

# East Japan Earthquake and Tsunami Survey Study on the Evacuation of Nursery Schools in Iwate

How were  
children  
saved ?



---

# East Japan Earthquake and Tsunami: Survey Study on the Evacuation of Nursery Schools in Iwate

“How were children saved?”

## Introduction

On March 11 2011, at 14:46, an enormous earthquake shook the entire region of eastern Japan. In Iwate, there were about 20,000 children attending 353 nursery schools at that time. It was the most peaceful time of the day at nursery schools where children were about to awake from daily naps and prepare for afternoon snacks.

There were severe tremors, tense air, coldness from a power failure, and a giant tsunami striking the coastline. Under these circumstances, nursery school children were evacuated to the safe refuge by school staff, supported by the community.

This “Survey Study on the Evacuation of Nursery Schools in Iwate” shows how each nursery school took disaster risk reduction (DRR) measures and evacuated with children from the East Japan Earthquake and Tsunami disaster. It is aimed to help childcare institutions in Iwate and beyond improve and strengthen their future DRR measures and responses. The study was jointly conducted

by the Japan Committee for UNICEF and Iwate Prefecture's Children and Family Division of the Health Welfare Department.

How did child caregivers respond to the unprecedented catastrophe and protect children? We hope that, without letting the experiences fade away, the study will contribute to the further establishment of safer childcare environments for children.

In terms of the development of this study, we would like to express our gratitude to those nursery schools in Iwate for their participation and cooperation in the survey and interview processes.

February 2013

Japan Committee for UNICEF  
Children and Family Division,  
Health and Welfare Department,  
Iwate Prefecture



---

## Contents

### Introduction 1

Outlines of the Study 2

Map of Iwate 3

---

### Part 1 Beginning of the Disaster 4

Situation of the Day 4

Immediate Actions and Evacuation Preparation 5

Roll Call and Safety Confirmation 6

Starting the Evacuation 6

Evacuation Means/Methods 8

Emergency Carry-Out 8

Earthquake and Tsunami Information 9

The State of Tsunami

~ Testimonies from the Coastal Municipalities ~ 11

---

### Part 2 Conditions at Evacuation Areas 12

Keeping Warm 13

Food Situations 14

Sanitary Environments 14

Stockpiled Emergency Supplies 15

Cooperation with the Communities 16

Actions by Nursery School Staff 16

Contacting Parents and Handing over Children to the Families 17

---

### Part 3 Recovery and Reopening Nursery Schools 20

Safety Confirmation of Children and School Staff 20

The Damages and Recovery of the Lifeline Services 21

Resuming Childcare Services  
(or Reopening Nursery Schools) 21

---

### Part 4 Issues for Future Disaster Prevention Measures

~ Looking back on the experiences at the disaster ~ 24

Crisis Management and Disaster Response Manual 25

Safety Measures at School Facilities 25

Evacuation Drill and Disaster Prevention Education 25

Collaboration with Parents 27

Partnerships with the Communities 29

Disaster Awareness and Emergency Arrangement among School Staff 30

Looking back at the day of the disaster ~ Listening to the voices of nursery school staff 32

---

### Supplemental Materials

List of Reference Materials 35

Survey Questionnaires on Emergency Evacuation Measures by Nursery Schools in Iwate in the East Japan Earthquake and Tsunami 36

## Outlines of the Study

### 1. Study Purpose

The East Japan Earthquake and Tsunami that occurred on March 11 2011 was an unprecedented catastrophe that caused severe damages to nursery schools in Iwate. However, because of the regular implementation of evacuation drills at school, the disaster preparedness measures that were in place beforehand, and timely responses by school staff, there was no loss of lives among children under care and school staff. Because of this outcome, we carried out the study to investigate about and document the disaster risk reduction (DRR) measures taken by nursery schools before, during and after the disaster.

### 2. Study Subjects

Authorized nursery schools in Iwate (n=353)

### 3. Study Methods

- Multiple choice survey questionnaire: Carried out at all authorized nursery schools in Iwate.
- Open-ended survey questionnaire: For those nursery schools that evacuated outside the school compounds after the earthquake occurred.
- Interviews: Carried out at those nursery schools in the coastal region that were directly affected (destroyed or damaged) by the tsunami (n=18).

#### Numbers of Participated Nursery Schools

	Total	Multiple choice	Open-ended	Interviews
Coastline	63	52	36	17
Northern	48	35	11	1
Central	109	76	0	0
Southern	133	100	0	0
Tsunami-affected areas	93	73	47	18
Other areas	260	190	0	0
Prefecture total	353	263	47	18

### 4. Contents of the Study (See the survey questionnaire sheets in Pages 36~40)

#### 1) 【Multiple-choice survey questionnaire】

- ①Nursery school's disaster risk reduction (DRR) measures in place prior to the disaster;
- ②Situations at nursery school when the earthquake occurred ③Evacuation measures

#### 2) 【Open-ended survey questionnaire】

- ①State of the day when the earthquake/tsunami occurred ②Conditions of the evacuation and shelter
- ③Other issues that concern since the disaster

### 5. Methods of Analysis

In this study, for the responses regarding the disaster experiences, we have divided and compared between 12 tsunami-affected municipalities (Rikuzentakata, Ofunato, Kamaishi, Otsuchi, Yamada, Miyako, Iwaizumi, Tanohata, Fudai, Noda, Hirono, and Kuji) and other areas. For the findings in relation to the pre-disaster DRR measures at nursery schools in Iwate, we have used the 4 administrative divisions for analysis and comparison. In addition, we have used simple quantitative formulations to analyze the multiple choice survey results and applied qualitative coding methods for the open-ended survey and interview inputs.

### 6. Duration of the Study

Survey questionnaires: March 26, 2012 - April 20, 2012

Interviews: April 3, 2012 - April 17, 2012

### 7. Others

It is noted that this study should not be substituted as a disaster risk reduction (DRR) manual for nursery schools and/or other child welfare and education institutions. Furthermore, it is not our intention to evaluate any groups or individuals by using the numerical data and descriptive contents that had been collected through this study. It also needs to be noted that there are limitations in regards to the study methods and data analyses.

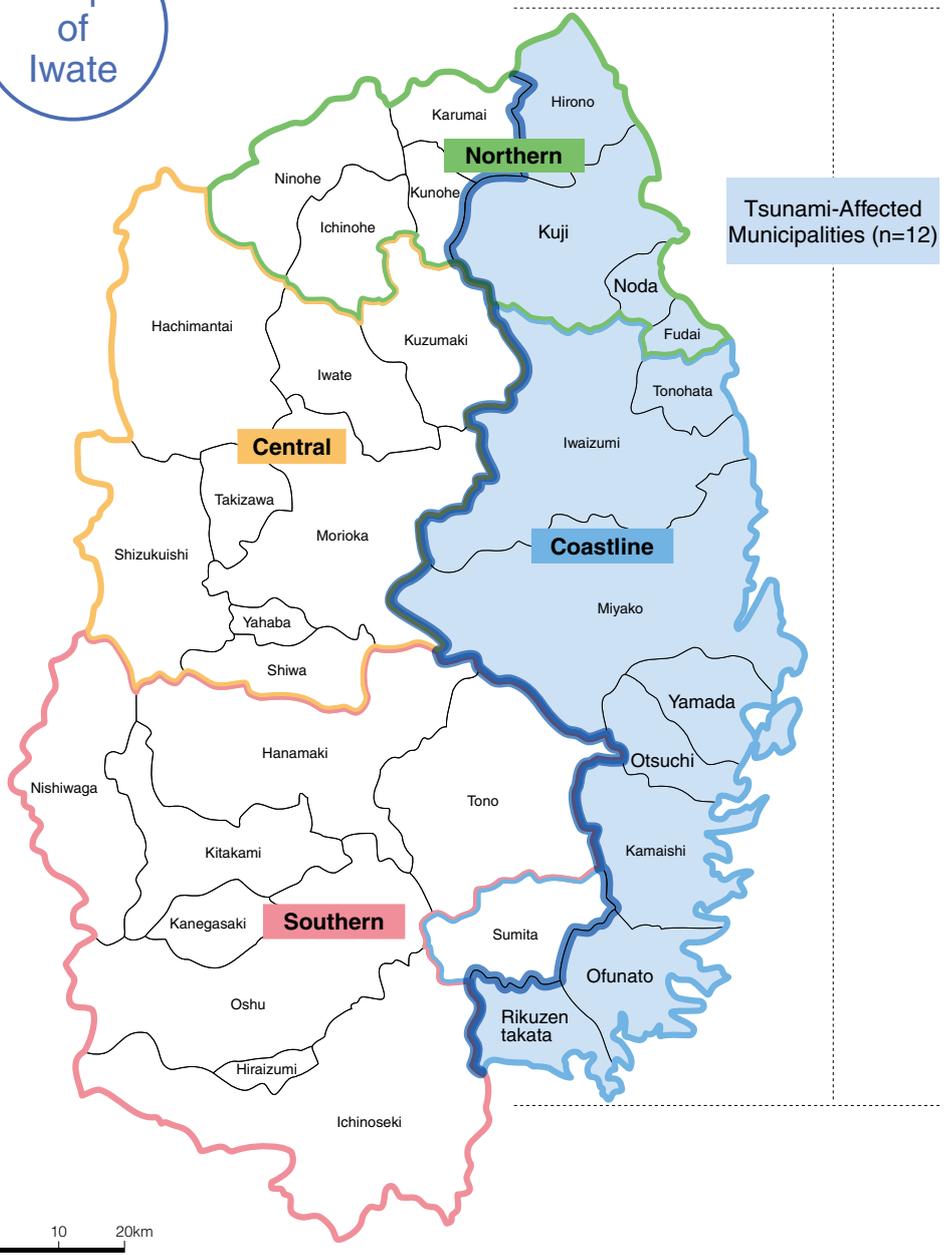
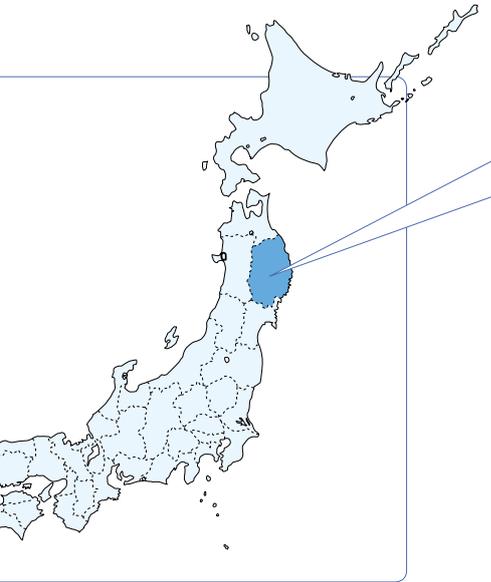
Research Consultant **Chiharu Kondo** Japan Committee for UNICEF / University of Pittsburgh

1) As of March 2012, 33 municipalities in Iwate were divided into the following four administrative promotional areas:

- Coastline: Miyako, Ofunato, Rikuzentakata, Kamaishi, Sumita, Otsuchi, Yamada, Iwaizumi, Tanohata
- Northern: Kuji, Ninohe, Fudai, Karumai, Noda, Kunohe, Hirono, Ichinohe
- Central: Morioka, Hatimantai, Shizukuishi, Iwate, Takizawa, Shiwa, Yahata
- Southern: Hanamaki, Kitakami, Tono, Ichinoseki, Oshu, Nisiwaga, Kanegasaki, Hiraizumi



Map of Iwate



Tsunami-Affected Municipalities (n=12)

Damages of Nursery Schools in Iwate

Structural Damages	Completely damaged	Partially damaged	Other damages	Total
Public	7	0	61	68
Private	5	6	72	83
<b>Total</b>	<b>12</b>	<b>6</b>	<b>133</b>	<b>151</b>

## Part 1

# Beginning of the Disaster



Photo provided by a nursery school in Yamada city

On March 11, 2011, at 2:46 p.m., when the earthquake started, children at nursery schools<sup>2</sup> were about to wake up from afternoon naps. School staff were engaging in office work in classroom or staffroom.

The earthquake gradually grew larger. Even adults were unable to stay standing and felt fear that the school buildings might collapse. While the tremors continued, child caregivers changed children's clothes, put their jackets on, and prepared for evacuation. The power went off throughout Iwate right after the earthquake. As aftershocks continued, nursery schools in the coastal region made the decision to evacuate from the early stage of the crisis.

