# Final Report on the Study on Safety Management for Construction Work in Japanese ODA Project

# Workers Training Materials for Hazard Prediction

### February 2012

### JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

The Overseas Construction Association of Japan, INC

EID
JR
12-025

### Final Report on the Study on Safety Management for Construction Work in Japanese ODA Project

### **Workers Training Materials for Hazard Prediction**

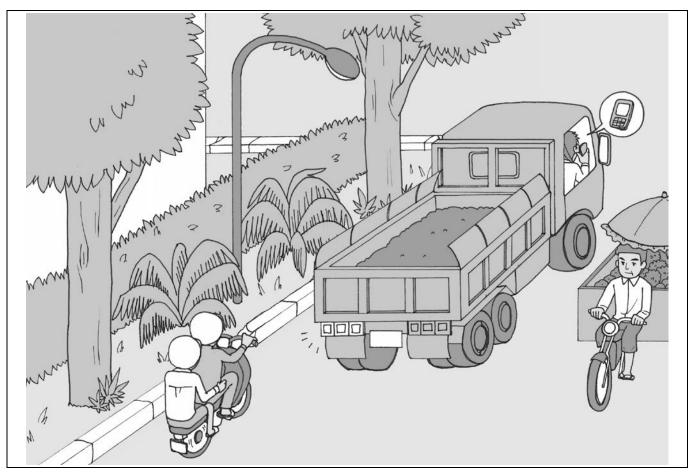
### **♦Table of Contents**

How to use this handout ·····	
Case 1 Dump truck collided with motorcycle at the crossing	3
Case 2 Dump truck collided with oncoming motorcycle at the crossing	
Case 3 Commuter car crashed into front running cart	
Case 4 Motorcycle crashed into truck under repair	9
Case 5 Light truck hit a child suddenly appeared from behind the parked bus	11
Case 6 Light truck hit a child playing on the road	13
Case 7 Van rear-ended a car that was trying to avoid running dog	15
Case 8 Going-back dump truck hit worker	17
Case 9 Going-back rubber-tired roller hit worker ·····	
Case 10 During night time work, road roller hit worker	21
Case 11 Worker riding on the back of truck fell down the ground	23
Case 12 Bulldozer operating in rain fell down the slope	25
Case 13 Dump truck trying to avoid fallen rock tumble down	27
Case 14 Operator lost control of road roller and fell down	
Case 15 Telephone pole pulled down by power shovel hit worker	31
Case 16 Workers were buried alive by mudslide during excavation	
Case 17 Asphalt block fell onto the worker's head during excavation	35
Case 18 Wire rope slipped off and hanged material fell down and hit worker	37
Case 19 Tool fell down from scaffolding floor and hit worker on the ground	39
Case 20 Worker fell down while working in high places	41
Case 21 Worker fell down while doing concrete placement	43
Case 22 Worker was caught between hanged material and temporary placed material	45
Case 23 Worker was caught between backhoe and temporary placed material	47
Case 24 Worker was caught between backhoe and dump truck	49
Case 25 Worker tripped up and fell down while carrying material	
Case 26 Workers got electric shock by approaching too closely to high-voltage line	
Case 27 Child fell into a deep puddle on the construction site and drowned	55

### How to use this handout

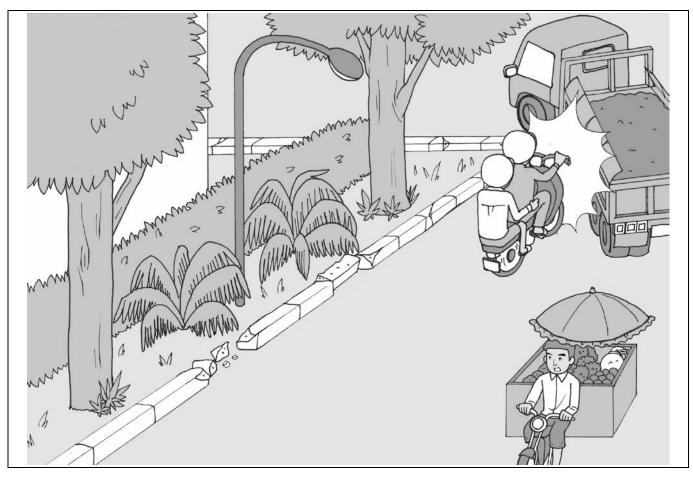
- 1. Please check illustration (A) in each case.
- 2. Where are the underlying potential dangers or risks? Please think and list up.
- 3. Why is that dangerous? Please think.
- 4. If you are placed in the scene, what will you do? Please think again.
- 5. Illustration **(B)** is one of the results when no countermeasures are taken against potential risks.

### Dump truck is running on the road and trying left turn...



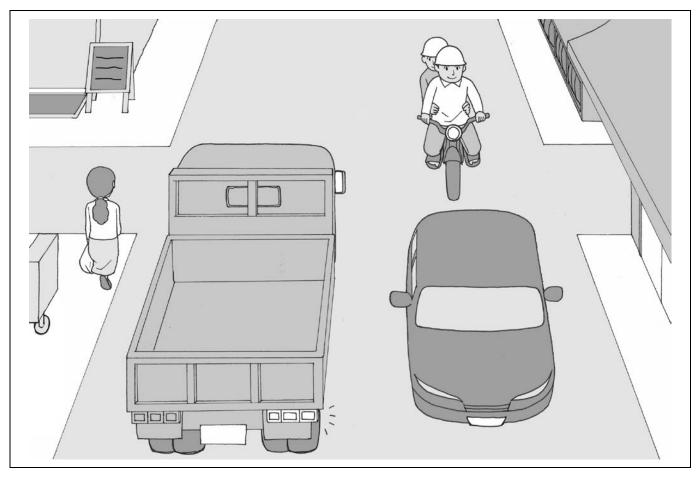
<noie></noie>	

Driver is focused on the mobile phone, and a motorcycle behind crashed into the truck.



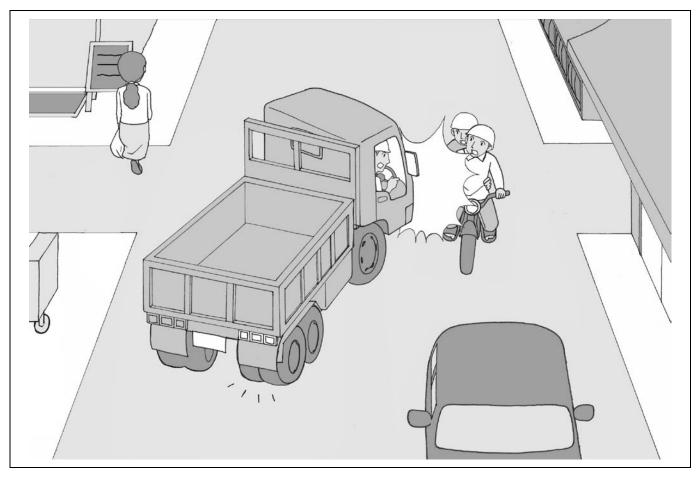
<nuie></nuie>	_
	-
	<del>-</del>

# Dump truck is trying right turn, a motorcycle is coming closer!



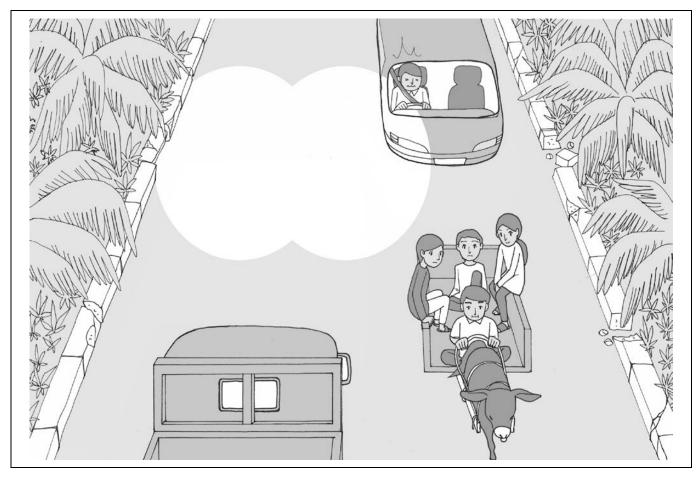
< NOTE >		
		111.111.111.111.111.111.111.111.111.11
		**************************************

