abri-	Common section				
2	DANTIEL WOKKOK	AMPAK 3075				
3	GETNET DESAIGNE	PLB 374 ch 2				
4	Merese buhnen	Laboratory				
5	Salomon Birhanic	Road construction lot-1				
6	Belina Jaminu	Operation				
7	Mensar Meersa	Road Asset				
8	Ficadu Kemukem	Road Asset				
9	Menasu Tefera	Road construction lot 1				
10	Abayna Tufa	Road consolidation				
11	Getachew molla	Road Management Cell				
12	Tessaw Gebena	Management Dept				
13	Nilatu Alemu	Maintenance (wets 2)				
14	Simon Getachew	Maintenance (lot 1) Control				
15	Teshagen Endamu	Road maintenance lot 1				
16	Salomon Alemu	Road maintenance MIT				
17	Agantu Mihilo	Quality Assurance				
18	TASUDEEN KASSAYE SEID	MPIT Port TOLSA				
19	Adenomon Hlaayku	MPIT 3675 ch 2				
20	Gessera Tsam	MPIT 3075				
21	Yndoo YAPKOO	MPIT 272				

5/7
 (J)

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011	Remark
			Morning	Afternoon	Morning	
1	Kassahun Abebe	Path Cont.				
2	Mesfin ASEFA	Asphalt maintenance				
3	WUBRU ABEYNSU	RS/PS-1				
4	Kaleab GOROMIS	asphalt 10 & 4				
5	Emawys Muligeta	lot 4				
6	Biruk Fitru Aremu	PIMM maintenance Team				
7	Yihenew Getachew Amesse	PAM & RB				
8	Addisu Yirgill	BARA lot-2 PM				
9	Johannes Gerem	Gowase				
10	Tekeste Amen	Maintenance lot 2				
11	Girma Shemsa	Southern PAM				
12	Bilesum Beyecha	Road Maintenance				
13	Emikas Abate	Laboratory				
14	Finna Neseh	Road Maintenance				
15	Edud Ahmed	SR				
16	MilAete Seidseid Atef	Di Zonta				
17	Halima Tentahun	Road Maintenance				
18	Seid Melwde	Road maintenance				
19	Abiyau Daniel	Road maintenance				
20	Harleguoin Tessema	Road maintenance				
21	Minyishu Beka	lot-1 maintenance				

2/16

6/7
 (6)

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011		Remark
			Morning	Afternoon	Morning	Afternoon	
1	AlenAYOH SONTAYEHU	375	✓	✓	✓	✓	
2	Getu Gebye	375	✓	✓	✓	✓	
3	Yared Seyoum	ambisps Batsse	✓	✓	✓	✓	
4	Wendebet Bekale	375	✓	✓	✓	✓	
5	Teklemariam Bihare	enforcement road constr	✓	✓	✓	✓	
6	Tewodros Tekene	375	✓	✓	✓	✓	
7	Mebrtewab Chernetek	Directorate maintenance	✓	✓	✓	✓	
8	Mariamemariam Sharmes	Maintenance Lot 2	✓	✓	✓	✓	
9	Herflem Tjalem	South P.Am	✓	✓	✓	✓	
10	Wubayes Abera	ambisps Batsse	✓	✓	✓	✓	
11	Mariam Abek	Maintenance Lot 2	✓	✓	✓	✓	
12	Hillsamuel Lamma	Road maintenance Lamana	✓	✓	✓	✓	
13	Shewansizaw Ghiorom ACKA		✓	✓	✓	✓	
14	Abiy FEREDENIFUS	training officer	✓	✓	✓	✓	

7/2

Safety Management Seminar (2019.08.27-28) Participants Attendance

No	Name	Department	21/12/2011 E.C		22/12/2011		Remark
			Morning	Afternoon	Morning	Afternoon	
1	Simonene Amang	Commission Lot-3					
2	Arment Hosten	00378-375					
3	Behaika Lissali	00322-7375-4					
4	Amos Alkwasena	HR-11					
5	Biruk Aray	00326-375					
6	Debesay Deay	HR (1)					
7	Fuluwager Ziwot	HR					
8	Ul44-00375	HR-3					
9	003307-0037	9-1059					
10	2119-0001	00378-375-5/00/1183					
11	003167-2116	00378-375-1171					
12	9927-0260	00378-375-107-2					
13	003167-2116	00378-375-1171					
14	Samuel Ambaw	00378-375-1171					
15	Adenay T/mawot	00378-375-1171					
16							
17							

ATTACHMENT 4 :

Photos

Photo(1/2)

【Safety Management Seminar 27th August 2019】



Photo1 : Opening Address by AACRA



Photo2 : Opening Address by JICA Ethiopia Office



Photo3 : Safety Management Seminar①



Photo4 : Safety Management Seminar②



Photo 5 : KY Exercise Group Work



Photo 6 : Presentation of KY Exercise

Photo (2/2)

【Field Study 28th August 2019】



Photo 7 : Meeting before Field Study



Photo 8 : Safety on Excavator Works①



Photo 9 : Safety on Excavator Works②



Photo 10 : Safety on Crane Works①



Photo 11 : Safety on Crane Works②



Photo 12 : Safety on Crane Works③

ATTACHMENT 5 :

Power Point for Safety Management Seminar






**Safety Management Seminar
Addis Ababa City Road Authority
Federal Democratic Republic of Ethiopia**


Introduction of
**The Guidance for Management of
Safety for Construction Works in
Japanese ODA Projects**

September 2014
Japan International Cooperation
Agency (JICA)

August 2019







Introduction

Principle


「World Human Rights Declaration: Ensuring human safety and respect for basic human rights」

Aims

Establish a safe and health-conscious working environment in ODA Projects.