Although recalled as "we evacuated as practiced", many nursery school staff had to make decisions based on the situations that they faced. For example, at a regular drill, they would start evacuation only after all classes were gathered. However, on the day of the disaster, they quickly began evacuation from the class that gathered first. As another example, they arrived in the evacuation location that had been determined beforehand. However, they felt the danger even there, so continued the evacuation to a higher ground. Many school staff had to be flexible at the evacuation.

It was noted, furthermore, that, even though there was no disaster information attainable due to the power failure, the evacuation of nursery schools were assisted by the community. It was still quite cold in the evening of March, and, due to the power outage, they could not use heaters at nursery schools. Many kept children warm by staying inside the school buildings after checking the safety, or in the vehicles of school staff's until their parents picked them up. In the mean time, many nursery schools in the coastal region continued the evacuation seeking for safer refuges.

Disaster-affected Rikuzentakata city  
©JCU/K.Shindo

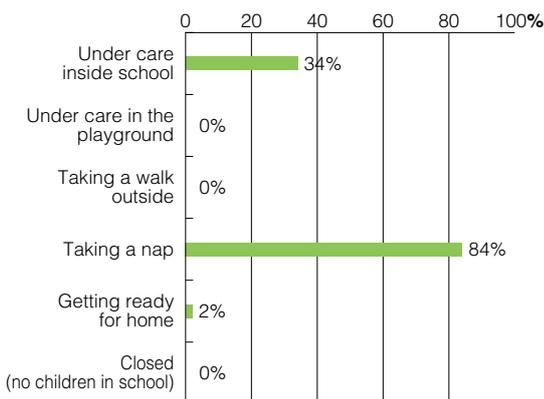
## Situation of the Day

The survey showed that, when the earthquake occurred, 84% of the nursery schools in Iwate had been "at nap time" (See Chart 1). Some children were sleeping, or others were waking up, using toilets, sitting on potties, changing clothes, eating afternoon snacks, or getting ready to go home early for the weekend.

The month of March was the end of school year, and children in preschool classes were preparing for the move from nursery to elementary schools. At the time of the earthquake, in some nursery schools, children were skipping the nap time, practicing their performances to be shown at the graduation ceremonies.

2) In this survey study, "nursery school" will be used as a general term for those institutions that provide childcare services and whose services have been authorized by the governments.

**Chart 1 : What were the children doing when the earthquake happened?** (Multiple selections permitted)

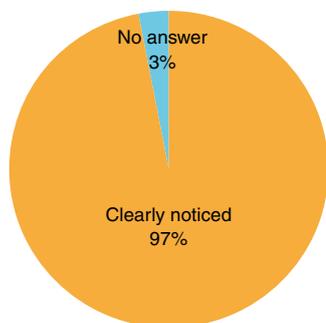


These were the circumstances when the earthquake disaster had occurred, and it seemed that all the nursery school children were inside the school buildings. School staff were also inside the buildings, doing office work in the classroom or staffroom, or holding a staff meeting.

### Immediate Actions and Evacuation Preparation

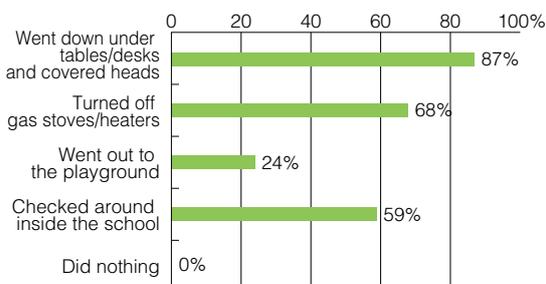
At 2:46 p.m., the earthquake began. The survey showed that, at all nursery schools throughout Iwate, "it was clearly noticeable" (Chart 2).

**Chart 2 : Did you notice the earthquake when you were at school?**



The survey showed that, immediately after the earthquake occurred, child caregivers helped children protect their heads and bodies by going under the tables or cover using the bedding materials. Furthermore, 68% of the nursery schools did "turn off or check gas stoves/or heaters," and at 59% of nursery schools, directors went around to perform the safety check (See Chart 3).

**Chart 3 : The actions staff took when the earthquake happened** (Multiple selections permitted)



The earthquake was not only enormous but also continued for a long time. Many recalled as follows: "The tremor did not stop for a long time, so we went outside without waiting," or "Fearing the building would collapse or ceiling fall, we decided to go outside immediately." At some nursery schools, without waiting for the director's instructions, child caregivers took children out of the buildings and began preparing for evacuation.



Inside of a tsunami-affected school building  
Photo provided by a nursery school in Rikuzentakata city.

### Voice

#### In the middle of the strong tremor...

"It started shaking, and I heard children screaming, and some crying. Child caregivers were calming down the children, telling them "Don't worry. Everything will be OK." I made an emergency announcement to instruct children to gather beside the caregivers.

I turned off the microphone once, but the tremor continued, getting more intensive that I couldn't walk around. As I managed to come out to the hallways and checked the classrooms, everyone had gathered in the middle of the

room in each class, like we had practiced in the drill. Children were covering their heads with the beddings that were used for napping, and child caregivers started putting jackets and room shoes on to children.

The emergency light turned on when it was still shaking so I knew that it was "a power failure". I let everyone stay in the classroom until the tremors stopped, and passed around the protective hoods for children.

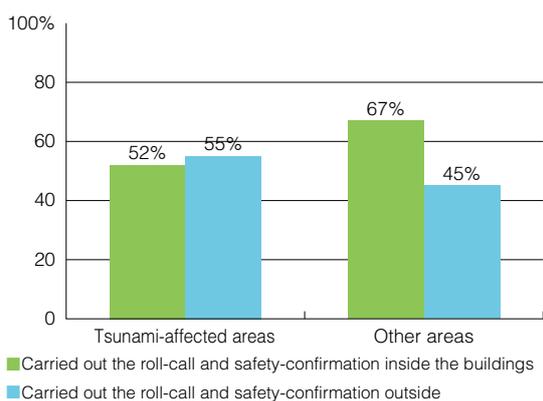
(The account recalled by the director of a nursery school in Otsuchi)

Even though it was during the nap time, the preparation for evacuation began immediately. Some recalled as: “Despite the tremor, we changed children’s clothes under the cover of beddings,” “We put jackets on to children over their pajamas to get ready for evacuation,” or “After getting out of the building, we put a tarpaulin sheet on the ground and changed children’s clothes there.” In addition, some remembered as: “We continued talking to children not to feel worried.” While carefully watching the state of children, nursery school staff were getting ready to evacuate children.

## Roll Call and Safety Confirmation

The survey showed that, after the tremor was settled, the roll call and safety check of all children and staff were performed at 95% of the nursery schools. However, while more did inside the school building in the inland region, more than a half of the nursery schools in the coastal region, which were directly affected by the tsunami, performed the roll call and safety confirmation outside of the building (See Chart 4).

**Chart 4 : When the tremor stopped, where did you carry out the roll-call and safety-check?**  
(Multiple selections permitted)



Because the tremor was large and long, many remembered the situations as follows: “Being inside the building would be dangerous,” “Perhaps tsunami is coming...,” “Usually we would evacuate only after everyone in the school gathered and was confirmed. But, on that day, we let each class start evacuating as soon as they were ready,” or “Generally we would go outside only after the tremor is settled. But, we went out of the building while it was still shaking.” Feeling the sense of danger that they had not felt in the regular drill, nursery school staff made the “safer” decisions and began to evacuate to the outside of the school building at the early stage.

## Starting the Evacuation

In the coastal region where the tsunami damages were severe, 49% of the nursery schools evacuated to the outsides of their premises. Some reached to their pre-determined evacuation points or to the temporary evacuation locations that were assigned by the local governments. Some remembered as: “Because the tremor was so big, we thought

### Voice

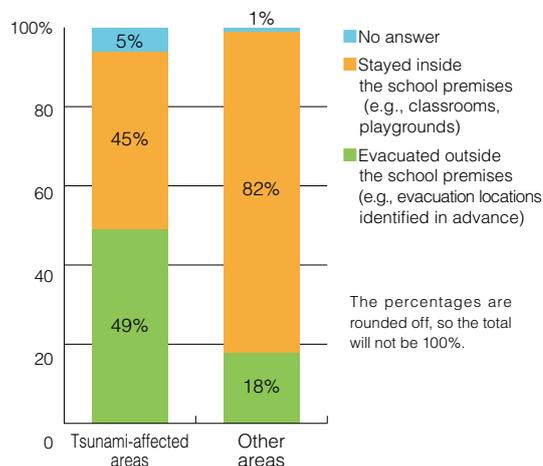
#### The states of children when the earthquake happened (From the interviews):

- “Some children were shocked by the huge tremor, upset and crying fearfully.”
- “Some children who were napping or using the toilet were sobbing, or cried for a short while.”
- “Children followed teachers’ instructions like in the regular drill.”
- “Some children went under the desk without instructions.”
- “Children were wearing the protective hoods given by child caregivers.”
- “Children were relatively composed.”
- “Only one or two children held tight on to their teachers, but overall everyone acted orderly like in the regular practice.”
- “There was no one who cried endlessly or made a big fuss.”

‘this is not normal’, went outside right away, and began the evacuation.” It seemed that, because there were possible risks of building collapses or falling objects, and also because the tsunami warning was issued, many nursery schools decided to immediately evacuate to the outside their school premises.

In contrast, 82% of the nursery schools in the other inland region stayed inside of their premises (including playgrounds) to standby for possible evacuation (Chart 5).

**Chart 5 : Did you evacuate outside of the school premises?**



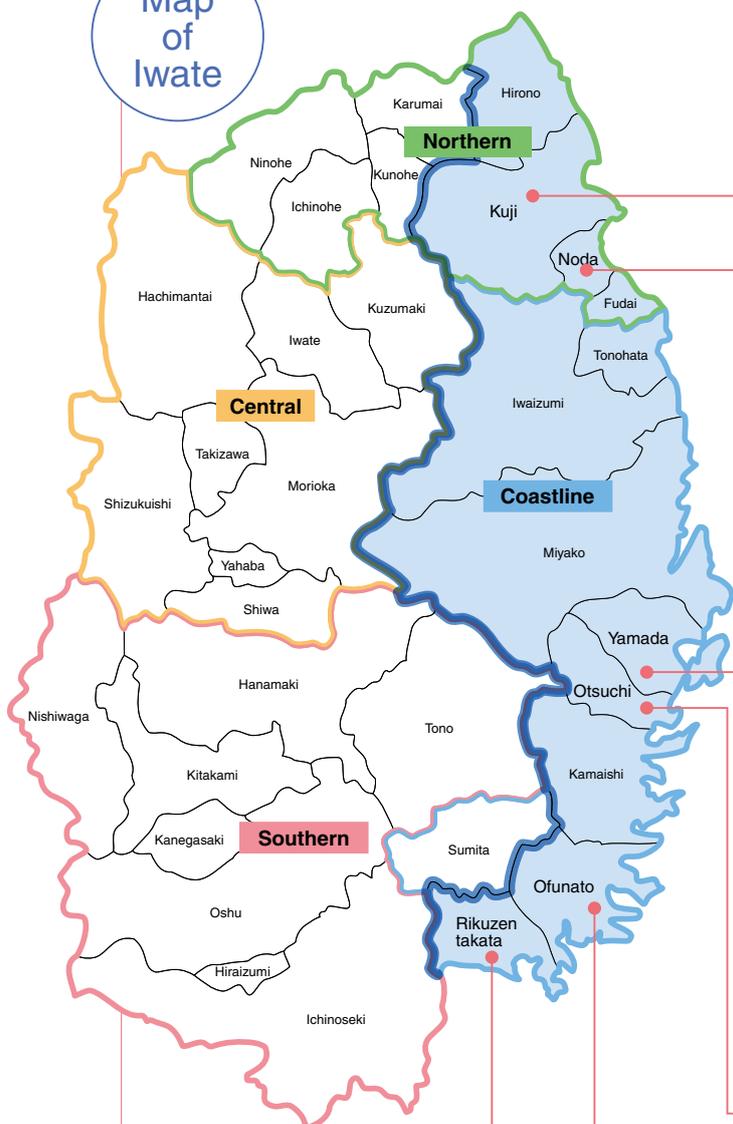
Some recalls of the situations included as follows: “We evacuated to the playground once. After checked the safety inside the building, we let children go inside and standby for evacuation,” “Since it was cold outside, we waited in the classrooms for children’s parents to come,” and “Despite the cold weather outside, we didn’t go back to the building. We took shelter inside the vehicles of school staff’s or school bus so that we could keep ourselves warm.”