# Dump truck collided with the motorcycle.



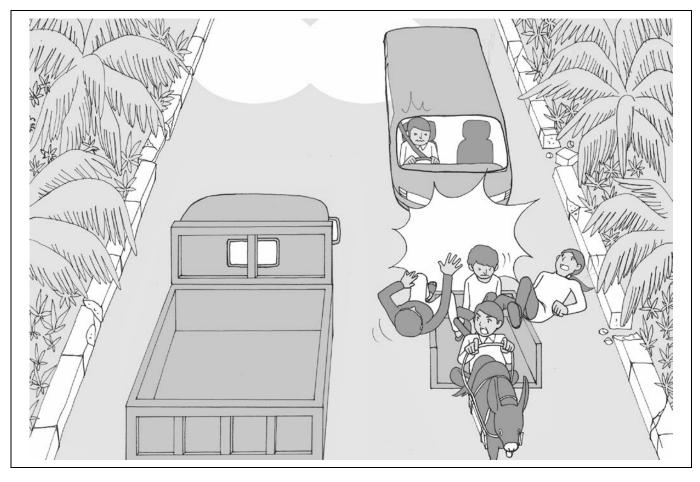
<nuie></nuie>	
	·····
	**************************************
	***************************************
	18118181818181818181818181818181818181

After work, a commuter car is moving for the camp, driver gets glare of oncoming headlights...



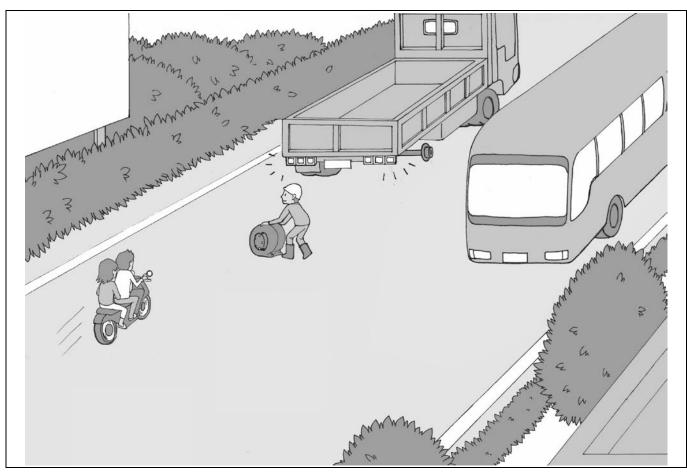
< NOTE >	

Driver was dazzled by headlights, the car crashed into a cart running in front of the car.



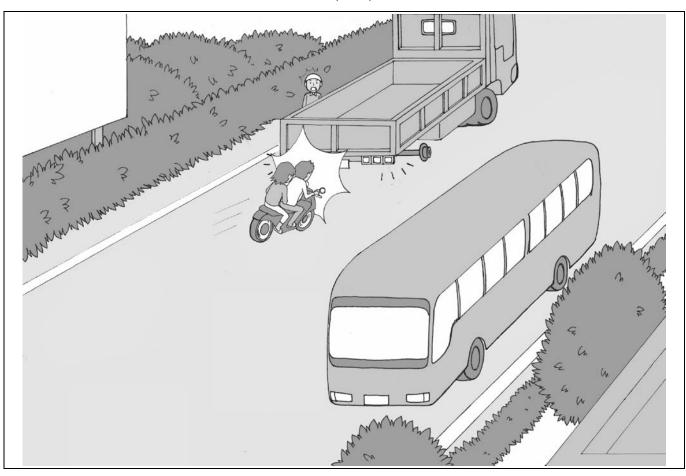
< NOTE >

# A man is changing a flat tire of a truck, and a motorcycle is approaching from behind...



< NOTE >	
	18188888888888888888888888888888888888

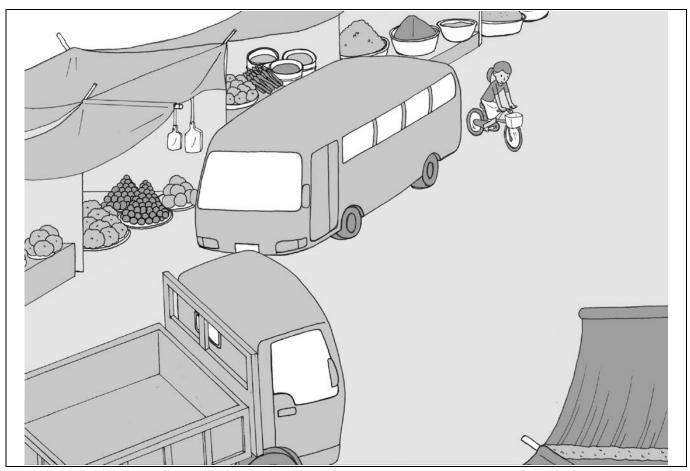
### The motorcycle crashed into the truck.



< NOTE >

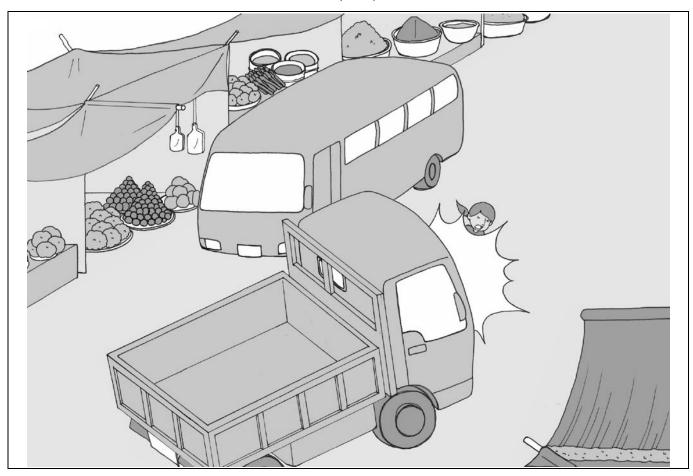
The light truck is running on the road, a child riding on a bicycle is coming from behind the parked bus.