- Establish “culture of safety” whereby safety is prioritized.
- Establish a mechanism that automatically promotes active implementation of occupational safety measures
- Enhance people’s awareness of safety

※It is not formulated for the purpose of replacing laws or regulations of recipient countries.



Contents of the



Chapter 1	General Rules
Chapter 2	Basic Policies of Safety Management
Chapter 3	Contents of "Safety Plan"
Chapter 4	Contents of "Method Statement on Safety "
Chapter 5	Technical Guidance for Safety Execution (by the Type of Work)
Chapter 6	Technical Guidance for Safety Execution (by the Type of Accident)



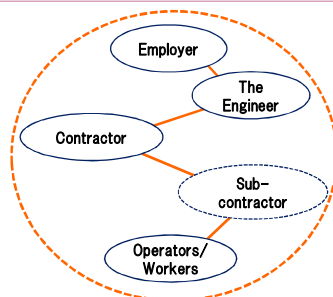
Chapter 1



Purpose

Prevent the occurrence of occupational and public accidents by creating a culture of safety and help social development in the recipient country.

Roles and Responsibilities of Project Stakeholders



Project Stakeholders



Project Stakeholders Roles and Responsibilities (1)



Project Stakeholders	Roles and Responsibilities
Employer	<ol style="list-style-type: none"> (1) The Employer shall endeavor to strictly comply with the relevant laws and regulations of the recipient country and use the Guidances to ensure the safety of the Project Stakeholders during construction works at site and protect nearby local residents, and any other third parties, from every potential accidental risk foreseen to arise from the construction works at site. (2) The Employer shall, in collaboration with the Engineer, review the Safety Plan and the Method Statements on Safety prepared by the Contractor and provide notice, suggestion or guidance for improvement to the Contractor if there are any risks to safety. (3) The Employer shall, in collaboration with the Engineer, make sure the work is carried out in accordance with the Safety Plan and the Method Statements on Safety prepared by the Contractor and provide notice, suggestion or guidance for improvement. (4) The Employer shall endeavor to create an environment where all Project Stakeholders positively participate in activities to promote safety on construction sites. (5) When two or more Contractors carry out work at the same construction site, the Employer shall establish an environment for mutual cooperation and coordination on safety management. (6) The Employer shall notify the Contractor of natural conditions, social conditions or any other factors that may affect the management of safety for construction works at site.



Project Stakeholders Roles and Responsibilities (2)



Stakeholders	Roles and Responsibilities
Engineer	<ol style="list-style-type: none"> (1) The Engineer shall have a full understanding of the roles and responsibilities of the Employer on the management of safety for construction works at site and, together with the Employer, appropriately implement activities to manage safety, including these obligations specified in the contract documents. (2) The Engineer shall, in collaboration with the Employer, review the Safety Plan and the Method Statements on Safety prepared by the Contractor and provide notice, suggestion or guidance for improvement to the Contractor if there are any risks to safety. (3) The Engineer shall, in collaboration with the Employer, make sure the work is carried out as per the Safety Plan and the Method Statements on Safety prepared by the Contractor and provide notice, suggestion or guidance for improvement.
Contractor	<ol style="list-style-type: none"> (1) The Contractor shall be responsible for operation and management of safety on construction sites. (2) The Contractor shall appropriately prepare the Safety Plan at the appropriate time in the pre-construction stage in accordance with the relevant laws and regulations of the recipient country and these Guidances. In the construction stage, the Contractor shall appropriately prepare the Method Statements on Safety, which shall specify the details of safe methods to implement safety measures prior to the start of each item of work and submit the document to the Employer and Consultant for review.



Project Stakeholders Roles and Responsibilities (3)



Stakeholders	Roles and Responsibilities
Contractor	<p>(3) The Contractor shall make appropriate revision or correction whenever any insufficiency or suggestion for improvement relating to safety is raised following the review of the Safety Plan and the Method Statements on Safety.</p> <p>(4) The Contractor shall undertake work according to the Safety Plan and the Method Statements on Safety they prepared. Whenever the Safety Plan or the Method Statements on Safety need to be amended in consideration of the latest site conditions, social and environmental conditions and/or any other relevant particulars. The Contractor shall without delay update and maintain the documents for review at will by the Employer and Engineer.</p> <p>(5) The Contractor shall take into account the safety of nearby local residents and any other parties, as well as all Project Stakeholders of the construction project.</p> <p>(6) The Contractor shall carry out construction works for the safety of nearby local residents and any other third parties, as well as Project Stakeholders of the project.</p>



Chapter 2 : Basic Policies of Safety Management



Basic Policies

No	Basic Policies
1	Safety First
2	Elimination of Causes
3	Thorough Precaution
4	Thorough Compliance with relevant laws and regulations
5	Thorough Prevention of Public Accidents
6	Thorough Implementation of PDCA Cycle for Safety Management
7	Thorough Sharing of Information
8	Thorough Participation of all Project Stakeholders



Chapter 2 : Basic Policies of Safety Management (2)

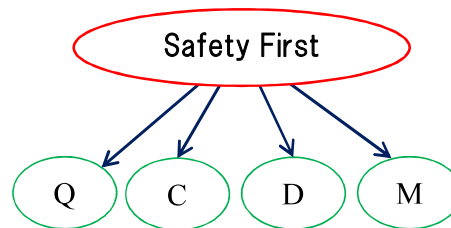


(1) Safety First

Meaning of "Safety First"

Safety shall be prioritized to Q, C, D and M

Construction Management	
S	Safety
Q	Quality
C	Cost
D	Delivery
M	Morale



In early 1900's, American economy was defeated by recession , and factory workers were forced to work under poor and dangerous condition, as the employer gave the first priority to productivity and profit . However, to the contrary, productivity and profit were not improved due to frequent occurrence of occupational accidents.