## Voice

### What was it like inside nursery schools when the earthquake was happening?

~ Notes from the tsunami-affected coastal region (collected through the surveys and interviews)

#### Map of Iwate



#### Kuji

- We covered children with the bedding, and calmed them down so that they wouldn't panic. The director went around classrooms, and instructed school staff to check for fires and get ready for evacuation. Around 14:57, everyone wore jackets and gathered at the playground. Staff carried out roll calls, and explained to the children about the situation. We then began the evacuation. The director held a guide flag, loudspeaker, and a radio. The chief teacher took children's attendance. Class teachers were leading children in the evacuation. Children wore regular clothes and jackets over their pajamas. We also put clothes on the babies. School staff carried babies on their backs, covered with blankets, and held their bags. They also put on their own class caps.
- When the earthquake happened, child caregivers woke children up from their naps, and the director instructed them to move to safer areas in the classrooms. However, because the tremor was strong and lasted long, we all evacuated outside of the building. Children were only in their underwear. When the earthquake settled down, we moved all the children to the hall and put clothes and shoes on to them. Then, again, we went out to the playground to take shelter, and covered the children with blankets.

#### Noda

- As done in the regular drill, we covered the children with bedding. Although we followed the emergency manual, we were so fearful of such a strong tremor that we made children change their clothes quickly and let the class begin the evacuation as soon as they were ready.
- Child caregivers confirmed whether all children lay on the floor with their stomachs down. We directed children to stay under the bedding. We took safety measures by securing the emergency exits and closing the curtains on the windows.

#### Yamada

- The huge tremor continued for a long time. It seemed as if the building would collapse. It caused a crack in playground. We woke the children up and guided them to go out. We put tarpaulin sheets on the ground, and had children change their clothes on them.
- We were surprised by the cell phones suddenly beeping for the earthquake warning. We had an earthquake two days earlier, but they didn't beep, so we thought "an earthquake bigger than the one two days ago is coming."

#### Otsuchi

- The earthquake had strong lateral vibrations and lasted long, which we had never experienced before. However, there were no damages in the window glasses, no falling objects from the shelves, or no collapses of the building.

#### Ofunato

- In the hall, the ceiling panels started shaking and shifting in all directions. We kept children away from the ceiling fans. As the tremor settled, we instructed everyone to get out to the playground. We found out that there was a crack at the first evacuation area (nearby the iron bars) in the playground, so we changed the refuge location to in front of baby's classroom and tires.
- Each child covered their heads with bedding or backpacks that were stuffed with pajamas. There was dust falling from the ceiling, a clock fell down from the wall, documents and files jumped out of the lockers, and a TV set dropped from the stand. We felt the danger, and called out everyone to get out to the playground.

#### Rikuzentakata

- We thought that the ceilings would fall down. It seemed dangerous since there were no desks because it was a napping time. "This is not a normal earthquake." Immediately the power went out, and we could not use the microphone for announcements. We instructed everyone to get out of the building in a loud voice.
- The earthquake caused three (3) cracks in the playground, so we moved out of the compound.
- There was a crack inside the school building. One window glass broke. Various objects jumped out of the shelves, and were scattered on the floor.

## Evacuation Means/Methods

During the evacuation, child caregivers carried 0 to 2 year old children on their backs, using “baby carriers (straps),” or put them in “evacuation trolleys.” For older children, over 2-3 years old, teachers led their evacuation, and children walked quickly or ran. Some nursery schools used “walking ropes” (with handles where children hold on).

They also loaded the evacuation trolleys, which the small children were already in, with blankets, diapers, emergency food, tissue papers, and more. These trolleys required more than one staff to push because of the weight. It seemed that baby carriers were used during the evacuation in many schools, because, while carrying a baby on his/her back, staff could free both hands to carry or do other things. Most nursery schools recalled: “The evacuation went as practiced.”

Some remembered, in addition, how the communities helped their evacuations as follows: “Firemen lead our evacuation,” “During the middle of our evacuation, community volunteer fire fighters lent us their hands,” “When we had to climb the wall, students from junior high school helped our children to

### Voice

#### States of the Children during Evacuation:

- Children were more serious and desperate than during the regular drill;
- Children clearly understood school staff’s instructions, and they seemed to sense the tense atmosphere;
- Children waited for their parents to pick up, without crying, on their ways up to or even after arriving to the mountain;
- Some children stopped walking when hearing cars (thinking that their parents had come to pick them up), so we continued telling them not to stop, but to keep on walking;
- Children seemed to realize the seriousness of the emergency situation, they did not joke nor cry, and listened to their teachers talking.



Evacuation trolleys  
©JCU



Nursery school staff and children taking refuge in the school yard  
Photo provided by a nursery school in Yamada city.

climb over,” or “Neighboring residents held hands of the children during the evacuation.”

After the tsunami pulled back, some nursery schools used the staff’s vehicles that were safe from the tsunami, school buses, fire trucks, or government vehicles, to transfer children to secondary evacuation or shelter locations. However, in some cases, they had to walk through the tsunami-damaged areas, and child caregivers made sure of the safety of the children along the routes.

It was clear that the school staff were assessing various situations while conducting the evacuation. This is proved in the following accounts:

- “When we checked the surroundings of our school, there was no mudslide, so we took our regular evacuation route.”
- “Because a wall near the evacuation area that had been assigned beforehand had collapsed, we took refuge in the nearby kindergarten.”
- “When we went up on the mountain, we stayed away from the crowd of residents, to avoid the children from being pushed or crushed.”
- “We evacuated to the temple once, but so many residents crowded the place. We thought that it would get unsanitary, and decided to bring the children back to elementary school.”

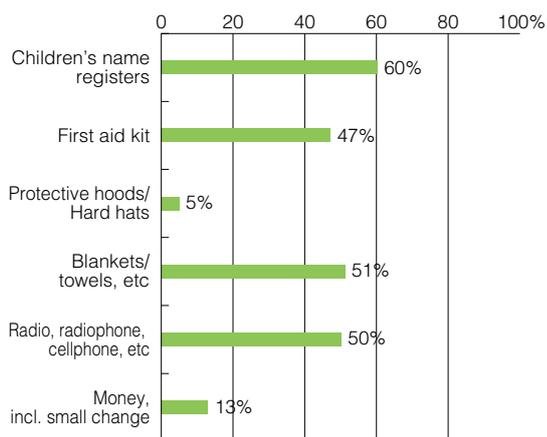
It was evident that many constantly evaluated their situation and determined the safest ways of evacuation for the children.

## Emergency Carry-Out<sup>3</sup>

The survey showed that, when evacuating, about a half of the nursery schools carried out children’s name registers, first aid kits, blankets/towels, and radios/cellphones. On the contrary, the chart shows that there were only few schools that took money (including small change) and other valuables, and even fewer brought protective hoods/hard hats for children (Chart 6).

3) It is suggested to consider “the necessary articles to take in an emergency” and “the articles to stockpile for the time of a disaster” separately. This section describes the former subject, while the latter subject will be included in the later chapter. Furthermore, “emergency carry-out” is considered to be the minimum necessary goods and supplies that are to be carried out at the time of evacuation and required for taking temporary refuge under the situation where children and school staff could not return to the nursery schools for the duration of temporary evacuation.

**Chart 6 : What did you bring when you evacuated?**



As for protective hoods, it came out that some schools did not stock them for the children. However, according to the nursery schools that took emergency evacuation, protective hoods became very useful, not only to protect children's heads from falling objects or fire, but also to use them against the cold weather. At some schools, they didn't just keep them in a box, but actually had them stored in the cushion covers and used them as chair cushions on a daily basis, so that they could be quickly pulled out for emergency use.

Many nursery schools had prepared "emergency carry bags" with various emergency supplies and installed them in each classroom. Furthermore, they prepared different bags for important documents and emergency food provisions and stored them in office and kitchen respectively. After the disaster, some schools increased the numbers of emergency carry bags and stored them not only in classrooms but also in different locations throughout the school premises.

Some schools realized that each age class required different emergency supplies to meet the needs of the children. Also, those emergency carry bags should not be too heavy for school staff to carry. School staff reviewed and revised the contents of the bags by carrying them out during the actual drill (Table 1).

**Table 1**

Contents that can be considered for emergency carry-out (Selected from the survey responses):	
· Children's name registers	· Protective hoods / Hard hats
· Stationary/Writing materials	· Radios / Walkie-talkies / Mobile phones
· Loud speakers / Hand microphones / Whistles	· Plastic (tarpaulin) sheets
· Guide flags	· Blankets (for cold weather)
· First aid kits	· Extra clothes and diapers
· Flashlights	· (Bath) Towels
· Baby strollers / (Evacuation) trolleys	· Emergency food provisions / snacks
· Baby carriers / straps	· Drinking water
· (Safety) walking ropes	· (Moist) tissues

In addition, some schools came up with some good ideas as follows:

- "For first aid kits, we use shoulder bags so that both hands are free, and we use them for daily walk as well."
- "Regarding valuable documents, they were too heavy to carry out when an emergency tsunami advisory was issued last time. So we decided to double-wrap them in plastic bags and store them on the office shelves. In this tsunami, our school building was flooded, but the documents were safe."
- "Going up to the high ground, evacuation trolleys are heavy, and baby carriers are more useful. We have equipped one baby carrier per staff member and installed them in all rooms and hallways."
- "Setting up an evacuation trolley may take extra time and effort, so we have repeatedly practiced the quick installation of the trolley."
- "When took refuge in the past, the waiting time became long and children became thirsty. So, we added bottles of drinking water in emergency carry bags."

However, the study also shows that there were some nursery schools that could not take any emergency supplies at evacuation as proven in the following accounts: "We did not prepare emergency carry bags." "There was no time to go back for the important documents." "We thought that we could return to schools."

It seemed crucial to take certain things from school at the time of crisis, as shown in the following comments: "We wished to have a little more food to eat," or "We lost our official seal and important documents, so we experienced problems after the disaster." At the same time, the study discovered that many nursery schools prioritized the children's evacuation, highlighted in the following response: "We primarily focused on making sure of children's safety."

## Earthquake and Tsunami Information

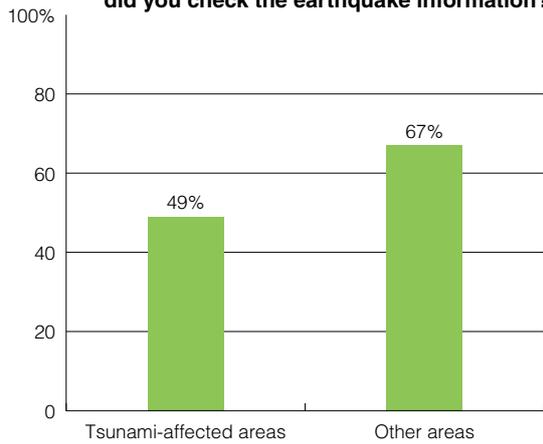
In the survey, less than a half, or 49%, of the nursery schools in the affected municipalities responded as "We listened to the earthquake information when the tremor stopped." In contrast, about two thirds of those in the inland region were able to check the information (Chart 7).

Immediately after the earthquake, there was a power failure in the wide area throughout the prefecture, and instantly it became impossible to watch televisions or use landline telephones. For this reason, many nursery schools used radios, including emergency radio systems, to obtain the information about the earthquake and tsunami (Chart 8).

"The channel on the portable radio were set, and we checked the remaining level of the batteries." "Radios were placed in the office and at the entrance." As seen in the above responses, some nursery schools had prepared the radio sets as part of the disaster preparedness measures. Some other schools followed the example after the disaster.

Some school staff used cellphones to obtain the disaster

**Chart 7 : When the tremor stopped, did you check the earthquake information?**



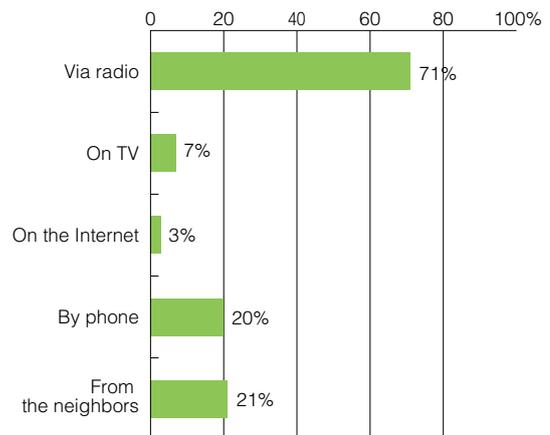
related information. “Just before the earthquake occurred, our cellphones on the desk began ringing loudly to warn of the incoming earthquake.” “We checked the disaster information via the TV broadcasting services on the cellphones.” Others used the radio or navigation equipment on the vehicles to listen to the earthquake and tsunami information. It was noted that these communication equipment, which were usable even in blackouts, became highly useful.