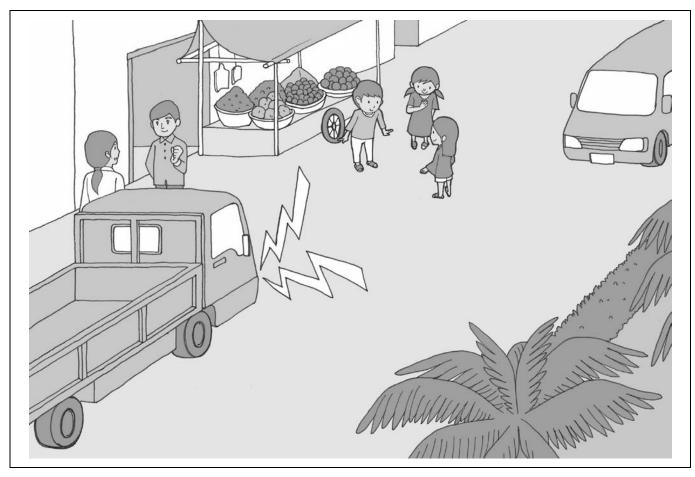
<nuie></nuie>	

# The light truck hit the child dashed out by bicycle.



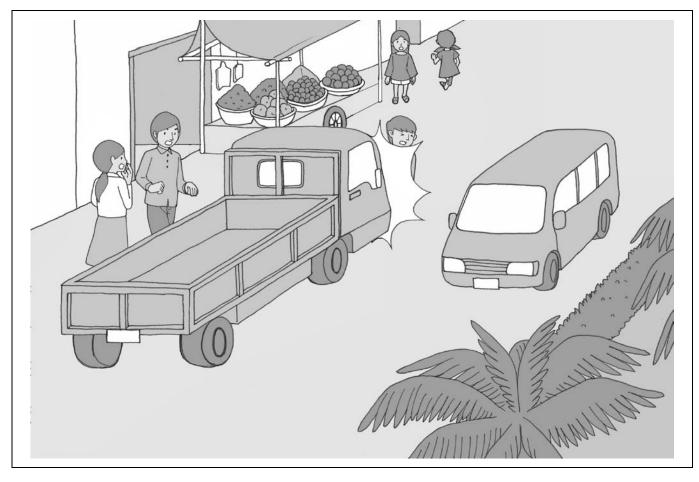
< NOTE >	

## Case6 Children are playing on the road, driver beeps the horn...



< NOTE >		
	 10.00.10.10.10.10.10.10.10.10.10.10.10.1	
	 	•

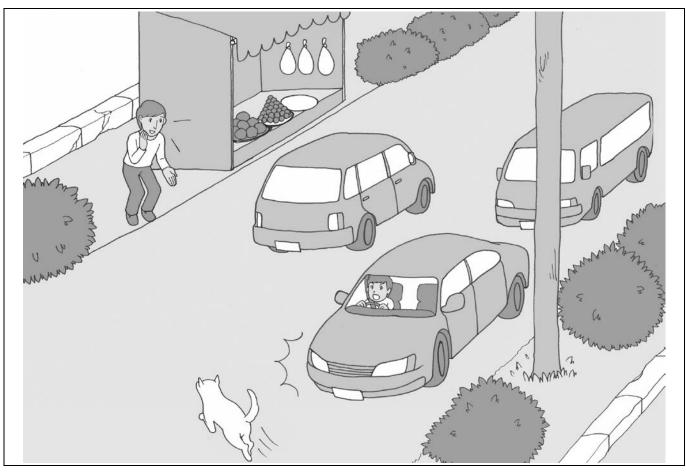
# The truck hit the child who couldn't escape.



< NOTE >	

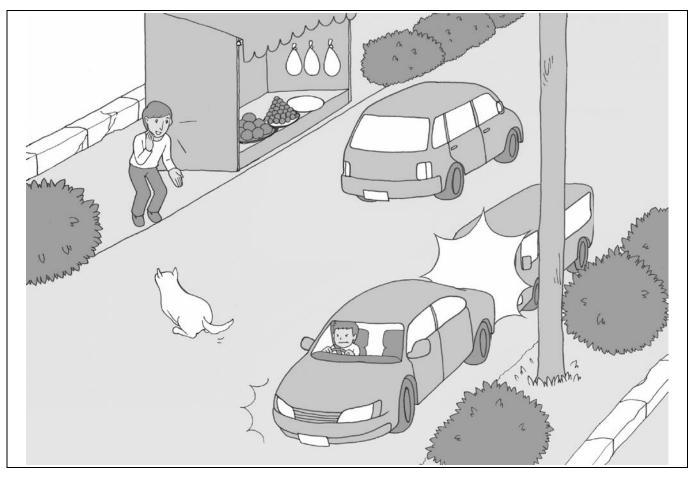
# A van is running behind the car very closely, suddenly a dog comes out...





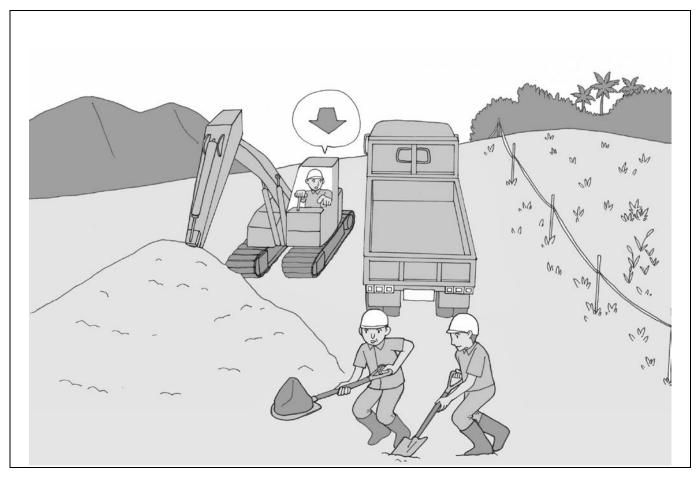
NOTE >	

# The van crashed into the front car that stopped suddenly.



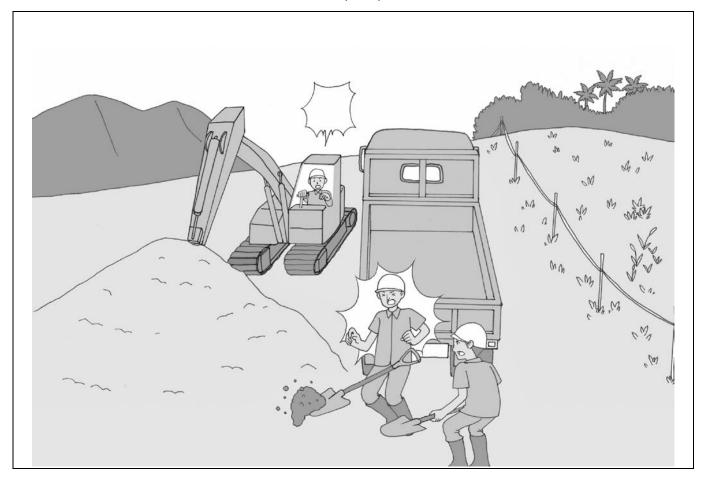
< NOTE >	
	**************************************
	110000100010000000000000000000000000000
	***************************************

### Dump truck is going back without checking back side...



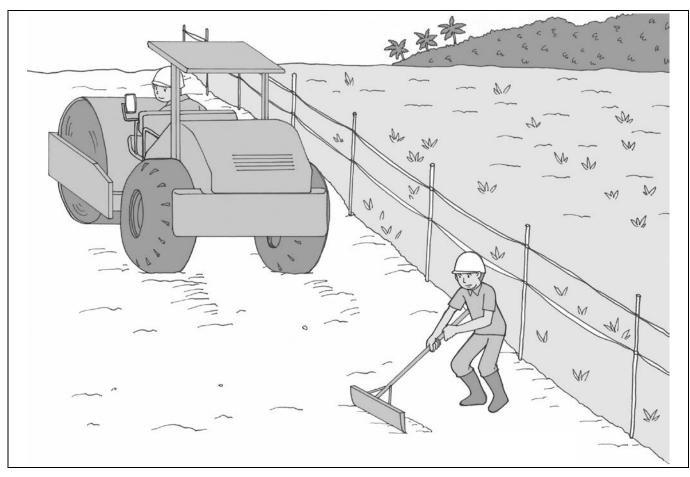
< NUIE>

# Case8 The truck hit the worker.



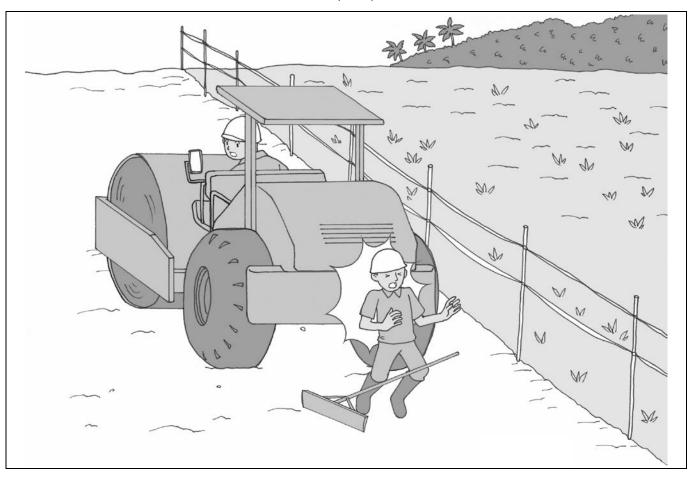
NOTE >	
	***************************************