Then Mr. Gaily who was the president of US Steel which is one of leading steel manufacturers in the world, decided to improve working conditions to prevent accidents. As the results, as accidents decreased, productivity and profit increased. Mr. Gaily declared " Safety First" for the first time. "Safety First" then prevailed in the world.



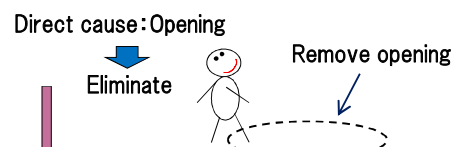
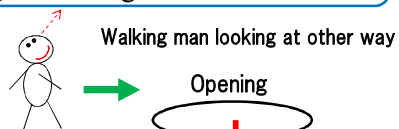
Chapter 2 : Basic Policies of Safety Management (3)



(2) Elimination of Causes

(3) Thorough Precaution

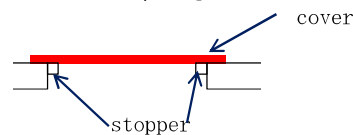
1st step : Elimination of Causes



2nd step :Precaution(1)

Opening may not be removed, but not used.

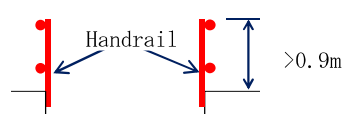
Cover opening



3rd step :Precaution (2)

Opening is needed to be open for the works

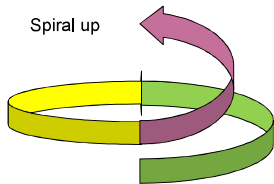
Install handrail



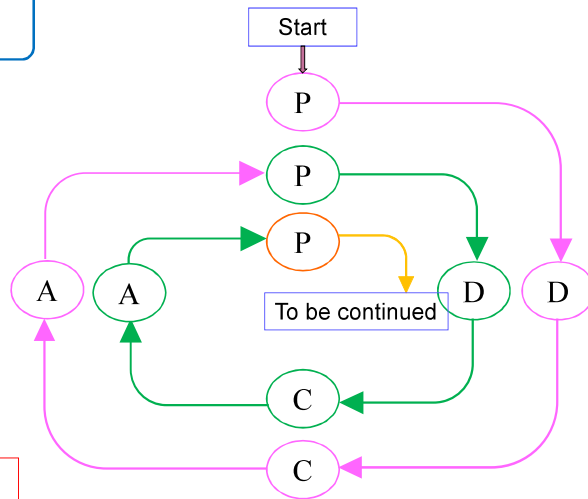
PDCA Cycle for Safety Management

P:Plan
D:Do
C:Check
A:Action

Spiral up



Improve Quality by the implementation of PDCA Cycle



What is “Safety Plan”?

Establish Safety Management System for the Project

Contents of “ Safety Plan”	
(1)	Basic Policy for Safety Management
(2)	Organization for Safety Management
(3)	Promotion of the PDCA Cycle
(4)	Monitoring System
(5)	Safety Education and Training
(6)	Voluntary Safety Management Activities
(7)	Sharing Information
(8)	Response to Emergencies and Unforeseen Circumstances

Chapter 3 : Contents of “ Safety Plan” (2)



(1) Basic Policy for Safety Management

- Basic Policy of the Employer
- Basic Policy of the Contractor
- Basic Policy of the Project

-Example-

Company’s Basic Policy for Safety Management

○○Construction Company Annual Safety Basic Policy in 2017

“Elimination of Causes by Thorough KY Activities”

“Eradication of Serious Accident”

Safety Slogan

“ Find out and eliminate hidden danger by KY activities”

Project Basic Policy for Safety Management

“ Achieve 0 danger by thorough Risk Assessment and KY Activities”

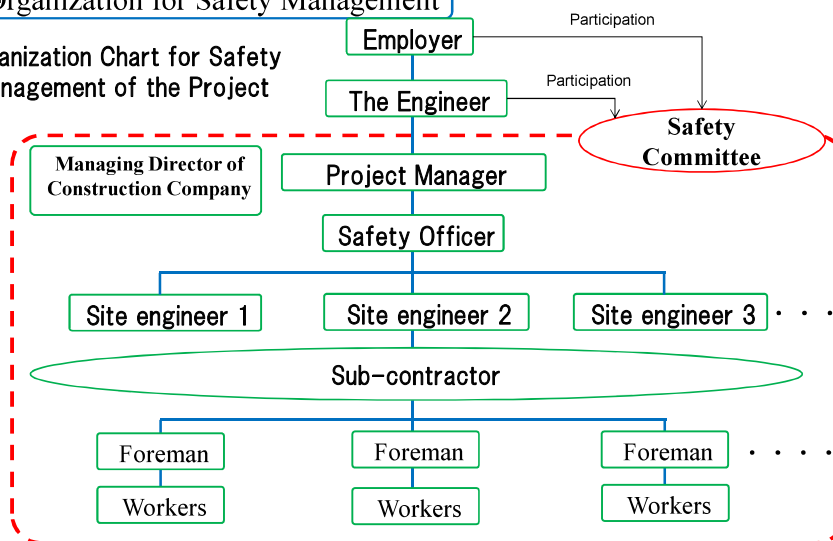


Chapter 3 : Contents of “ Safety Plan” (3)