In the coastal region, the governments’ emergency radio announcement systems were also damaged by the disaster. Some remembered as “We heard the tsunami warning via radio once only”, and they could not use the radio system after that. Some said “We don’t know if we heard the warning or not,” because they were confused in the middle of evacuation preparation or had already begun the evacuation. Many, about 40%, of the nursery schools in the coastal region confirmed of the earthquake and tsunami information from children’s parents who came to pick up or the residents living in the school’s neighborhoods. Some others learned about the disaster or received instructions from officials from the



Baby carriers are always stocked as evacuation items.  
©JCU

**Chart 8 : How did you confirm the earthquake / tsunami information?**



local government, fire department, police or disaster prevention centers, or community leaders.

“While there was no clear information, we were confused because we heard different stories.” “There was a generator at the house where we took refuge, and we could watch television. However, the broadcasts were showing only the situations of Miyagi Prefecture, and we did not know the detailed situations of our local area.” “We received some information from the people who had radios during the night. But, the next morning, we saw the state and scale of the disaster with our own eyes, and we were completely shocked.” These accounts show that many nursery school staff took refuge, feeling anxious, under such circumstances where there was no electricity or communication, and no disaster-related information or evacuation guidance available from the local governments.



Tsunami, coming to the school yard and sweeping away children’s play equipments  
Photo provided by a nursery school in Yamada city.

# The State of Tsunami ~ Testimonies from the Coastal Municipalities

## Rikuzentakata

- We heard the fireman shouting, "Tsunami! Tsunami!", and ringing the bell loudly. We were on the playground, and when we turned around, we saw smoke in the distance as the tsunami was coming up the river.
- While waiting at the mountain side of the schoolyard, we heard someone yelling, "Waves are now over the bank! Go higher!" The only place that we could go higher was the mountain, so we climbed up by grabbing the grass. We carried smaller children on our backs, and older pupils from the elementary school held the hands of the other children and took them up. We could see from the mountain that there was an explosion and fire from a gas tank or a car near the school buildings. We went on up on the mountain slope by pushing bamboo bushes aside.

## Ofunato

- When we looked back, we saw that the tsunami had reached up as far as we could see. In the end, it came all the way up to the care center for elderly people, which is located on higher ground than our nursery school.

## Kamaishi

- While still shaking, one of the child caregivers checked the information on her cellphone, and it said, "Tsunami will reach up to 50cm (or 20 inch or 1 & 2/3 ft) high". We thought, "Even 50cm is no good. We must evacuate immediately," and gave an order for evacuation.
- When we looked down to the sea from the evacuation area, there were wave splashes that looked like clouds or fogs. "This is indeed tsunami! Let's go higher!" As we looked towards where our nursery school was, we could only see the roofs of the building floating in the water. There were only the three-story teachers' living quarter building, elementary school and junior high school visible.
- Since the aftershocks continued, we thought that it wouldn't be safe to be only halfway up on the mountain, and decided to go on up to the top. As we climbed, we knew from the other residents' commotion that the tsunami had come.

## Otsuchi

- When we realized it, there was black smoke rising up in the direction of the town center, and we saw what looked like fog or mist above the smoke (later we learned that it was spray). We continued up along the main road to higher ground, and took refuge. Then, we looked at the

town center again, which was struck by the tsunami. There were fires in two locations.

- There were so many people running away from the direction of town center. We saw sand clouds at the direction of the river gate, and telephone poles started collapsing in the distance. We decided to evacuate to higher ground. After reaching half way up, we saw that the tsunami had just crested over the iron bridge of JR railways. Down from where we were, there was a parking lot and a gas station, and at that spot we could see the tsunami, whirling around, colliding houses and vehicles like toys. The water level was rising rapidly.

## Yamada

- Three staff, including the director, remained behind conducting the last safety check and lock-up, before leaving the school. Upon reaching higher ground, we heard the loud 'roaring' sound of the tsunami, which we'd never heard before.
- After reaching the temple on the higher ground, we laid cardboard on the ground, and let the children sit on them. Soon we heard horrible/violent sounds. When we looked towards the sea, the huge wave, which looked like a giant white wall, completely covering the buildings in the harbor, was already coming towards us. We all said, "It's a tsunami!" and moved all the children to a higher area behind the temple. At the same time, fires erupted in two locations. We thought that even there, it was dangerous, and decided to take refuge upwards.
- Looking down from our nursery school on the hill, we saw a house floating away. We did not recognize that it was a tsunami, and could not comprehend what was happening. Seeing a house slowly drifting away seemed like watching a movie or something.

## Miyako

- We reached the schoolyard of a junior high school, and took refuge there. In less than four minutes, we heard "It's a tsunami!," and started running across the schoolyard towards the mountain, holding each other's hands. We could see splashes and sand clouds, and the sound was awful. As there was nothing to grab on the mountain slope, we pushed up children from the back. Junior high school students and local residents were also with us, so they helped our children.

## Noda

- We heard a big 'bang' sound. As looking towards the pine grove at the shore, we saw a white wave on top and a black wave on the bottom coming in.

## Voice

### What was happening to the children then?

- Tsunami came in no time. Children saw it and some started crying.
- While climbing up on the stone steps, some children turned round and looked at the tsunami, so we cautioned them not to look back, and to watch their steps.
- One boy got little excited after seeing the state of the town

from the main road on the high ground.

- Many children got anxious from the screams of the residents who had escaped.
- We could not see the tsunami from our nursery school, but some children saw the tsunami on their ways home, from the high ground.
- Children did not see the tsunami, so they seemed not to understand what was happening.

## Part 2

# Conditions at Evacuation Areas



©UNICEF/NYHQ2011-0494/Dean

The large-scale earthquake and the tsunami heavily damaged the lifeline services: the power went off immediately; information networks were cut off; heating systems couldn't be used; and sewage systems were also unusable in many areas. Evacuees kept themselves warm with extra blankets and oil heaters, and listened to the portable radios for disaster-related news. However, it was extremely difficult to grasp the whole effect of the catastrophe.

Since the water and sewage systems stopped, toilets got blocked, and for drinking, people had to rely on bottled water that had been stored in case of an emergency. As for food, the food that was provided at shelters, proved to be insufficient. Some nursery schools managed to get through with the emergency provisions and snacks that they brought out from schools. Under such conditions, many nursery schools received various help and assistance from the communities. It seemed that people at shelters gave extra care and priority to the small children of the nursery schools.

From the moment the earthquake occurred, from evacuation to handing over the children to their parents, conducting confirmation of safety, and resuming the nursery care services, many nursery school staff were required to perform beyond what they had prepared for in the drills. Furthermore, even though some of them lost their houses or family members to the tsunami, they continued working hard to re-open the schools under such mentally difficult situations.

Many nursery schools could not get in touch with children's parents due to the power failure. Immediately after the first tremor stopped, many parents came to schools and children were handed over to their parents. However, a few of those children who left with their parents lost their lives in the tsunami. Even after the tsunami receded, it remained difficult for parents to pick up their children, so some children had to stay with child caregivers at schools or shelters for long hours. Because of these experiences, many nursery schools are revising and improving their measures on how to correspond and coordinate with parents during an emergency.



At the evacuation area, right after the disaster  
(The photo does not relate to the text directly)  
©JCU/K.Shindo

## Keeping Warm

It was still cold in March, and it started snowing in the evening. Nursery schools took refuge outside of the school buildings, and stayed for long hours without electricity. Whether at evacuation shelters or inside the school buildings, it was necessary to take some measures to keep children warm.

Children were trembling in the coldness. In the coastal area, they were wrapped with blankets or covered by plastic/tarpaulin sheets, while staying outside. At some elementary schools that were assigned as temporary evacuation areas, tents were erected. Children were given disposable hand-warmers that were brought out from schools or given by local residents. Some nursery schools used their protective hoods to keep children warm. Even in the areas where nursery schools did not need to take evacuation measures, aftershocks and power failures continued, and children stayed inside school staff's vehicles or school buses to stay warm.



It is still cold in March. Winter clothes are necessary.  
©UNICEF/NYHQ2011-0493/Dean

Child caregivers made sure to change the children's clothes, putting on their jackets, and setting up trolleys, but some of them did not put on their own jackets for the evacuation. They put blankets, quilts and bath towels into the remaining spaces of the trolleys after putting the children in. Those blankets, quilts and bath towels became very useful during the evacuation stand-by. In some communities, local residents lent blankets and jackets to the school children and staff. For those schools that were not directly affected by the tsunami, school staff checked the safety of the school buildings, and carried out quilts, blankets, carpets and mats for use at shelters.

At shelters, small children were assigned to rooms first, or given priority for the distribution of oil heaters. In the rooms, some put judo's tatami or gymnastic mats or used silver-colored insulation sheets that were sold at stores to keep the floors warm. Since there were not enough blankets or heaters in some shelters, they wrapped themselves with the window or blackout curtains to bear the coldness.

Heating appliances that require power supplies were not usable due to the power failures (In a few shelters that were equipped with generators, electricity and heaters were used). Many shelters and households had to use oil/kerosene heaters. Some nursery schools were equipped with these kerosene heaters, and some school staff brought them in from their own houses, or they borrowed these heaters from the communities. In some instances shelter buildings were equipped with them.

In some shelters, only one blanket was distributed to each person, which was not sufficient to keep warm. Outside, local residents and firemen made fires in the open-air all night. Inside, evacuees had to keep heaters and candles burning throughout the night. Nursery school staff took turns to watch the heaters and candles.

### Voice

#### States of the Children at Evacuation Areas:

- Some children were trembling from the cold.
- Every time an aftershock happened, some children cried, became scared, anxious, nervous, or visibly showed signs that they were enduring the situation.
- Some children got dehydrated from not being able to drink enough.
- A few children felt sick, vomited, or ran fevers.
- As time passed, some children were calmed down, but others remained feeling uneasy.
- Some children were shocked at seeing so many evacuees.
- No child complained that they were hungry.
- Maybe they were exhausted, because the children slept well during the night.
- It was not like children were sleeping soundly until the morning, but they were somehow sleeping.
- As aftershocks continued throughout the night, we waited for the morning by having the children wear jackets and protective hoods, keeping on their shoes, while resting in the bedding.
- In the middle of the night, some children screamed due to anxiety.
- Some children complained of itching their body from stress.
- Some children under 3 years-old were awake in the night and slept during the day.
- Children whose parents came for them were relived and pleased, and returned to their parents after the long separation.
- Those children whose parents had not yet come looked uneasy, wondering if their parents would come for them or not, and did not smile much.
- Some children started crying only after seeing their parents' faces.
- A few children felt uneasy, and did not want to leave the staff's sides.
- Children were calmed and feeling safe by being with their child caregivers.

## Food Situations

When the earthquake occurred, afternoon snacks were being prepared at many nursery schools. In addition to the food provisions and drinking water that had been stored for an emergency, school kitchen staff loaded the afternoon snacks into the evacuation trolleys. At the temporary evacuation areas, children could have some of the emergency food like hard-baked biscuits or candies, or the snacks that had been brought out from schools to avoid feeling hungry.

The food situation was different by shelters. Some immediately started a makeshift kitchen to cook for evacuees. At some shelters, one rice ball was provided per person by the evening. Some food that were available to evacuees in other shelters included breads, instant ramen noodles, instant soups, sweets, soba noodles, or “bento” boxes provided by the stores that had been safe from the tsunami.

Once settled at shelters, some of the school staff went home to bring food, like rice balls and fruit, for the children and other staff. Or, some staff who worked at shelters or local after-school care centers gave some sweets to the children.

There were however, a few shelters that could not operate makeshift kitchens right away. Some nursery schools had to manage to spend the whole evening and night with only the food that they brought from the schools. There was one nursery school that shared pieces of pickles given by a local resident and a small amount of water in a bottle cap for each child and adult to have for the night.

The second day and after were more or less the same. A few more shelters began makeshift kitchens, providing some soup with simple rice balls. However, at some other shelters, there was not enough food. For example, one evacuated nursery school received only a few bento boxes to share between several children. Or another shelter could only provide a single piece of bread and a cup of tea per family. The child caregivers continued to feed the children, not knowing when the food would be provided or when they could eat next time, and worried about the limited amount of food that they had with them.