## Both men are out of sight with each other...



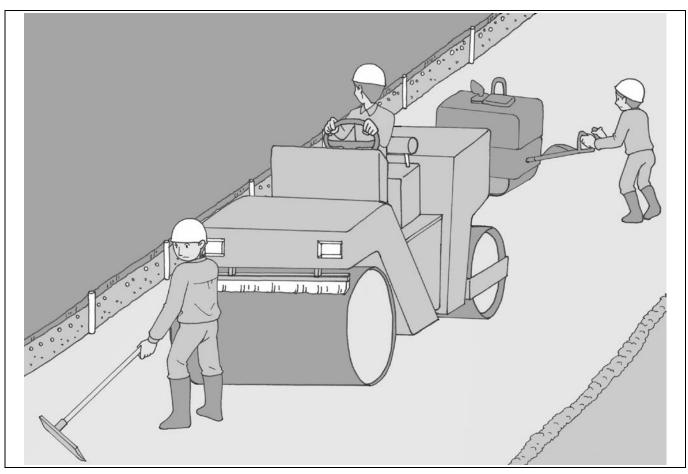
< NOTE >		
***************************************	 	 
***************************************	 	 
***************************************	 	 
***************************************	 	 ***************************************

## Going back rubber-tired roller hit the worker.



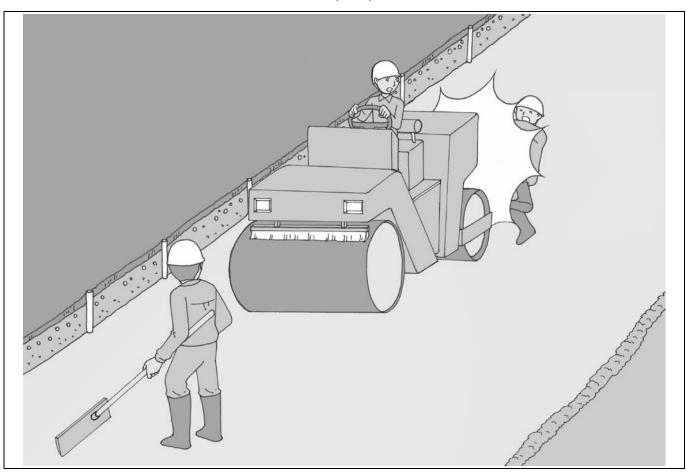
<noie></noie>			
		***************************************	
	 	***************************************	
	 	***************************************	
	 	***************************************	
	 	***************************************	
	 	***************************************	

# Case 10 At the nighttime work, in poor lighting surroundings...



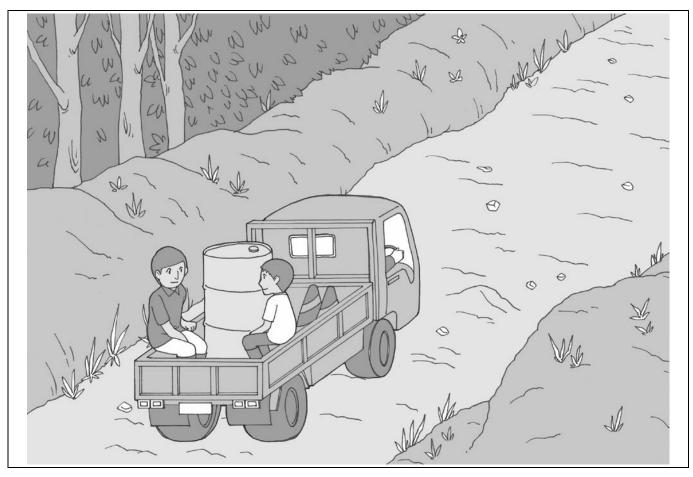
<note></note>	

# Case 10 Road roller hit a worker.



<note></note>	

### Workers are riding on the back of a truck.



NOTE >	

### A worker fell down to the ground.



< NOTE >	
	1888 1888 1888 1888 1888 1888 1888 188
	18181818181818181818181818181818181818
	180018001800180001000010000100000000000

In a rainy day, ground is squidgy, slope is partially collapsing...



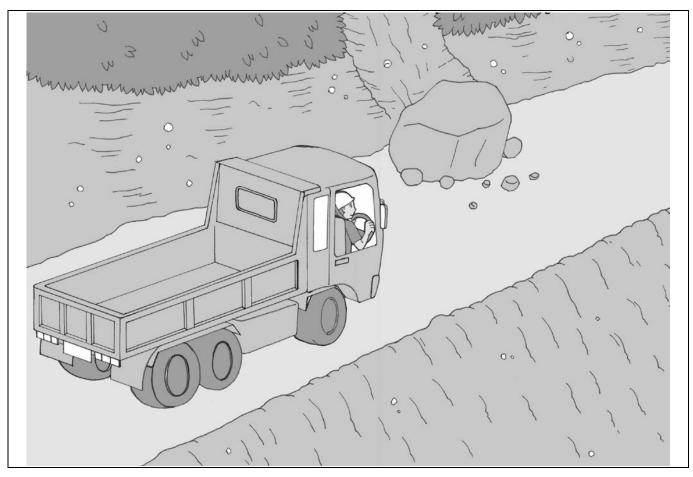
< NOTE >	

# Case 12 Bulldozer fell down the slope.



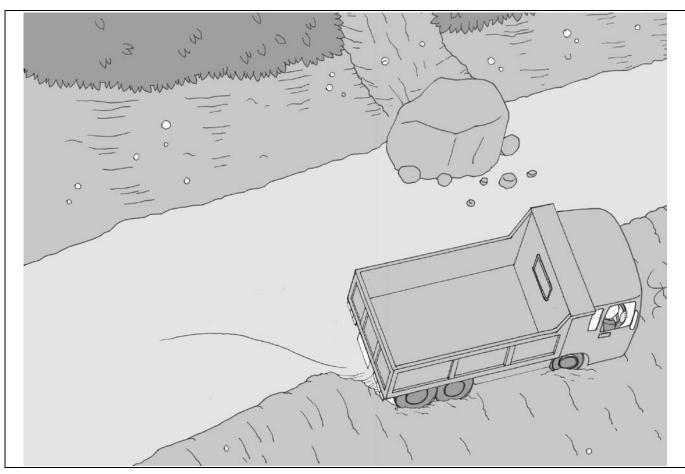
<nuie></nuie>	
	***************************************

Road is partially blocked by the fallen rocks, if the truck detours, it will take a long time...



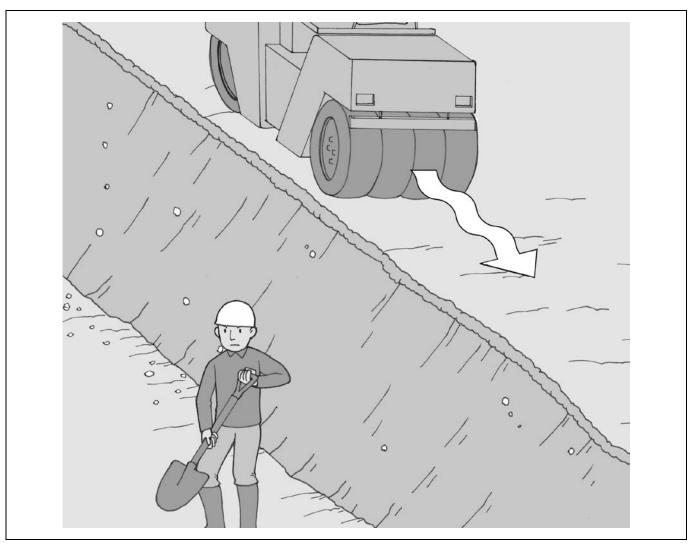
< NOTE >

## Case 13 The truck fell down the cliff.



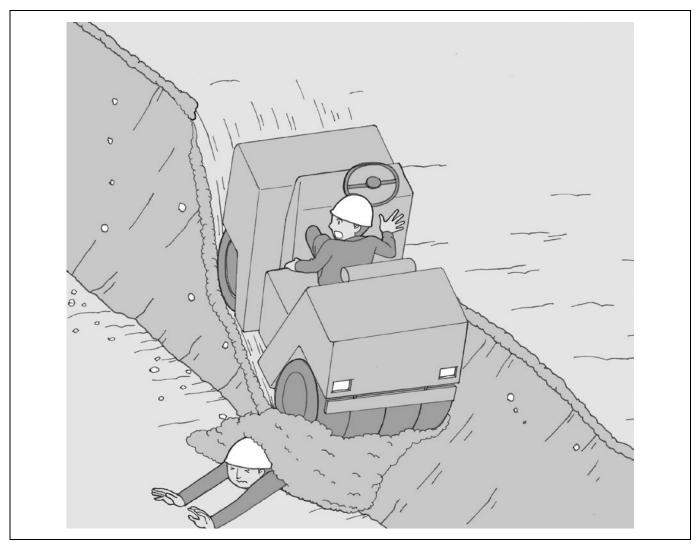
< NOTE >

Road roller is coming backward but driver is not looking at the rear side.