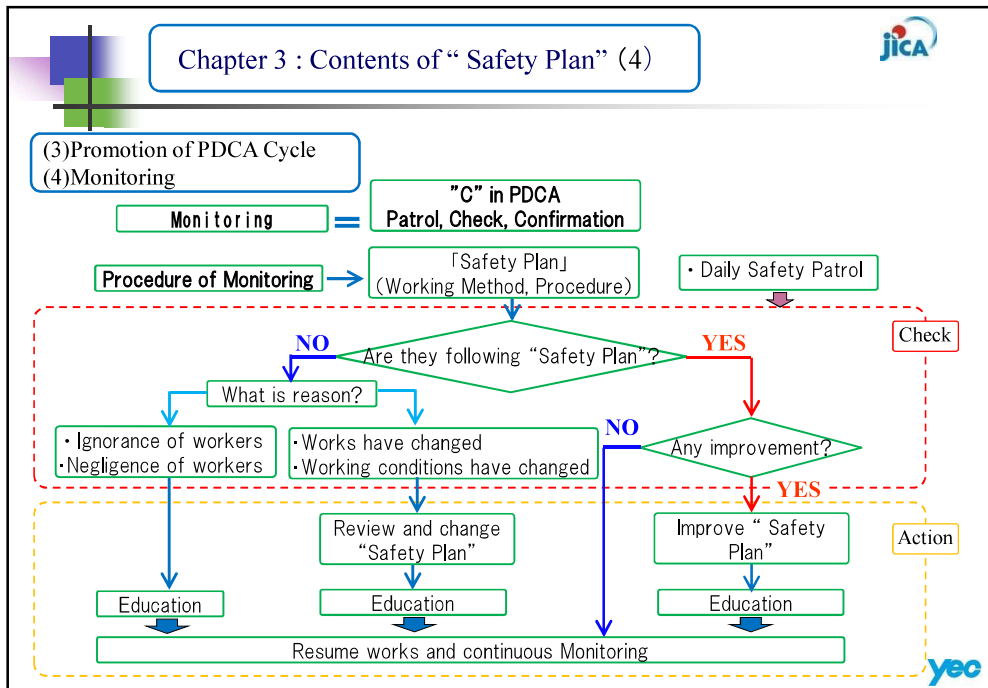


(2) Organization for Safety Management

Organization Chart for Safety Management of the Project



Chapter 3 : Contents of “ Safety Plan” (4)



Chapter 3 : Contents of “ Safety Plan” (5)



(5) Safety Education and Training

	Safety Education and Training	Contents	Target personnel
1	Education on Safety Laws and Regulation	• Safety Laws and Regulation with respect to the works	Engineer, Foreman
2	New Arrival Education	• All persons who newly arrived at the site shall be educated for the following items • Outline of the project • Rules on site • Daily Safety Construction Cycle, and so on	All personnel
3	Education of Safety Working Procedure	• Safety Working Procedure in accordance with "Safety Plan"	All workers
4	Education of Safety Working Procedure when changed	• Re-education of Safety Working Procedure when it has been changed.	All workers
5	Periodical Safety Education and Training	• Monthly Safety Meeting • Safety Patrol	All personnel



Chapter 3 : Contents of “ Safety Plan” (6)



(6) Voluntary Safety Management Activities

1	Daily Safety Construction Cycle
2	KY Activities
3	5S(3S) Activity
4	Monthly Safety Meeting
5	Safety Slogan
6	Safety Award
7	(Various Safety Activities) <ul style="list-style-type: none"> • Communication Activity • Stone -Paper Activity • Finger Pointing Activity

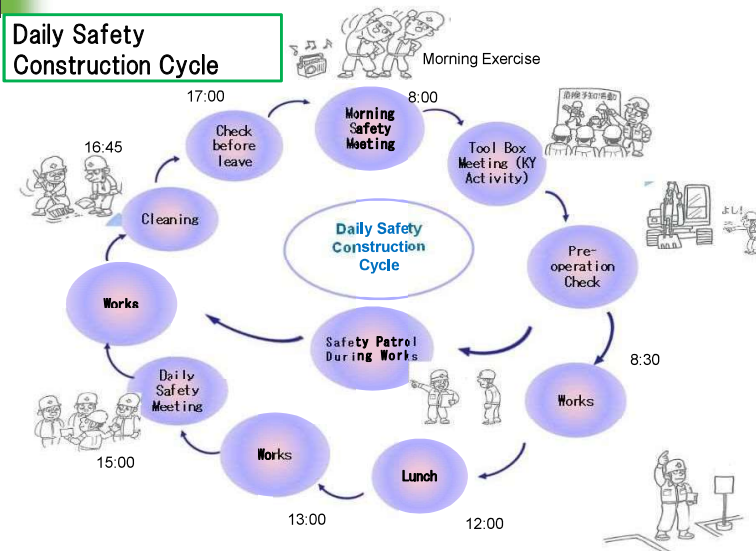
Promotion of Safety Awareness



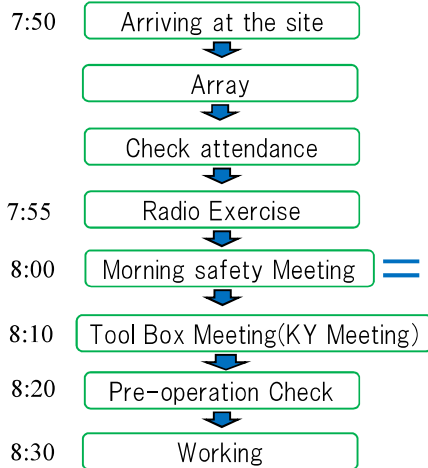
Chapter 3 : Contents of “ Safety Plan” (7)