In terms of water access, the situations were also varied – some places had access to tap water and others experienced the water supplies cut off. Some local people stored water before it was suspended, and others had access to spring or well water. Some had bottled water stored, or others bought canned drinks from the vending machines.

As for cooking, where equipped with propane gas, people could use gas for cooking. Others used portable gas stoves or made fires in the open-air to cook.

Many nursery schools had included baby milk in the emergency carry bags. Others were given baby milk from local residents. Thus, they could feed the babies with that milk at the shelters. Even after the nursery schools returned



The “emergency carry bag” and the content  
©JCU

the babies to their parents, they delivered the baby milk to the families who took refuge at shelters.

Even under the circumstances where there was not enough food at shelters, child caregivers made efforts to keep children calm by giving light snacks and some liquid even in small amounts. Overall, it was notable that there were not many shelters that had sufficient food for all evacuees. However, all the evacuated nursery schools somehow managed to provide children with some food from makeshift kitchens, given by local residents or carried out from schools, until they returned the children to their parents.

## Sanitary Environments

The large-scale earthquake and tsunami caused serious damage to the lifeline infrastructures, including both water supplies and sewage systems. In the coastal areas where the damages were severe, many recalled, “Tap water was working in the beginning, but, by night, it was cut off completely,” or “In the beginning, we could use toilets, but, during the night, they got clogged up, and no longer became usable.” Due to the power failures, the pumps were not working, and, after the water in the tanks were exhausted, the water supplies stopped.

As for the sewage systems, because many residents took refuge at the same locations at once and used the same facilities, flush toilets ran out of water, clogged up and were unusable by the night of the disaster.

In the areas where the water supplies were suspended, shelters used the water from school pools or from wells and springs, to flush the toilets, while throwing the toilet tissues in the trash cans. In other shelters, people covered the toilet bowls with plastic garbage bags, placed newspapers in them, and threw them out after each use. Each shelter had to arrange rules for evacuees to follow. However, many toilets at shelters were not suitable for children, and child caregivers had to make children 'use the bathroom' outside.

At some shelters, evacuees quickly made simple makeshift toilets outside, or some temporary portable toilet units were installed after a few days. In some areas, there were pit toilets available. However, for small children, it was not safe for their footing, so child caregivers had to assist children to use the pit toilets. There were not many shelters that were equipped with toilets for small children.

Under such circumstances where access to safe and clean water was limited, hand-washing liquid or pre-moistened wipes were useful. Some nursery schools used (surgical) masks, washing gloves, or first aid kits that were stocked at schools. They even had extra children's clothes and diapers in schools and provided them to the evacuated families of their children. Because the environments rapidly changed to living among large groups of evacuees, nursery schools had to pay extra attentions to the sanitary conditions.

### Stockpiled Emergency Supplies<sup>4</sup>

The emergency supply list includes many items that are used daily at nursery schools. This means that those daily items could become necessary or useful in an emergency even though they were not necessarily prepared in advance for a disaster. However, the survey showed that the items that were considered as disaster-related goods, such as walkie-talkies, generators, hard hats, protective hoods for children, and plastic tanks, were rarely prepared at nursery schools (Table 2).

Looking at the rates that the stored items were actually used at the disaster, most of those items were used in the tsunami-affected areas at higher rates than in the other areas (Chart 9)<sup>5</sup>. Especially, the following items were used by a half or more of the nursery schools, if they were equipped with: flashlights, radios, walkie-talkies, hoods, blankets, diapers, emergency food provisions and drinking water, plastic tanks, bicycles/motorbikes, portable gas stoves, and children's name registers.

Outside the list, the study showed that oil heaters, disposable hand warmers and candles that could be used even in a power failure, were used in many places. Especially, the usage rate of generators was high if it was available for use. However, a few days after the disaster, the large area experienced a fuel scarcity, and it was clear that a long-term usage of generators should be considered with additional measures required. In addition, the survey also

**Table 2. Stockpiled Emergency Supplies (Examples)**

Items that were kept ready for use at nursery school (More than 50% had these items in school)	Items that were rarely kept ready for use at nursery school (Less than 50 % had these items in school)
<ul style="list-style-type: none"> <li>· Fire extinguishers</li> <li>· Tools (a hammer, a saw, a crowbar, etc.)</li> <li>· First aid kits</li> <li>· Disinfectant</li> <li>· Matches / lighters</li> <li>· Evacuation guidance tools (a whistle, a loud speaker, etc.)</li> <li>· Flashlights (including extra batteries)</li> <li>· Radios</li> <li>· Towels</li> <li>· Extra children's clothes (including underwear)</li> <li>· Diapers</li> <li>· Baby milk</li> <li>· Plastic/tarpaulin sheets</li> <li>· Plastic garbage bags</li> <li>· Tissues</li> <li>· Masking tapes</li> <li>· Work gloves</li> <li>· Emergency carry bags</li> <li>· Children's name registers</li> </ul>	<ul style="list-style-type: none"> <li>· Walkie-talkies</li> <li>· Satellite phones</li> <li>· Generators</li> <li>· Hard hats</li> <li>· Protective hoods</li> <li>· Extra blankets (for the cold weather)</li> <li>· Emergency food provisions</li> <li>· Drinking water (for an emergency)</li> <li>· Baby food</li> <li>· Tents</li> <li>· Ropes</li> <li>· Plastic tanks</li> <li>· A bicycle / a motorbike</li> <li>· Portable gas stoves (including extra gas bottles)</li> <li>· Money (including small change)</li> </ul>

showed that, since landline telephones and TVs did not work the usage rates of radios and cellular phones (including their broadcasting services) was high.

Additional items that became useful during the disaster included (but not limited to): raincoats and ski jackets for the cold weather; pre-moistened wipes for sanitation purposes; candies; emergency food provisions for children with food allergies; rain boots; and scissors. For letting children sit and rest at evacuation areas, many nursery schools used plastic (tarpaulin) sheets, mats, and carpets/rugs. At the nursery schools that were not damaged by the tsunami, only after evacuated, and the situation was settled, school staff carried the items out of the schools and used them at shelters.

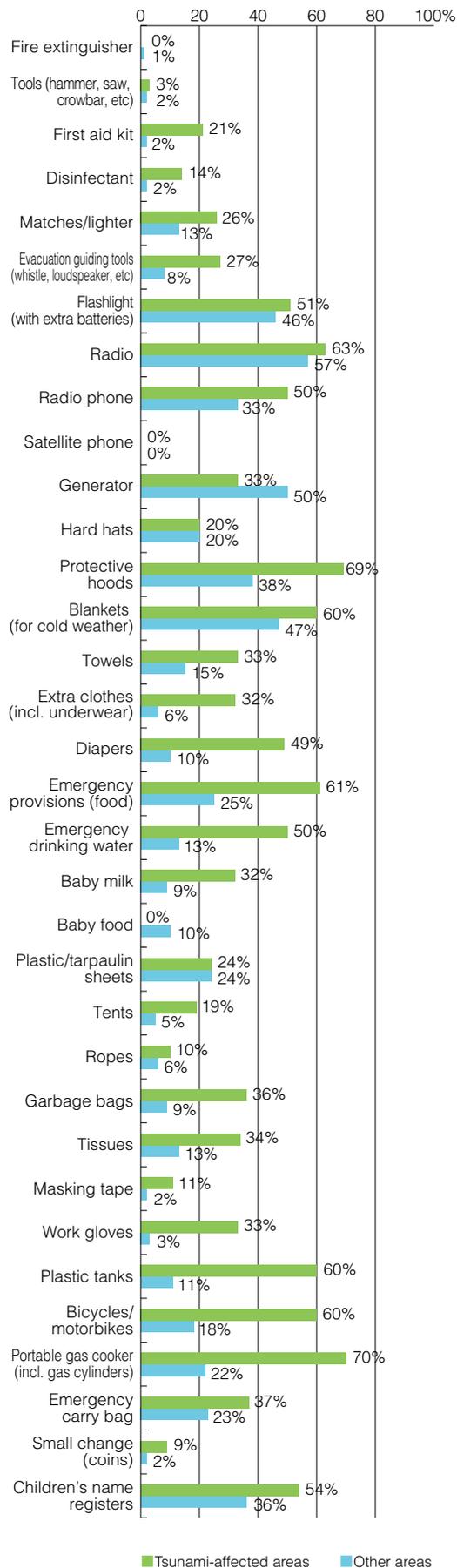
### Cooperation with the Communities

The study showed that nursery schools were assisted in many areas during the disaster by local residents, community fire fighters, or fire station officials. Furthermore, during the evacuation, nearby elementary and junior high school students lent their hands to the nursery school children. And local residents helped guide the children to escape or provided vehicles to transport the children to shelters.

4) The above list was prepared for the survey purpose, and those items were the examples to be considered for a nursery school to stockpile for an emergency. Thus, the actual items to be stockpiled for an emergency should not be limited to the above list.

5) The usage condition depends on the damage situation of each nursery school, therefore, it is not necessarily appropriate to say that there is a usage trend in the items in Chart 9.

**Chart 9 : % of actual usages by the items that were stored at school**



At shelters, nursery schools were given generous treatments and considerations, because they had small children. They were assigned to the rooms first, and provided with additional jackets and food. If any medical doctors and nurses were present, they frequently checked on children's conditions. With these thoughtful actions by the community members, nursery school staff could take refuge with children in peace.

At the same time, nursery schools also assisted the communities at shelters. If their school buildings were safe, they contributed the items and food from their schools to the shelters. Some child caregivers helped other evacuees or assisted in the makeshift kitchens. Furthermore, if gas at the school was usable, the municipality's disaster response team requested the nursery school to open their kitchens to cook for the evacuees.

### Actions by School Staff

While experiencing the huge earthquake that would severely unnerve anyone, nursery school staff kept their composure and led the children to evacuate, like in the drill. It became clear that, having held drills regularly, they became used to taking an evacuation measure naturally. Furthermore, because of the tremor size that they'd never experienced before, they sensed danger. As a result, even before the earthquake stopped, child caregivers changed children's clothes and let them go outside so that they could immediately evacuate. These nursery school staff made decisions suited to their situation.

Many child caregivers left school without wearing jackets or carrying valuables, because they prioritized the preparation and guiding the children in the evacuation. They carried the emergency bags as well as small children on their backs. They put more children into the evacuation trolleys than usual, and stuffed blankets and other items into the spaces in-between.

For those nursery schools that had to climb the mountain to evacuate, school staff pushed children from behind up to safer, higher grounds. Passing through the mountain paths or places full of debris on the way to the shelters, they held the children's hands and constantly checked their safety in order to continue the evacuation.

Even after letting the children take refuge in a safe location, there was a possibility that parents might come to the school for their children. Some of the school staff stayed behind to wait for parents until the last minute before the tsunami arrived. In another case, despite having the day off from work, some child caregivers rushed to school immediately after the earthquake so that they could help with the evacuation.

At shelters, nursery school staff continued talking to the children and maintaining physical contact to keep the children feeling safe. Because the aftershocks continued, they took rest while wearing shoes, and guarded the candles and oil heaters. Some spent the night without sleeping, by carrying small children on their backs in order to let them sleep.

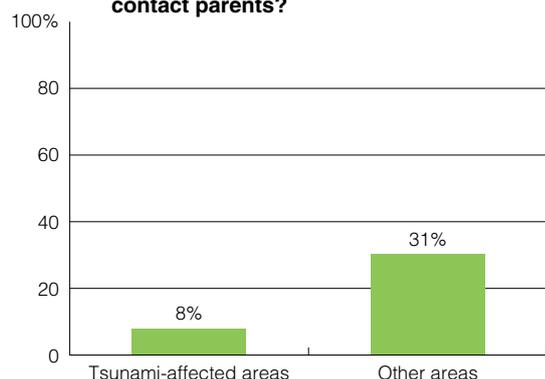
Some school staff helped out the makeshift kitchens and other evacuees at shelters. School nurses gave their hands to those in needs of medical attention. Male child caregivers took the roles of night guards at the shelters. In addition, many staff of the public nursery schools began their public duties from the night of the disaster, working at the disaster response headquarters. This caused a great difficulty for those staff to confirm the children's safety after they left schools with their parents.

Among the nursery school staff, some lived in the areas severely affected by the tsunami and could not verify out their family's safety, or some had small children and elderly family members to look after. Therefore, some schools let their staffs go home in turn, or, after all children were returned to their parents, some schools broke up the group to let each staff check on their families and homes. That said, these nursery school staff had to walk or get a ride on the back of a truck to reach their homes. Sometimes they had to pass through the devastated areas and checked the safety on the road constantly.