< NOTE >				
		***************************************		
1110101010101011011010101010101010101010	10.100.01.00.01.01.01.01.01.01.01.01.01.	010100100010001000100000000000000000000	0111010101010101010101010101010101010101	
		***************************************	***************************************	**************************************
1188818181818181818181818181818181818181	101101011111111111111111111111111111111			######################################

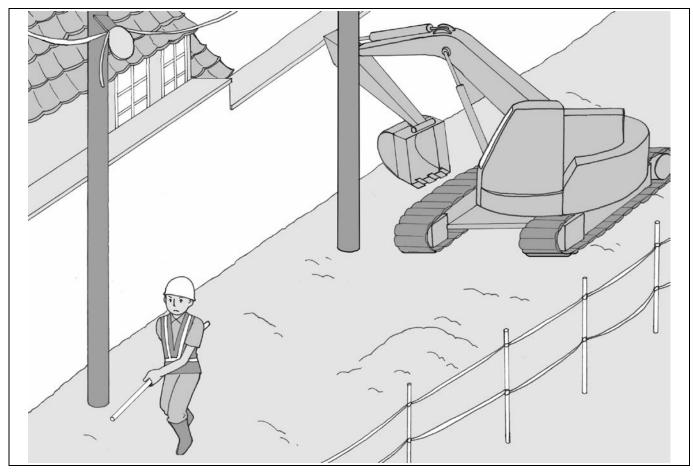
# Case14 The roller fell down.



< NOTE >		
	114891488414884484444444444444444444444	

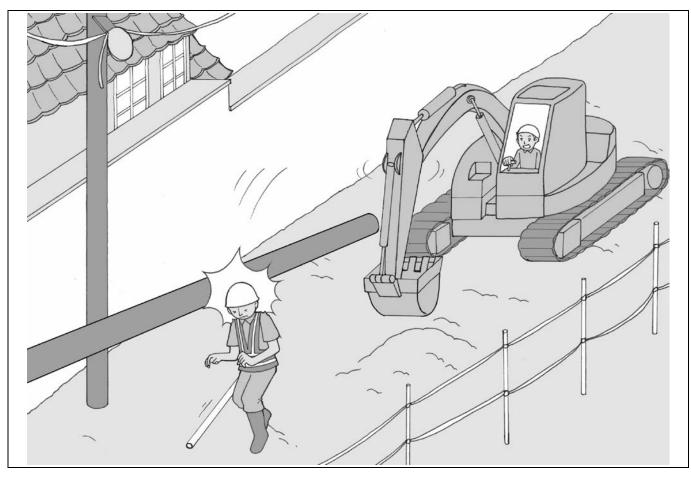
# Case 15 Power shovel is operating close to the telephone pole...





< NOTE >

# The shovel hit and turn down the pole and a worker was injured.



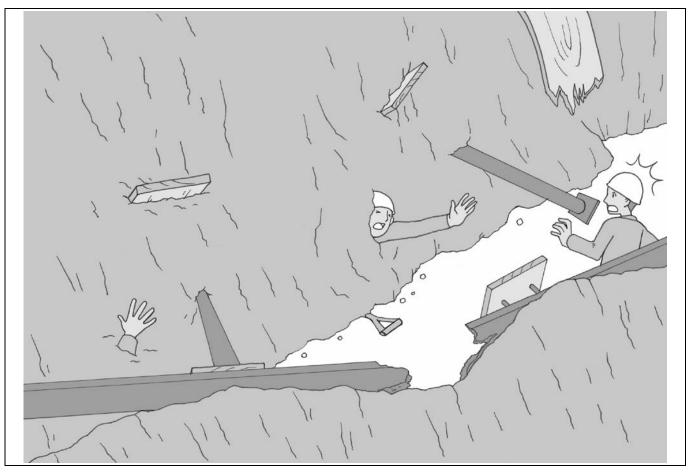
NOTE >	
	***************************************

# Case 16 Earth retaining is not enough and partially collapsing...



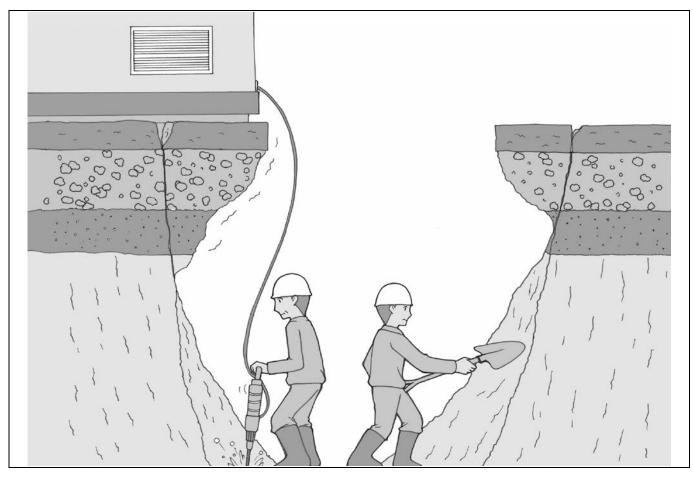
<note></note>	

# Case 16 Workers were buried alive by the mudslide.



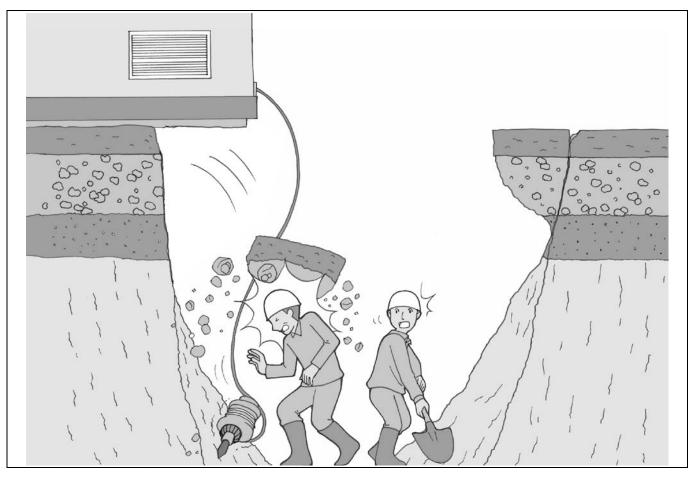
NOTE >	
	***************************************