Daily Safety Construction Cycle



Morning Safety Meeting



- 1 Safety Speech from PM
- 2.Today’s works of each working group
 - Contents of works
 - Safety Instruction
 - Number of workers
- 3.Shearing Information
- 4.Chorus of Safety

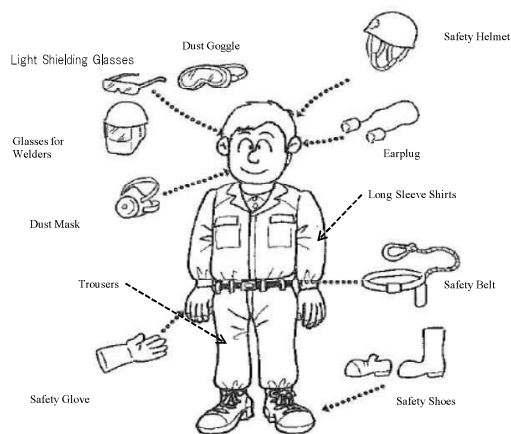
Morning Safety Meeting



Morning Safety Meeting



Wear PPE (Personal Protective Equipment)

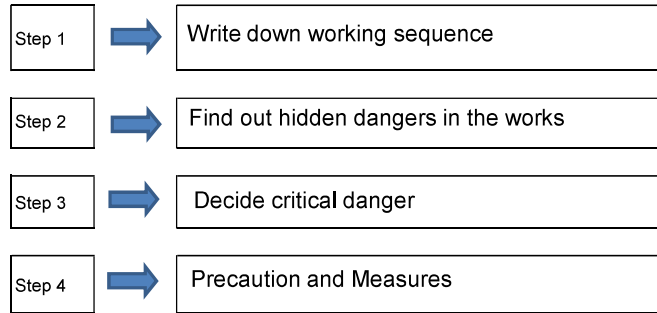


Chapter 3 : Contents of “ Safety Plan” (9)



KY Activity

KY= Kiken Yochi (Danger Prediction)



Chapter 3 : Contents of “ Safety Plan” (10)



Sample of KY
Scaffolding works

KY Board

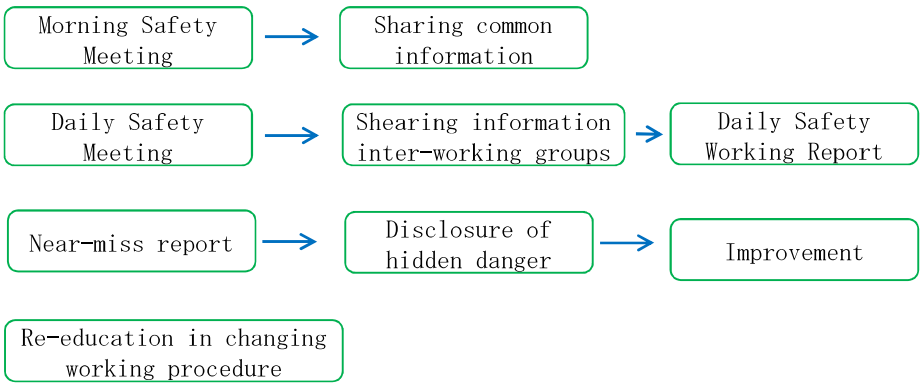
Working Sequence	Danger	Precaution
1 Transportation of Materials	Falling materials hit people	• Confirmations of signs
	Fall from high stage	• Keep out of under materials being transported • Use Safety Belt
2 Erection of scaffolding	Falling materials hit people	• Keep out from working area • Install keep-out barrier
	Fall from high stage	• Use Safety Belt



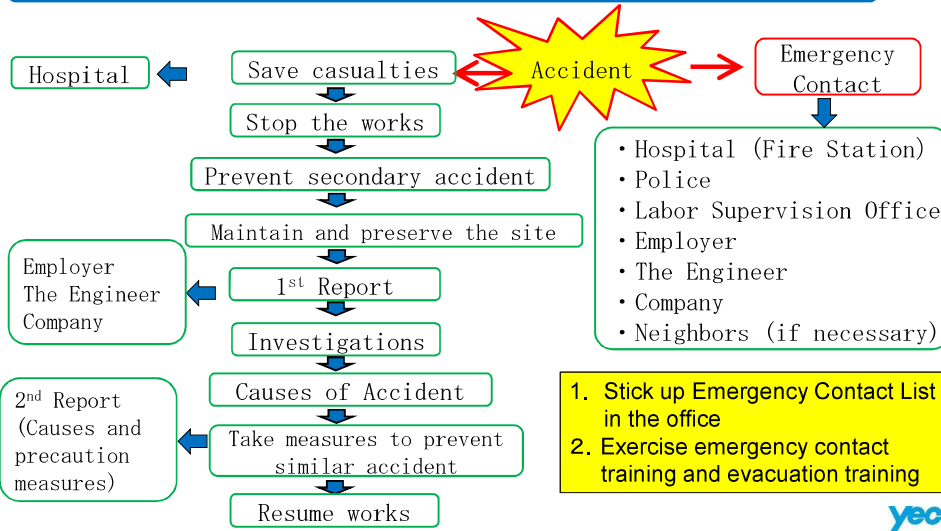
5S (3S) Activity

Seiri (Arrangement)	Distinguish necessary materials and equipment and those unnecessary and remove the latter from site
Seiton (Tidy-up)	Place and store materials and equipment in the certain location in tidy manner
Seisou (Cleaning)	Cleaning up the site after work
Seiketsu (Hygiene)	Make site and circumstances hygiene
Shitsuke (Discipline)	Following rules