### Contacting Parents and Handing over Children to their Families

**Emergency Contact:** Contacting children's parents in the case of an emergency is an important matter to safely return children to their parents. However, immediately after the earthquake, there were power failures in many areas. The survey showed that there were a very few nursery schools that actually contacted children's parents when the tremor stopped. In the tsunami-affected areas, only 8% of the nursery schools contacted parents, and in other areas, it remained at 31% (Chart 10).

**Chart 10 : When the tremor stopped, did you contact parents?**



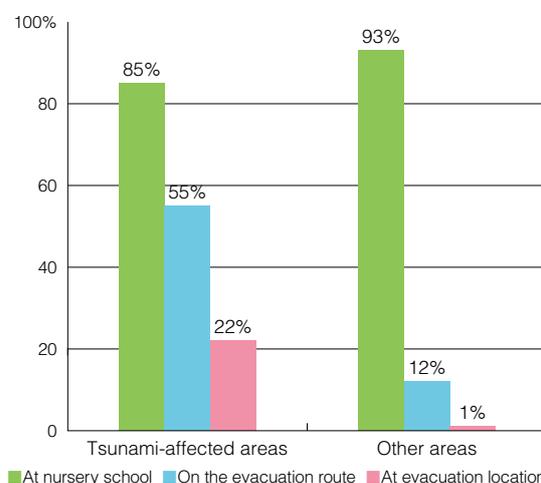
Nonetheless, it seemed that most nursery schools had the following generally accepted ideas: "Parents would come immediately when it's an emergency, without getting in touch with them", or "In our emergency response manual, it has been agreed that parents would come for their children in an emergency." Furthermore, the study indicated that, in the coastal areas that were close to the epicenter, there was no time for some nursery schools to make emergency contacts with parents, because of the prioritization of the children's evacuation.

As emergency communication tools, some nursery schools not only used mobile phone numbers, but also utilized the emergency/disaster contact services, using mobile e-mail and text messaging systems. In case of evacuating outside of the school premises, some nursery schools used signs that indicated the evacuation locations and hung them at entrance door or gate. When moving to another evacuation location, they put up posters or left messages so that those parents who arrived later would know where their children had evacuated.

**Handing over Children to Parents:** As mentioned earlier, at every nursery school, children's parents started arriving immediately after the earthquake occurred. Each class teacher confirmed every child being handed over to his/her parent(s).

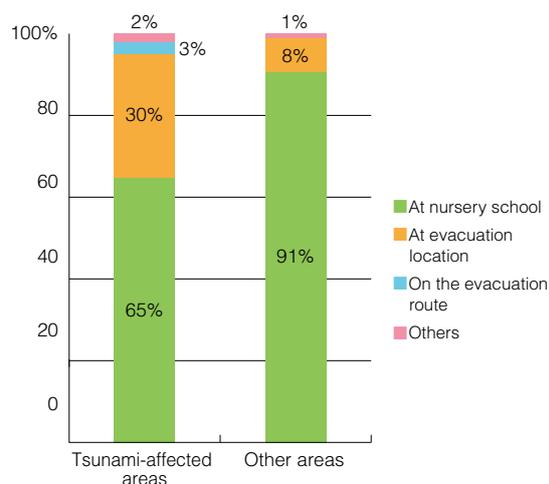
The survey also showed that the majority of nursery schools in Iwate returned children to their parents (or guardians) at school. However, in the tsunami-affected coastal areas, 22% of the nursery schools handed over children on their evacuation routes, and 55% at their evacuation locations (Chart 11). Furthermore, because 15% of the nursery schools in the affected areas did not answer as "Handed over children at school", this might indicate that some schools had begun their evacuation even before children's parents arrived at school.

**Chart 11 : Where did you hand over the children to their parents? (Multiple selections permitted)**



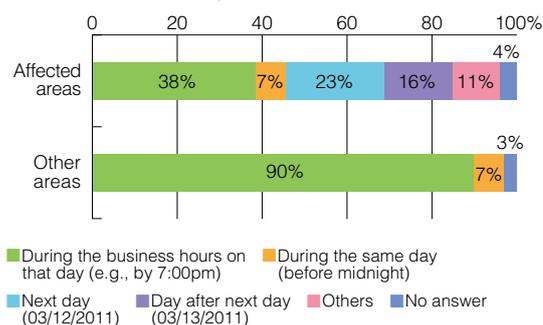
Looking at the numbers of children that were handed over to their parents, the ratios of the children that were handed over at school were much higher than any other numbers. However, in the tsunami-affected areas, the combined ratio of the children that were returned to their parents on the routes or at evacuation locations is a combined 33%, which indicates that at least one third of the children took the evacuation measure outside of the school compounds under the guidance of the child caregivers (Chart 12).

**Chart 12 : % of the numbers of children that nursery schools handed over to their parents by location**



Looking at when each school handed over the last child to his/her parent, it was found out that all nursery schools in the inland areas returned all children to their parents on the day of the disaster. However, in the tsunami-affected coastal areas, only 45% of the nursery schools could manage to do the same. As a result, other school staff stayed with the remaining children at evacuation shelters for nights and days (Chart 13). In terms of the school numbers, there were 17 nursery schools that handed over the last child to his/her parent next day (3/12); 12 on 3/13; 6 on 3/14; 1 each on 03/16 and 3/18 (Table 3).

**Chart 13 : When did you hand over the last child to his/her parents?**



The scale of the disaster was enormous, and there was limited information available. Many parents did not know whether the nursery schools had been safe or not, or where children had been evacuated. Some nursery school staff had to visit different shelters to look for the parents who had not yet come for their children. Since transportation systems were also suspended, some parents did not have means to reach their children, or some had to cross over the mountain to reach shelters. Parents themselves also experienced the disaster at work and other places. Some had to work on the disaster response duties. Some parents faced the difficulties to immediately pick up their children from school.

**Table 3. Dates that the last child was handed over to his/her parents in the tsunami-affected areas**

		During the business hours on the day of the disaster	Before the midnight on the day of the disaster	Next day (3/12)	Day after next day (3/13)	Others			No answer
						3/14	3/16	3/18	
Tsunami-affected areas	No. of nursery schools (N)	28	5	17	12	6	1	8	3
	Ratio (%)	38%	7%	23%	16%	8%	1%	11%	4%

## Voice

### How were children handed over to parents?

- Since we had done the drill once a year on handing over children to their parents, parents started arriving relatively early to pick up children, so not many of them remained.
- Because of the disaster response manual that had been disseminated beforehand, parents came to pick up their children.
- There were a parent and a child who left once but returned to the school because they thought that it was dangerous.
- Some families evacuated together with the school.
- Since we were under the major tsunami warning, we did not let the families to go home until the warning was cancelled and the safety was confirmed.
- Although we told them to stay with us, some families left for home.
- We told the families to take a high ground path, evacuate when an aftershock occurred, avoid traffic accidents, and be cautious of falling objects so that they could get home safely.
- Although a neighbor of the child's family offered to take that child with her, we declined (because, in fact, she was not asked by the family, despite her kindness, and because we would not be able to confirm their safety afterwards).
- We used the emergency contact registry to confirm the safe return of all the children to their parents.
- Even among the family members, they were unable to contact each other. So, one parent who arrived later did not know who picked up his/her child (e.g., another parent or family member?), and did not know where they had gone.
- We returned each child to his/her parents after checking where they were going/evacuating, which routes they were taking and the safety of their families and homes.
- Some parents crossed over the mountain, walked a long distance, or hitchhiked to reach their children.
- Some parents could not pick up their children for a few days, because they were directly affected by the disaster at work, involved in the disaster response work (e.g., public office staff, medical staff, disaster response team), or did not have transportation means.
- Our staff brought children to their parents on foot.

# Part 3

## Recovery and Reopening Nursery Schools



©JCU/K.Goto

In the tsunami-affected coastal municipalities, it took a long time for nursery schools to complete the confirmation of the safety of all children and personnel. The transportation systems were completely destroyed, many nursery school staffs' personal vehicles were destroyed by the tsunami, and fuel scarcity occurred following the crisis. Due to this environment, the school staff had to spend days and weeks visiting children's houses, evacuation shelters, government offices, and disaster response headquarters by foot or by hitchhiking with different cars.

The lifeline damage varied by area. However, the power failure and fuel scarcity occurred not only in the coastal areas but also throughout Iwate and severely affected many nursery schools in the efforts to resume their childcare services.

Some schools were unable to provide lunch and had to ask the families to prepare lunch boxes for their children. Others could not use electricity and heaters at school, so they had to shorten their service hours. Furthermore, because the fuel scarcity affected the ability for school staff to commute, some schools could only offer services upon special request. It was clear that both nursery schools and parents were required to act within the new circumstances.



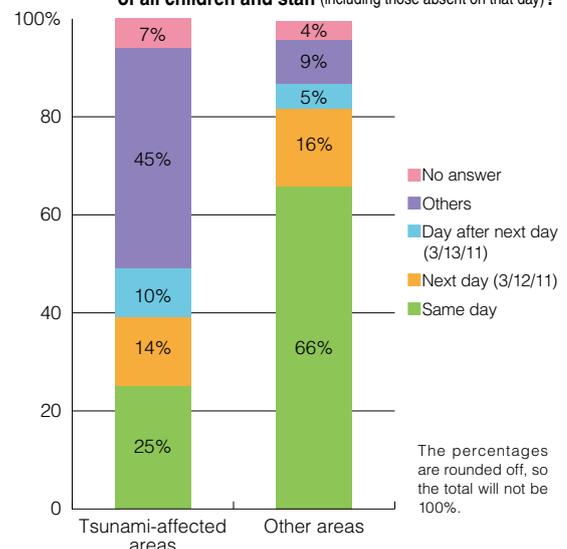
August 2011. Eating utensils were not prepared at that time. ©JCU/K.Shindo

### Safety Confirmation of Children and School Staff

The survey asked all nursery schools in Iwate when their school completed the safety confirmation of all children and school staff including those who were absent or left early on the day of the disaster. In the inland areas that were not directly affected by the tsunami, 87% of the nursery schools completed the safety confirmation by March 13th and most schools completed between 3/14-3/16 after the following weekend (Chart 14). Because the impact of the disaster varied by area, some nursery schools responded as "we did not think that the safety confirmation was particularly needed."

On the contrary, in the tsunami-affected coastal areas, many nursery schools carried out the safety confirmation after they had returned children to their parents. The schools also contacted the evacuation centers where the families had taken refuge. The survey showed that it took a few days to a few weeks for most schools to complete the safety confirmation of children. Some even said, "We do not remember clearly (when

**Chart 14 : When did you complete confirming the safety of all children and staff (including those absent on that day)?**



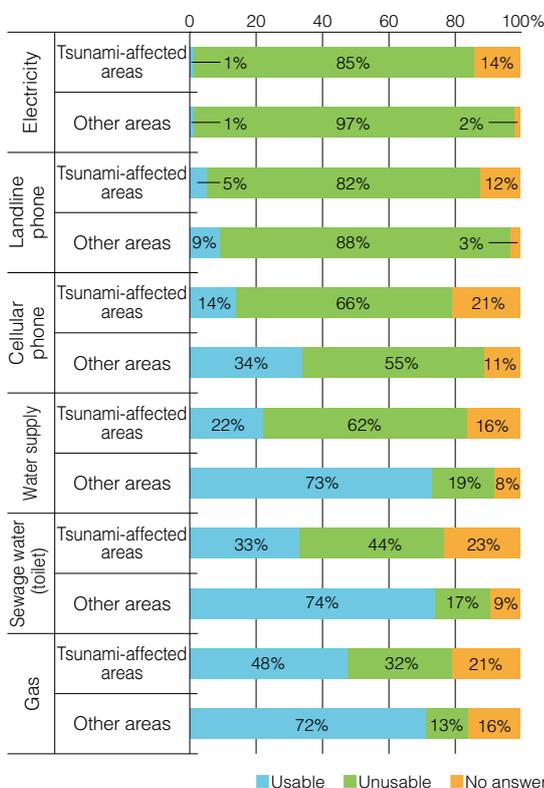
we completed) due to the post-disaster confusion.”, however, most of the nursery schools had completed the safety confirmation between one to three weeks.

While the communication tools like telephone systems were not functioning, school staff split up into groups and visited children’s houses, government offices and evacuation shelters by foot, hitchhiking, or carpooling. They tried to get in touch with the families utilizing posters and bulletin boards and leaving messages with the shelter staff. Many children and their families stayed at shelters, and it took a considerable time and effort for school personnel to carry out the safety confirmation of all children and their families under such difficult circumstances.