## Case 17 Overhead asphalt pavement is on the brink of collapse...



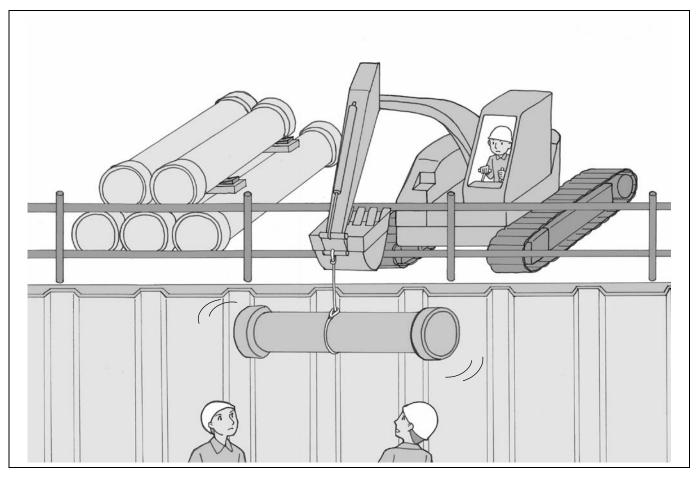
< NOTE >			
		 ***************************************	
***************************************		 ***************************************	
		***************************************	
***************************************		 ***************************************	
***************************************	111111111111111111111111111111111111111	 ***************************************	

### Case 17 Asphalt block fell onto worker's head.



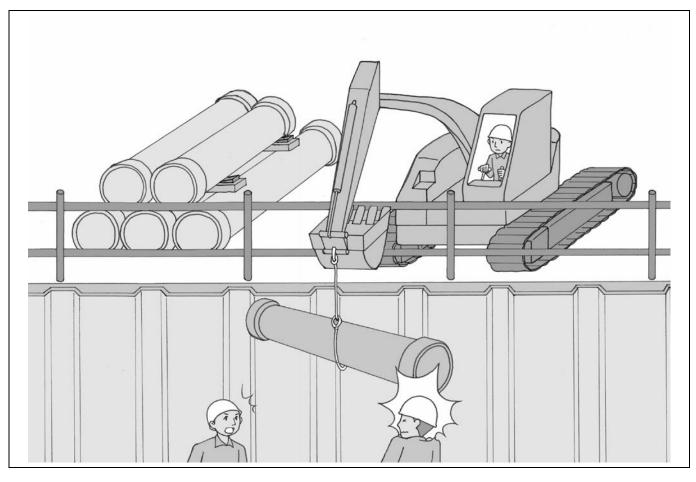
(NOTE >	

## Case 18 Hanging material is swaying...



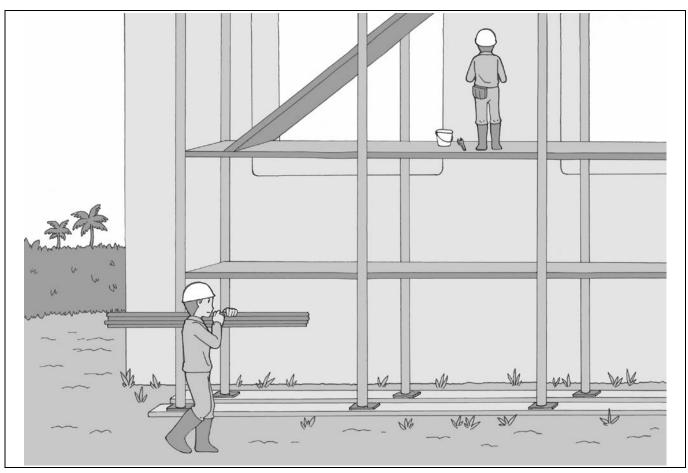
< NOTE >		
		-
		11 1 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		-

### Case 18 Hanged material fell down and hit a worker.



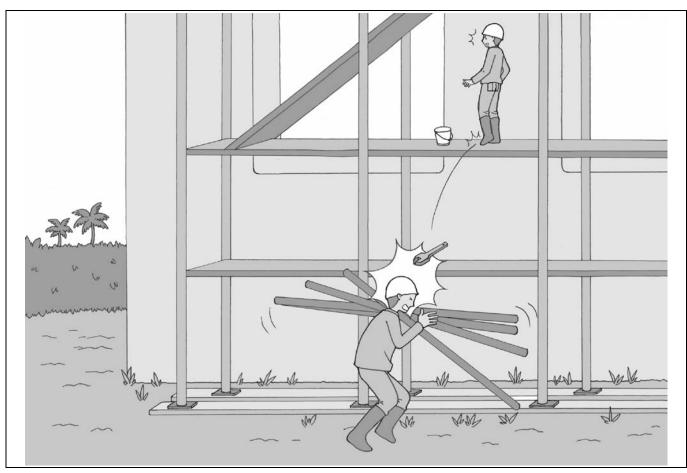
< NOTE >	
	1888 1888 1888 1888 1888 1888 1888 188
	18181818181818181818181818181818181818
	180018001800180001000010000100000000000

### Case 19 A spanner is placed on the high altitude floor...



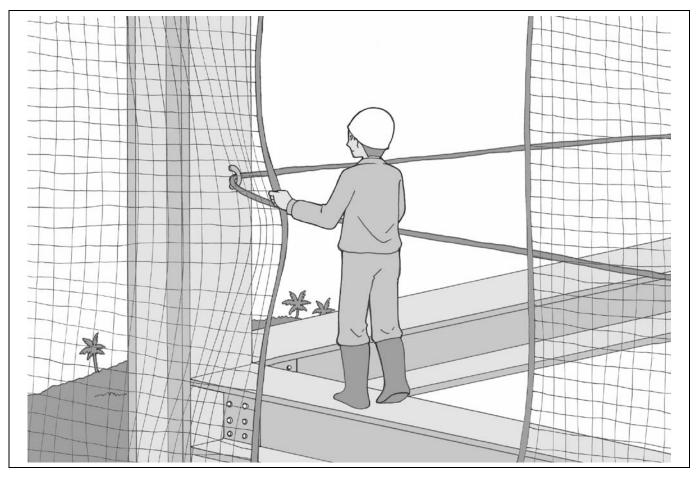
<note></note>	
	-
	-
	(#1.884.100.00.10.00.10.00.00.00.00.00.00.00.00
	-

### Case 19 The spanner fell down and hit a worker on the ground.



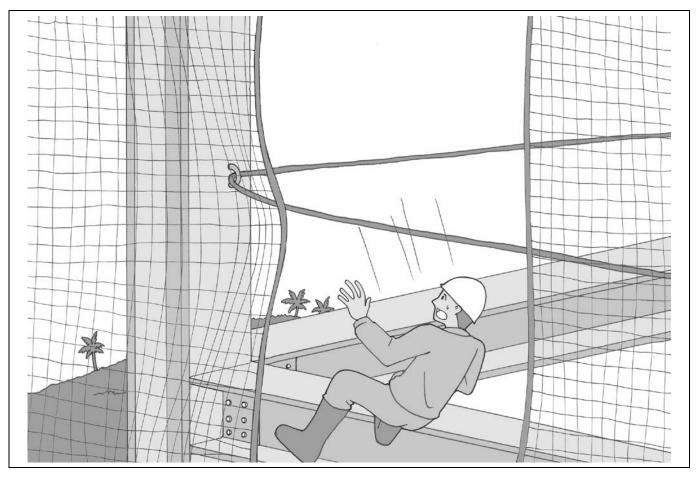
<nuie></nuie>	
	(#####################################

A worker is closing the net in high place without wearing safety belt...