(7) Sharing Information



(8) Response to Emergencies and Unforeseen Circumstances



“Method Statement on Safety ” :

Based on “Safety Plan”, specific safety plan is prepared taking specialties and construction conditions into account

Contents of “Method Statement on Safety ”	
(1)	Facilities and equipment to be used
(2)	Tools to be used
(3)	Materials to be used
(4)	Necessary qualification
(5)	Organization structure chart
(6)	Works items
(7)	Method and Working Sequence
(8)	Anticipated Risk
(9)	Precautions

Risk Assessment Working Sequence

Chapter 4 : Contents of “Method Statement on Safety ” (2)



Risk Evaluation

Significance \ Probability	1 Minor (no absence from work)	2 Serious (absence from work)	3 Very serious (death, permanent handicap)
1 Rare	1 (Very Minor problem)	2 (Minor problem)	3 (Some problem)
2 Middle Possibility	2 (Minor problem)	4 (Serious problem)	6 (Very serious problem)
3 High Possibility	3 (Some problem)	6 (Very serious problem)	9 (Critical problem)

Take precaution measures to Risk exceeding 4



Chapter 4 : Contents of “Method Statement on Safety ” (3)



Risk Assessment Working Sequence (example)

Works: Road Excavation

No	Work Sequence	Risk	Risk Assessment			Measures to be taken	Remarks
			Probability (1)	Significance (2)	Evaluation (3)=(1x2)		
1	Transport Excavator to site	1.1 Excavator fall down from trailer when unloading	1	2	2		
		1.2 Excavator hit worker when moving	1	3	3		
2	Excavation	2.1 Excavator hit worker when turning	3	3	9	Prohibit entering working area Install Barrier	
		2.2 Excavator hit passenger when turning	2	3	6	Allocate Flagman Install Barrier	
		2.3 Excavator hit public vehicle when turning	2	3	6	Allocate Flagman Install Barrier	
		2.4 Excavator falls down into excavated area	1	2	2		
3	Dump Track Move in	3.1 Dump track fall down into excavated area	1	2	2		
		3.2 Dump track hit public traffic	2	3	6	Allocate Flagman	
4	Loading Excavated Material	4.1 Excavator hit worker when turning	3	3	9	Prohibit entering working area Install Barrier	
		4.2 Excavator hit passenger when turning	2	3	6	Allocate Flagman Install Barrier	
		4.3 Excavator hit public vehicle when turning	2	3	6	Allocate Flagman Install Barrier	
5	Dump Track Move out	5.1 Dump track hit public traffic	1	3	3		
		5.2 Material fall down on public road	3	1	3		
6	After Work	6.1 Public vehicle fall into excavated area	3	3	9	Install Barrier with lump	
		6.2 Passenger fall into excavated area	3	3	9	Install Barrier with lump	

Measures should be taken to Risk Evaluation more than 4



Risk Assessment Working Sequence (example)

Works: Road Excavation

No	Work Sequence	Safety Work Sequence	Who	When	Where	Remarks
1	Transport Excavator to site	1.1 Install Barrier	Worker	Before work	Surrounding working area	
		1.2 Allocate Flagman	Flagman	When transport	At entrance	
		1.3 Trailer move in	Operator			
		1.4 Unloading Excavator	Operator			
2	Excavation	2.1 Install Barrier	Worker	Before work	Surrounding working area	
		2.2 Allocate Flagman	Flagman	During work	At working area	
		2.3 Excavation	Operator			Prohibit entering working area
3	Dump Track Move in	3.1 Allocate Flagman	Flagman	When Move in	At entrance	
		3.2 Dump track Move in	Operator			
4	Loading Excavated Material	4.1 Install Barrier	Worker	Before work	Surrounding working area	
		4.2 Allocate Flagman	Flagman	During work	At working area	
		4.3 Loading Excavated Material	Operator			Prohibit entering working area
5	Dump Track Move out	5.1 Allocate Flagman	Flagman	When Move out	At entrance	
		5.2 Dump track Move out	Operator			
Repeat 3-5						
6	After Work	6.1 Install Barrier with lump	Worker	After work	Surrounding working area	

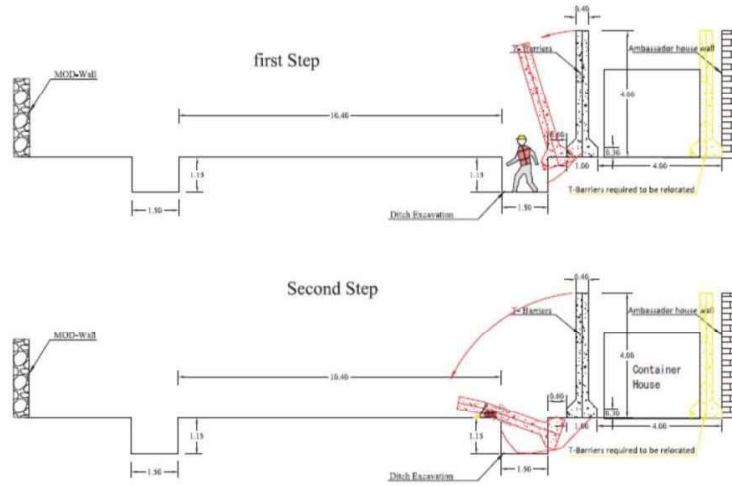
§ 5-1 Sample Accident (Search the Causes)