### The Damages and Recovery of Lifeline Services

The lifeline services were also affected by the disaster, and its impact was extensive throughout Iwate. Especially, the electricity, with a power failure in a large area, and the landline telephone systems was out of order. The mobile telephone services in some areas were accessible, but the services were not functioning in more than a half of both affected and other areas. Furthermore, the survey also indicated that, in the tsunami-affected areas, other services, like water supplies, sewage systems and natural gas, were heavily damaged by the tsunami (Chart 15).

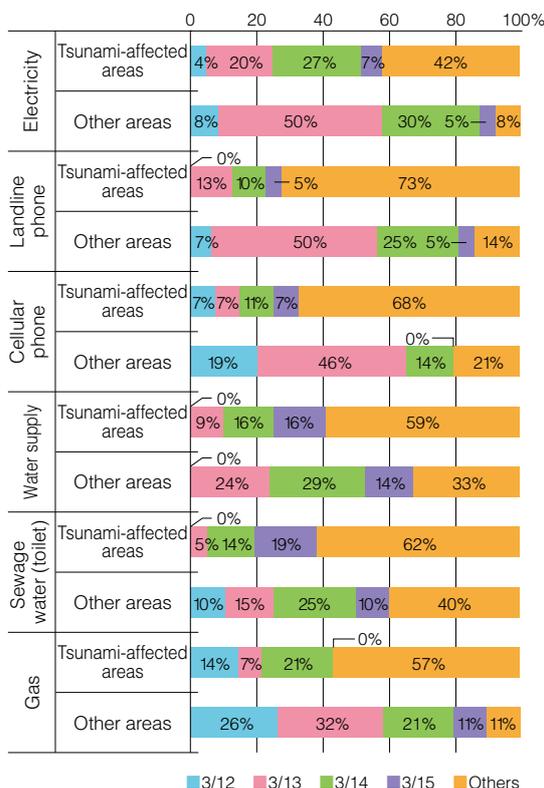
**Chart 15 : Conditions of the school facilities after the earthquake**



The percentages are rounded off, so the total will not be 100%.

How long did it take to recover these lifeline services after the disaster? Chart 16 shows that it took an extended time to recover the lifeline services in the tsunami-affected areas, indicating that the damages were severe. At the same time, it seemed that, in other areas, it had been difficult to realize same day repair and recovery of the electricity and landline telephone services. This shows that there was an impact on resuming childcare services even in the non-affected areas (Chart 16).

**Chart 16 : If unusable, when did it come back?**

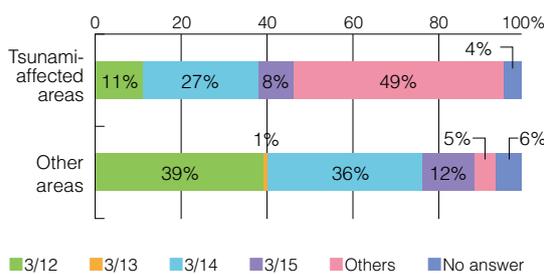


The percentages are rounded off, so the total will not be 100%.

### Resuming Childcare Services (or Re-opening Nursery Schools)

In the inland areas, most nursery schools managed to resume their childcare services on 3/14 or 3/15, after the immediate following weekend. In contrast, in the coastal municipalities, only 34 of the 73 nursery schools, less than 50%, re-opened their schools by 3/15 (Chart 17). Due to the damages to the

**Chart 17 : When did you reopen your nursery school?**



The percentages are rounded off, so the total will not be 100%.



The tsunami-affected kitchen in a nursery school  
Photo provided by a nursery school in Rikuzentakata city

nursery schools themselves, to the communities, or to the local government systems, more than a half of the nursery schools resumed after 3/22, and most did so between the last week of March and the first half of April. It was early June when the last nursery schools finally resumed.

Despite resuming the childcare services, less than a half of the nursery schools throughout Iwate could start as whole-day services, which included lunch (Chart 18). Even if re-opened for the whole day, some schools could not provide lunch and had to request the families to prepare lunch boxes for their children. Or many others started their services only for the mornings, shortening the service hours, or only accepting children upon special request. These situations were due to power failure, difficulties in procuring food items, or a fuel scarcity that affected the school staff's commute. These impacted many nursery schools throughout Iwate Prefecture, and both schools and families were required to be flexible with the circumstances.

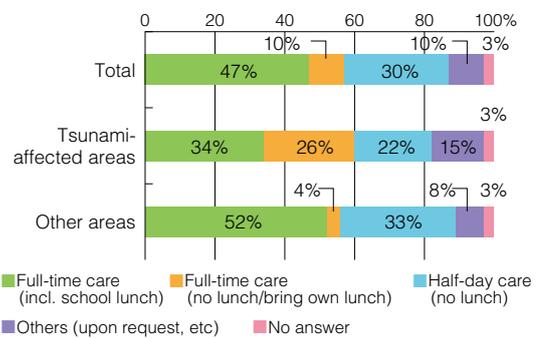


The tsunami-affected nursery school restarted child care at a borrowed space. They used cardboard box as a chair.  
©JCU



The school staff taking away the mud and rubbles  
Photo provided by the nursery school in Rikuzentakata city.

**Chart 18 : Under what condition did you reopen your school?**



In the coastal areas, only one third of the nursery schools managed to resume whole-day services, including lunch. The nursery schools that were damaged by the tsunami had to use rooms in kindergartens, elementary schools, municipality-own buildings, or even private houses. Despite the efforts to resume services, it was difficult to procure food items, or there were no sufficient kitchen systems available to cook for groups of small children. As a result, some nursery schools had to require children to bring their own lunch, such as rice balls or bread, in the meantime.



Borrowed a classroom and reopened the nursery school  
©JCU

In those coastal municipalities, many of the school staff themselves were victims of the disaster, losing family members or relatives, their houses or other belongings. The study showed that even under such difficult circumstances, they worked hard to re-open their nursery schools as soon as possible. Some staff faced difficulties to commute, and they worked in turn to clean the classrooms that suffered flood damages, start temporary childcare services, and organize graduate ceremonies for the senior grade children at the evacuation shelters.



The child caregivers and the volunteers moving things into the temporary childcare center ©JCU/K.Goto



Children helping to make a deck in the temporary childcare center ©JCU

### Voice

#### The Conditions at the Time of School Re-opening

- Even though the staff resumed the childcare service, no children came.
- We requested the families to cooperate in looking after their children at home, for those who could not do so came and brought their own lunches.
- Because the electricity was not repaired and it was difficult to procure kerosene oil for heating, we concluded the services around 16:00~17:00, closing before sunset.
- Because there was no water supply and it was not possible to secure food items, children brought their own lunches and we only provided soups and fruits.
- Even though we could not procure kerosene or food, we prioritized accepting those children of parents who worked in the disaster recovery.
- Due to the fuel scarcity that affected the staff's commute, and because of the blackouts, we only accepted children whose parents were unable to take leave from work, and it was only during the day.
- Since there was no water supply or electricity, we kept jackets on while caring for the children.



Making school lunch at the kitchen in a temple where the staff had borrowed

## Part 4

# Issues for Future Disaster Prevention Measures

~Looking back on the experiences of the Disaster~



Photo provided by a nursery school in Otsuchi city.

“Children did not cry or scream, stayed calm, and followed child caregivers’ guidance like a regular drill.” The study showed that nursery schools in Iwate were able to carry out the emergency evacuation as done in training. This was because they had repeatedly implemented regular evacuation drills, disaster prevention education and other programs. In addition, many nursery schools realized the importance of laying out certain rules like having a disaster response manual in place. Furthermore, because they had to respond to unexpected situations in this disaster, it became an important issue for nursery schools to prepare the disaster risk reduction (DRR) measures based on many different assumptions more than ever before.

In order to ensure the children’s safety in an emergency, this survey found that it seems necessary for nursery schools to establish the understanding and collaboration from parents and the cooperation mechanisms with the communities in regards to schools’ DRR measures. After the disaster, some schools discussed with parents the schools’ DRR measures, to share the sense of disaster prevention, and reaffirm that everyone (both nursery schools and parents) would act safely in an emergency. Other nursery schools that experienced “being supported by the whole community” at during the evacuation, led to the realization of the importance of establishing close connections and relations in the neighborhoods during normal times.

Most school staff were aware of the disaster prevention through evacuation trainings prior to the disaster. Especially in the coastal areas, many nursery schools had a high awareness of risks regarding a tsunami. In fact, on the day of the disaster, most staff followed through, prioritizing “children’s safety”. At the same time, it was evident from their responses that many had feelings of fear, expressed in the following comment: “Could we have evacuated all children by ourselves, if their parents had not come?”

This study showed that the experiences of the disaster have become an opportunity for all of us to (re-) consider various problems and issues regarding DRR measures at nursery schools or other childcare/child welfare institutions. It is also evident that these nursery schools need support not only from parents and communities, but also from local governments and other government bodies. From this point forward, the following should be considered in order to continue ensuring the children’s safety in an emergency: 1) what nursery schools can do on their own; 2) what parents can collaborate on; 3) what the communities can cooperate with; and 4) what roles and support the local governments and other government agencies can provide. By centralizing the issues of children’s safety and security, it is necessary to build and strengthen the various cooperation and collaboration mechanisms and relations in a comprehensive way.

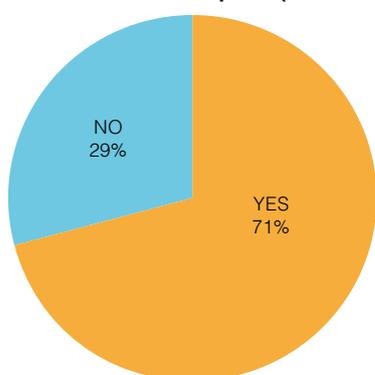


School staff taking refuge at the school yard, making the children’s safety the first priority  
Photo provided by a nursery school in Yamada city.

## Crisis Management and Disaster Response Manual

The survey showed that 71% of the nursery schools had a DRR manual based on the assumption of an earthquake (and tsunami) prior to the 2011 disaster (Chart 19). In fact, about 90% had taken various DRR measures such as the manual (e.g., roll calls, evacuation guidance and instructions, safety checks on the buildings and fire). However, many noted that “the scale of the disaster was ‘more than any assumption we had’, and things ‘beyond what we had expected’ happened.” Some nursery schools in the coastal municipalities evacuated further than what had been outlined in the manual, and others could not take the evacuation measures as arranged beforehand.

**Chart 19 : Did your school have a disaster prevention manual for an earthquake (and tsunami)?**



The following comments highlighted what had happened beyond their expectations in the disaster:

- “The tsunami reached places higher than ‘tsunami flood zones’.”
- “Fires occurred after the earthquake and tsunami.”
- “We had to evacuate beyond the fixed evacuation area.”
- “We could not access disaster information.”
- “We could not use any communication tools.”
- “The parents could not pick up their children.”
- “We did not think that we would not be able to return to our school.”

Some school staff said, “In the actual disaster, we could not do as outlined in the manual.” However, it was also recognized that, because of a manual or certain rules were in place, school staff could quickly decide on actions to take in the emergency, avoid confusion, and act speedily and safely. Furthermore, it was requested that the local governments and other government related agencies to provide DRR manuals and guidelines, which nursery schools could use as the basis for their emergency measures and responses.

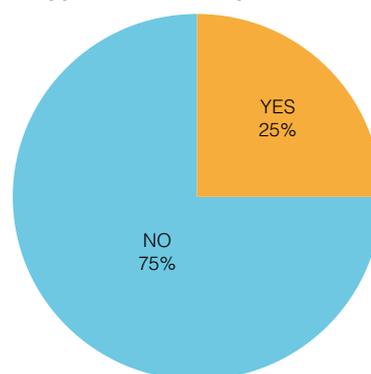
The study highlighted that it is imperative to pursue both “repeating the emergency response training based on the manual” and “recognizing the possibility that a disaster could occur beyond one’s assumption”. It also showed the importance of having the judgment in order to respond flexibly to any disaster or crisis situation.

## Safety Measures at School Facilities

Even prior to the disaster, many nursery schools had conducted safety checks of the facilities and environment as part of their disaster prevention measures. The survey showed the following: 96% conducted the safety checks on the emergency exits and evacuation routes; 85% identified the safe area(s) outside (such as playground); 64% installed anti-tipping measures for large furniture and equipment; 61% installed anti-shatter measures for window glass. 66% installed safety measure for light fixtures; 75% checked the location and safety of electric and gas appliances. In all elements, about two thirds or more of the nursery schools in Iwate had taken these measures.