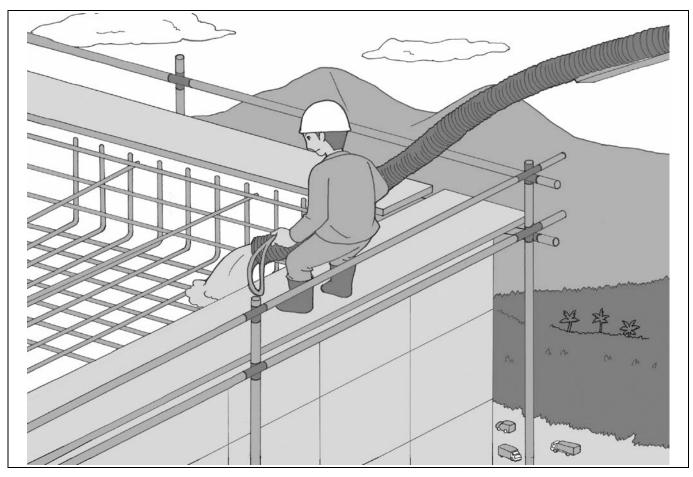
< NOTE >

### Case 20 Losing a balance, the worker fell down to the ground.



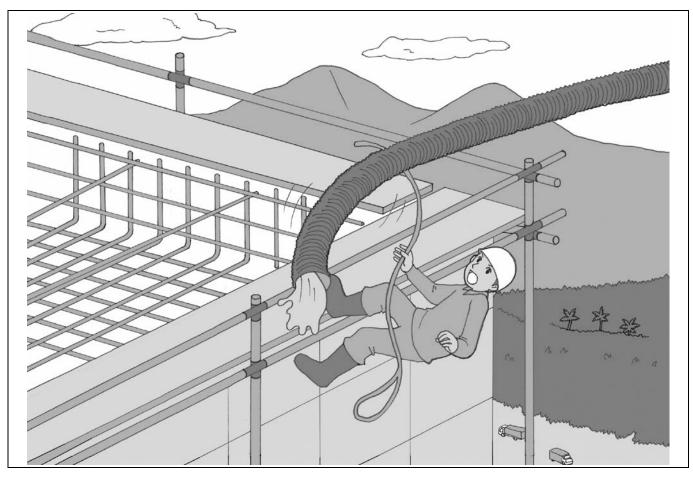
< NOTE >		
***************************************		
	 ***************************************	
***************************************	 	
	***************************************	

### Case21 A worker is doing concrete placement at high-place.



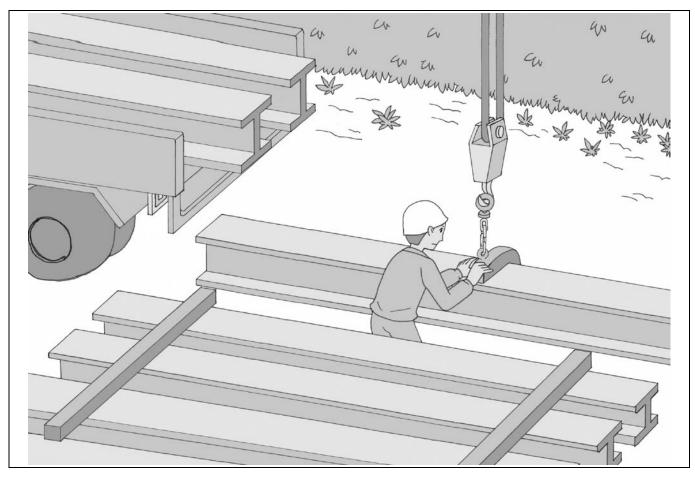
<note></note>	

# The worker fell down to the ground by the back action of the flexible tube.



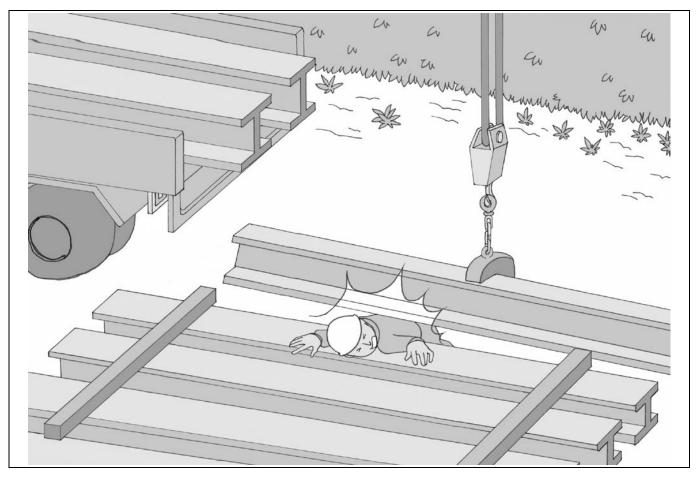
<note></note>	
	1148001120011400114001140011400114001140

### Case 22 Are you all right working on this place?



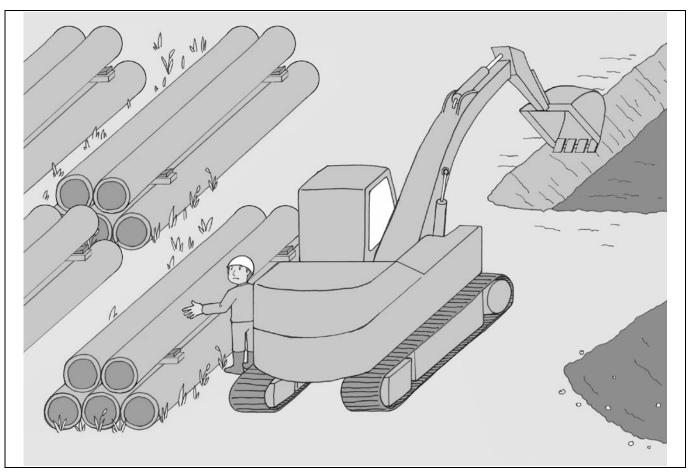
<nuie></nuie>	

The worker was caught between the hanged material and temporary placed steel plate.



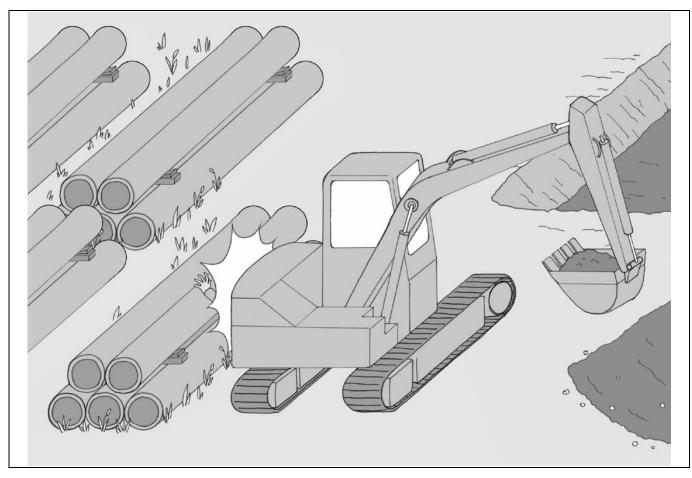
< NOTE >	

### Case 23 Isn't it dangerous to pass through there...?



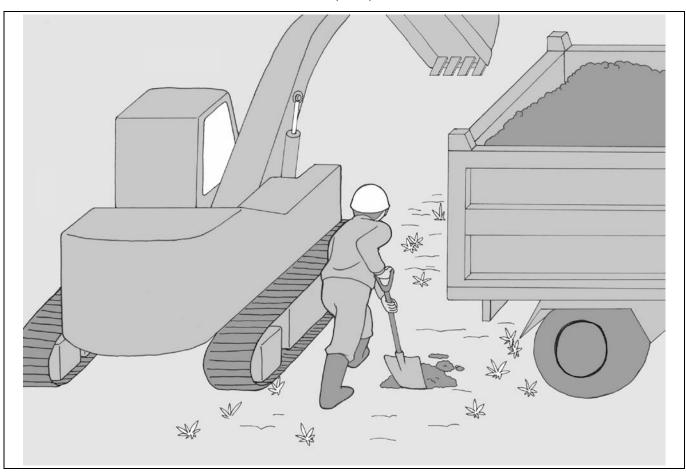
<note></note>		

The worker was caught between the backhoe and the temporary placed piping materials.