Sample Accident (Practice)

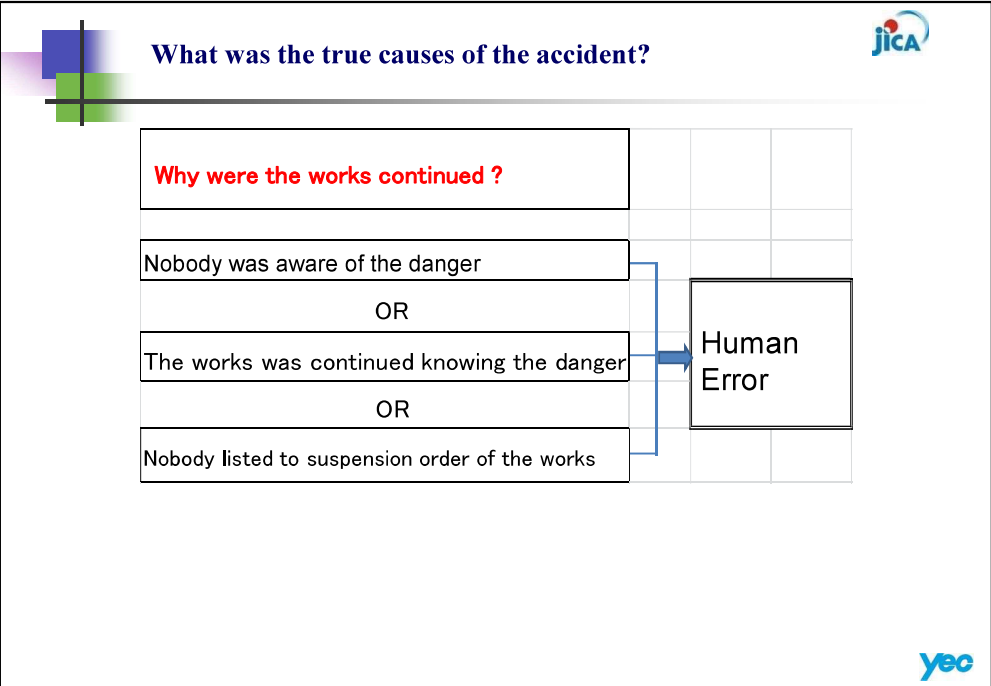
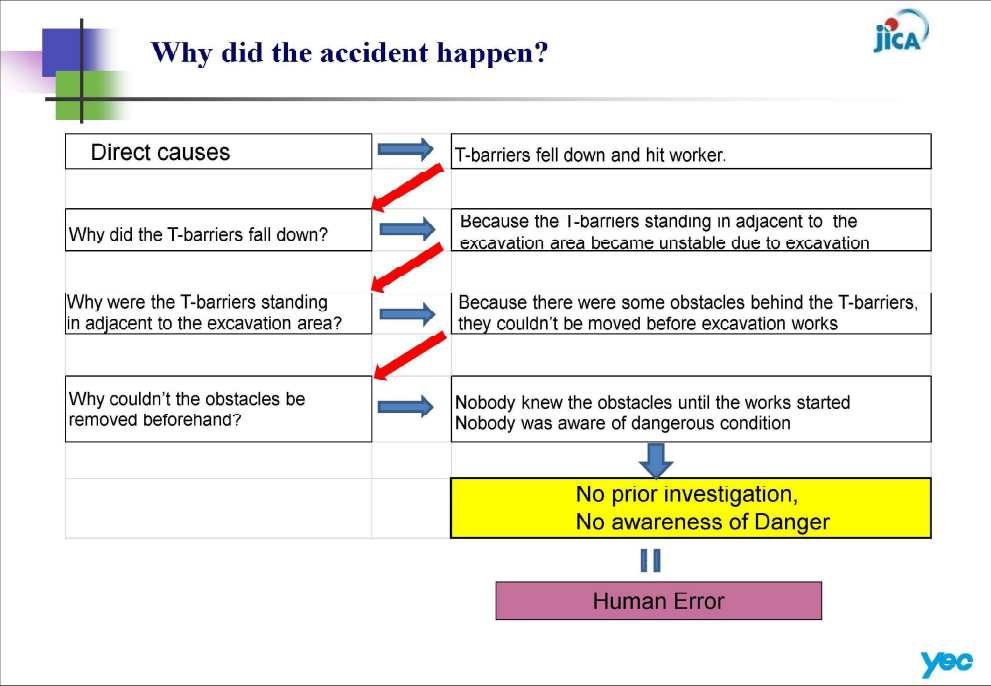


Occurrence of accident

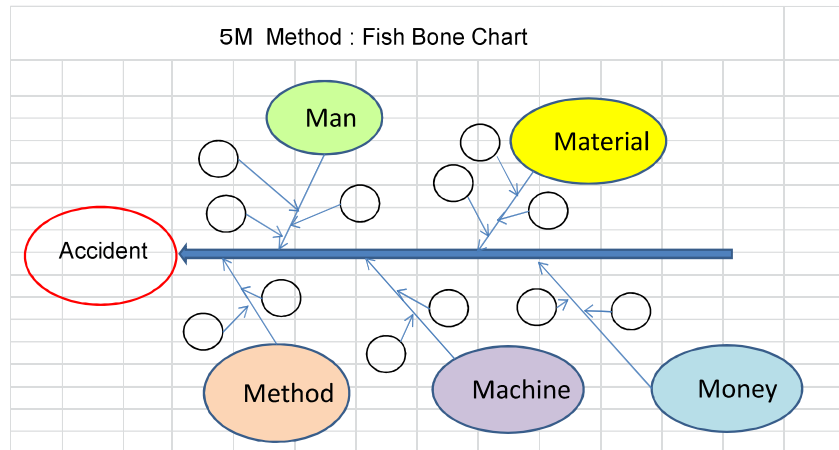


Suspend the works to prevent further accident





How to search causes



yec

Prevention of Human Error



Most accidents were caused by Human Error



No accident could not have been avoided

However,



Human may always make mistakes
• Human forgets
• Human tries to take short cut
• Human wants to think it is OK
• Human wants to think nothing happen to himself
• Human believes blindly



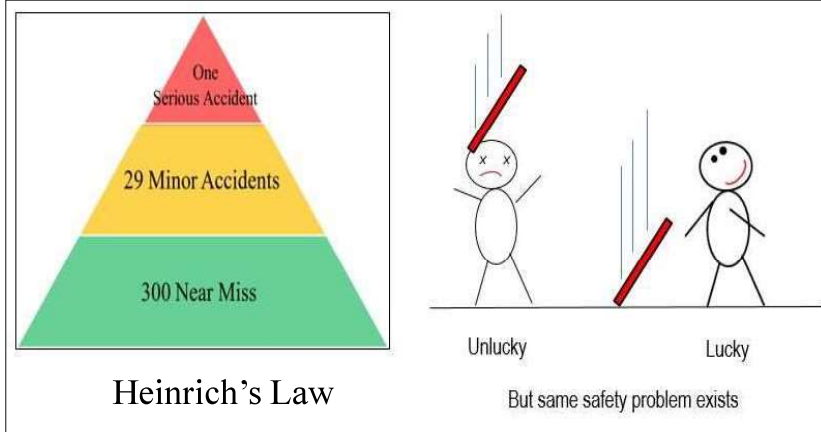
To prevent Human Error

||
3 C

Check
Communication
Confirmation

yec

Heinrich's Law



§ 5-2 What are hidden dangers?



What are hidden dangers?



What are hidden dangers?



What are hidden dangers?

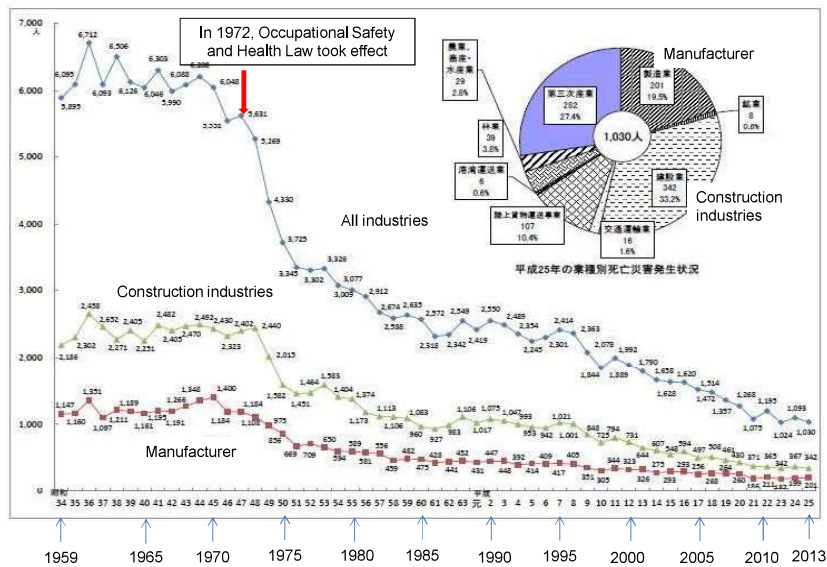


What are hidden dangers?



§ 5-3 Accidents in Japan

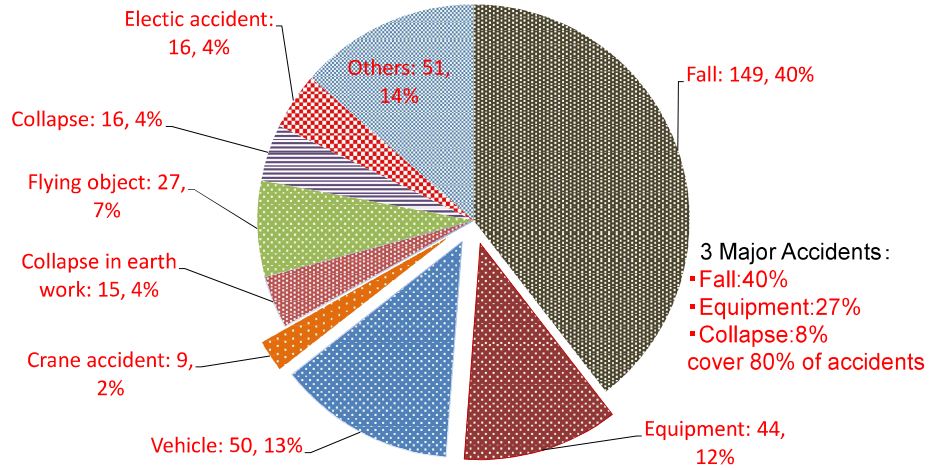
Numbers of Occupational Victims (death) in Japan (All industries)



Type of Accident in Construction

In 2014

Death :377



§ 5-4 Sample of Heavy Equipment Accidents

Over-turning due to mistake in operation



Over-turning , fell down into river due to lifting over loading