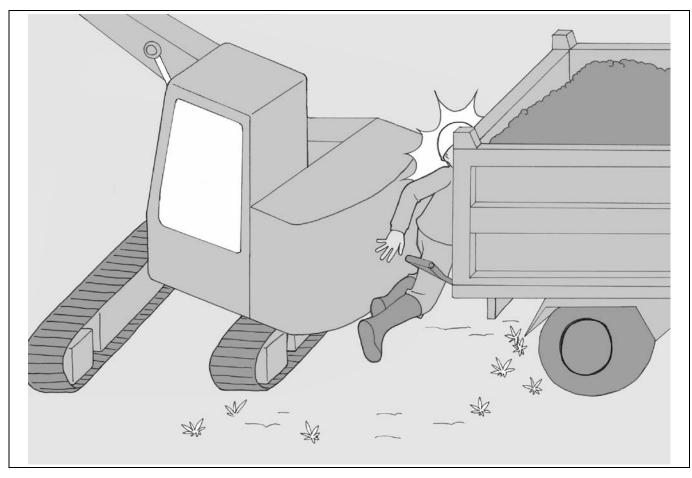
< NOTE >		

## Case24 Isn't it dangerous to work there...?



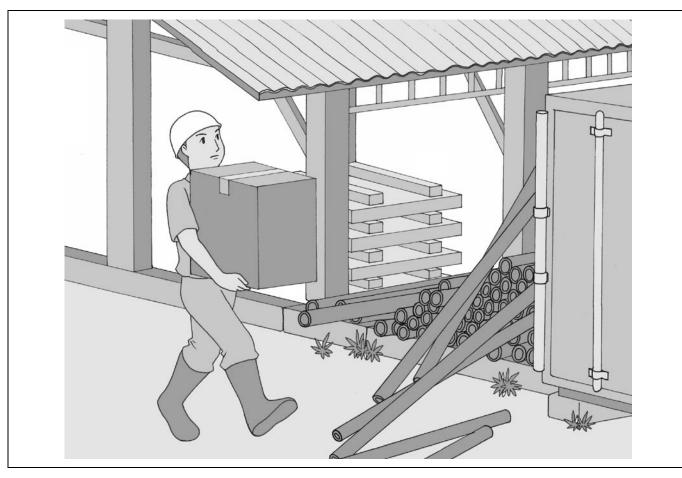
<note></note>	
	***************************************

The worker was caught between the backhoe and the dump truck.



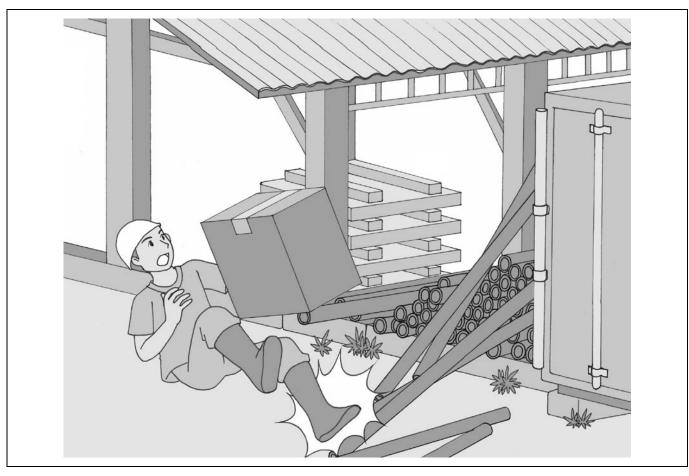
<note></note>	
	***************************************

# You are carrying something. Can you see your own footsteps?



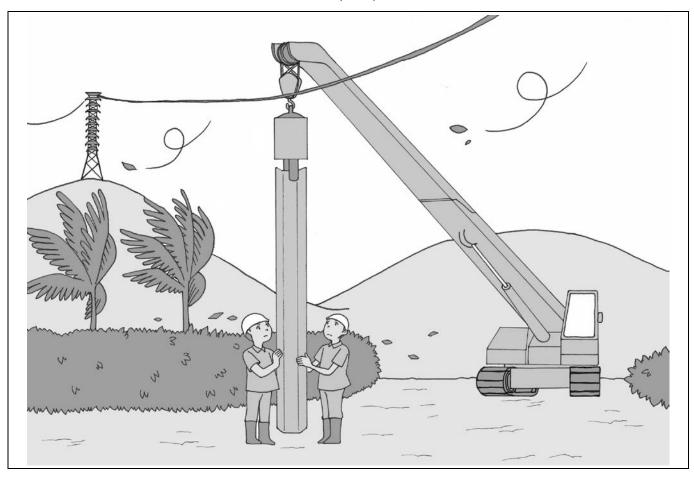
< NOTE >		
118881188118811818118118118118118181181	 	 

The worker was tripped by the scattered pipes and fell down.



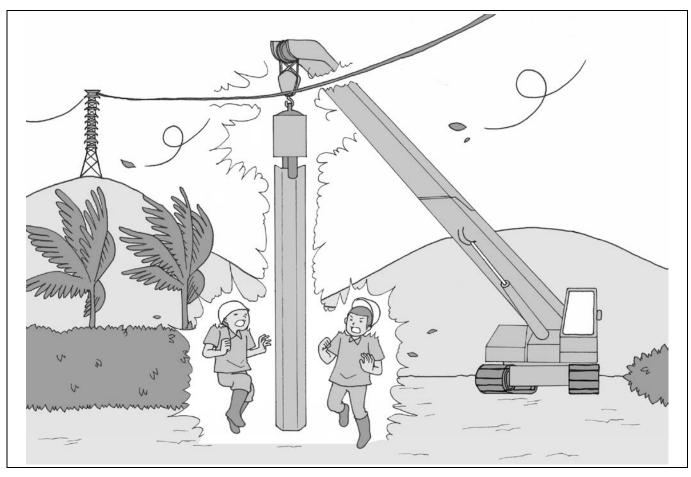
<note></note>

## Case 26 Strong wind is blowing, are you all right?



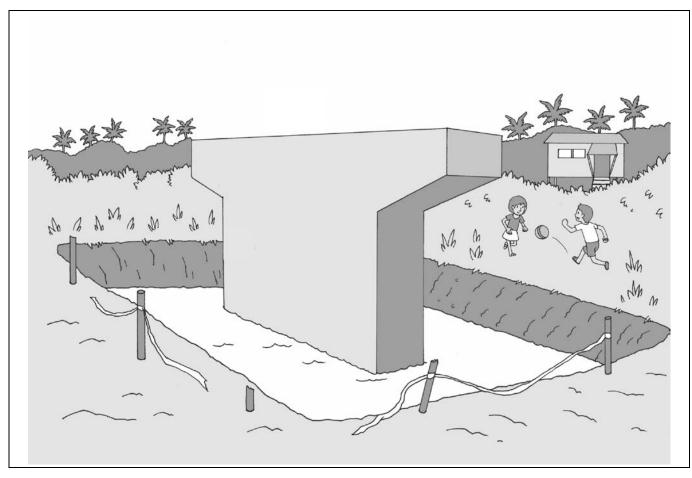
<noie></noie>	

The hanged material touched the high-voltage cable and workers got electric shock.



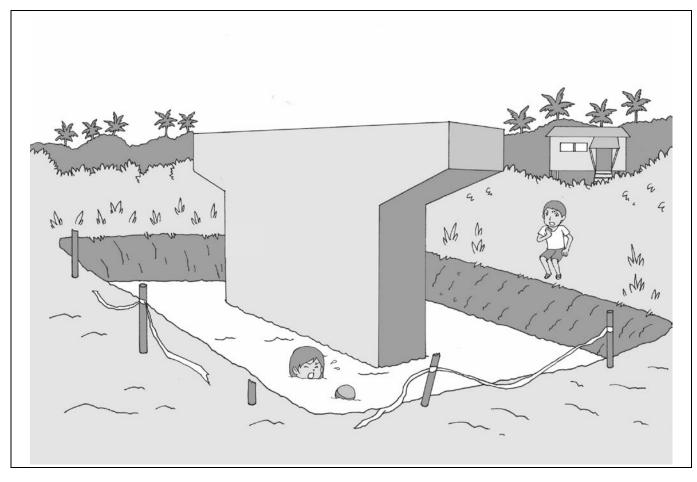
<note></note>	

# There is a deep puddle at the construction site, children are playing around it...



< NOTE >			
***************************************	 ***************************************		
		***************************************	
	 	***************************************	
	 	***************************************	

### Case27 A child accidentally fell into the puddle and drowned.



< NOTE >