“When the earthquake occurred, we thought that our buildings would collapse.” Many nursery schools which had built their school facilities in recent years were aware that the school buildings were built based on the earthquake resistant standards. However, only one fourth of the nursery schools had received an earthquake resistant test for their school buildings (Chart 20). In general, there were not many nursery schools that had received a special certification for their school buildings through an “earthquake resistant test” per se.

**Chart 20 : Did you have school buildings assessed/ approved for earthquake resistance?**



## Evacuation Drill and Disaster Prevention Education

As indicated in the “Standards regarding the Facilities and Management of a Child Welfare Institution”<sup>6</sup>, prior to the disaster, almost all nursery schools conducted an evacuation

6) Health, Labour and Welfare Ministry, “Standards regarding the Facilities and Management of a Child Welfare Institution”

Article 6 In child welfare institutions, a fire extinguisher, an emergency exit or any other facilities that are necessary for an emergency should be set up. At the same time, a specific action plan for an emergency disaster should be prepared and the institutions should be aware of the disaster and implement drills.

2 As for the drills mentioned above, drills on evacuation and fire extinction should be done at least once a month.

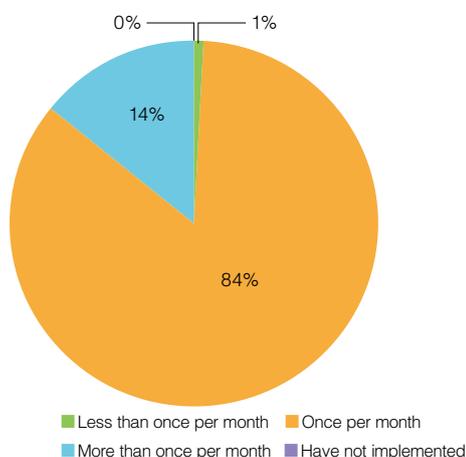
drill at least once a month, and 14% were doing the drill more than once a month (Chart 21).

### Voice

#### Results of Training

"My friend who worked at a school meal center told me, 'It was such a huge earthquake, but the children at the nursery school didn't cry, did they? It must have been due to the drills as to why they followed the teachers' instructions and evacuated safely.' Even child caregivers, who were adults, could have been shaken up by the earthquake, but we realized that children had mastered the drill." (From Ofunato city)

**Chart 21 : How often did you conduct an evacuation drill with children/staff?**

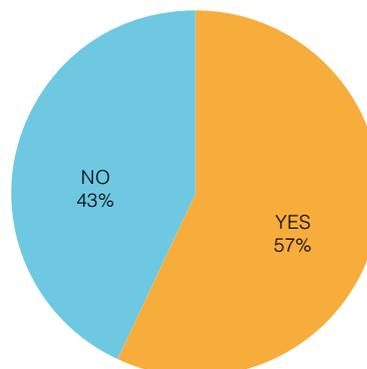


The percentages are rounded off, so the total will not be 100%.

Nursery schools conducted the drills at different times of the day (e.g., arrival/departure time, group activity, free activity, napping, lunch and snack, etc). They set up different situations like fire, earthquake or break-in/intruder. In the coastal areas, the nursery schools located near the shore frequently carried out the drill based on the assumption that a tsunami would follow an earthquake. However, some other schools recalled, "Since our nursery school was located on high ground, we never expected a tsunami, and had not conducted the drill to evacuate outside the school premises. In reality, the children and the staff of this nursery school had to evacuate outside the school premises during the disaster.

More than a half of the nursery schools in Iwate carried out the drills without notifying their personnel (Chart 22). "School staff felt a sense of crisis that we would never know when a disaster could strike." "Implemented a drill by surprise, we would know what specific assistance the class of 0-1 year old children would need, and it was a good opportunity for us to revise the measures." By carrying out the drills as similar to the actual situation as possible, nursery school staff checked what they could or could not do in an emergency.

**Chart 22 : Did you carry out a drill without notice (or by surprise)?**



In the survey, some nursery school personnel stated, "It requires time and labor to guide children to safely evacuate." At the same time, others said, "Our bodies moved spontaneously, because it looked like we had mastered our monthly drill." These accounts showed that many school staff worked hard and took the drills seriously.

The following remarks highlights that these nursery school personnel had mastered the actions to be taken in an emergency, by accumulating the various efforts and practices:

- "We thought about and repeated the drill until we were sure that 'if we reached there, we would be safe and secure.'"
- "Young child caregivers learned from their senior colleagues, and there was a strong awareness shared among the school staff in regards to the emergency evacuation measures."
- "The drill that we have maintained, things that we took over from the previous practices and what we have been practicing and studying on our own, all worked in the actual situation."

**Evacuation Areas and Routes :** The survey showed that 83% of the nursery schools in Iwate had identified and checked the evacuation area(s) and route(s) prior to the disaster. Many had chosen the playground as the first evacuation area to temporarily take refuge within the school premises. They had also identified secondary evacuation areas outside the premises, assuming the alternative evacuation necessary in an emergency. In fact, in the disaster, many carried out the secondary evacuation outside the school grounds, and some continued on to third and fourth evacuation routes, and finally reached the evacuation shelters where they could spend the night safely with the children.

In regards to evacuation routes, some schools checked the routes by walking with the children. They considered children's physical abilities and viewpoints to choose the safest and quickest routes for evacuation. Every year, some schools revised or updated the evacuation routes and distances based on children's ages and growth. They reviewed the surrounding environments and road conditions



Daily evacuation drill  
Photo provided by a nursery school in Otsuchi city.

(e.g., traffic, cracks in the road, footpaths, streams, frozen ground during the winter, etc). When passing through private property, schools asked the owner for permission in advance. Some nursery schools encouraged parents to check the evacuation areas and routes. Others identified several options for evacuation routes.

Some issues, however, were raised for the local governments and entire communities to consider in the future, based on the problems that nursery schools faced during the evacuation. At the evacuation, some schools had to climb steep mountain slopes where there were no paths or steps, pushing children up from behind. Or they had to pass through areas where people usually do not pass, and had to climb over fences in order to reach higher ground. At the evacuation shelters, there were not enough extra warm clothes, blankets, or emergency food provisions stocked or ready for large groups of evacuees. Many shelters did not have any toilet facilities that young children could easily use. Looking back at the experiences during the disaster, it seemed that many nursery school staff are hoping the local communities will better equip the evacuation routes, areas and shelters where small children could safely take refuge.

**Disaster-Prevention Education :** In addition to drills, many nursery schools had incorporated disaster-prevention education in the children's activities. The survey showed that 87% of the nursery schools were using children's books, picture-story shows, and videos/films about earthquakes prior

to the 2011 disaster. However, the materials related to tsunami were only used by 23% in the coastal area and 37% in the north.

Some nursery schools organized a joint drill with firemen participation, or arranged some learning activities for children with the fire department or police. Some also carried out field trips for children to visit the fire department or disaster prevention center. And many schools had incorporated the activities in which children could feel more familiar with disaster prevention.

## Collaboration with Parents

In the nursery schools where young children were looked after, it had been an accepted norm that parents would immediately pick up their children from schools in case of an emergency.

During the disaster, there were many nursery schools where parents came to pick up their children immediately after the earthquake. However, in Iwate, while a few children became victims after their parents had picked them up, there was neither casualty inside the school premises nor any accidents involving the children during the evacuation. Because of these outcomes, many nursery schools are currently re-considering how they should contact, cooperate with and assist parents in an emergency situation.

**Information on School's Emergency Response Measures for Parents :** The survey indicated that it is common for nursery schools to inform parents about their disaster prevention or response measures verbally or by writing (Chart 23). In the case of writing, some handed out an entrance guide, which described a list of annual activities including a plan for the monthly drills. Some put a short article about the drill in their monthly newsletter. Some disseminated the school's disaster response manual or booklet. Schools used different forms of written materials.

In the case of verbal communication, some school personnel had been informing parents about their plans for drill activities

### SPECIAL STORY

#### Monthly Evacuation Drill for Tsunami

At one nursery school in the coastal region, since it was located near the seawall, school staff had the strong belief that an 'earthquake = tsunami'. For a long time, they have carried out a drill based on the assumption of a tsunami. In addition to the regular monthly drill for fires or break-in/intruders, they had conducted an additional drill specifically for a tsunami every month. They called this day the "Day of Safety". During the "Day of Safety" drill, children would evacuate outside of the compound. Following the teachers' guidance, the children would practice running to the evacuation area.

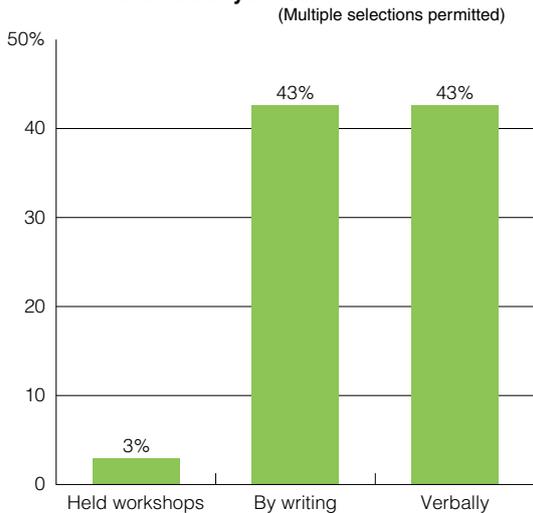
On the "Day of Safety," everyone would gather in the playground, then a teacher would announce "It's a tsunami! Let's get out of here!" and everyone would start running to the evacuation area. Even the smaller children participated with

the goal of the drill being "to run on their own legs." The drill was timed, and teachers observed how much the children had gotten stronger each time. School staff helped the children lead the way by cheering, "Don't cry, let's keep it up!"

Those children who were too small to walk were put in the evacuation trolleys, and school staff pushed them and checked how many children they could put in each trolley. When crossing the road, one staff would stop the traffic, and let the children's group pass. Sometimes they asked local residents to help them implement the drill.

Children were used to the word "tsunami." When hearing "Today is the 'Day of Safety,'" they would know "Oh, today is the day that we practice escaping from the tsunami." Children's responses to the tsunami drill were good. (Miyako)

**Chart 23 : How did you inform parents about DRR measures of your school?**

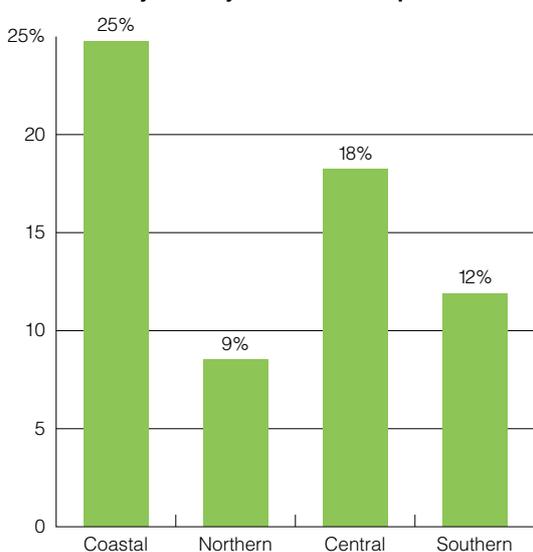


when they came to drop off or pick up their children. Some held a parental meeting to discuss the school's disaster response plans.

On the other hand, some reflected, "We might not have informed parents enough." After the disaster, it was noted as a critical element to ensure the thorough explanation to parents of the school's disaster prevention measures.

**Parents' Participation in the Drill :** In order to encourage parents to understand and support the school's disaster response measures, nursery schools allowed parents to participate in their evacuation drill. However, the survey showed that only 16% of the nursery schools in Iwate had carried out the joint drill with parents prior to the disaster, while the highest rate was 25% in the coastal area (Chart 24). Even at the nursery schools that had carried it out, the participation was limited, as shown in the following remarks:

**Chart 24 : Did you carry out a drill with parents?**



- "Using the time of drop-off or pick-up, we asked parents to assist in our drill."
- "Only with those parents who could participate, we implemented a drill in which parents would come to the evacuation area to pick up their children."
- "Sometimes we asked children's grandparents to help out with the drill."

Since most parents work during the day, it seems difficult for the nursery schools to have every parent participate in the drill. However, some parents who bring their children to school from long distances would not be familiar with the school's surroundings. Some schools provided parents with a map to show the evacuation areas and routes. Other schools invited parents during the weekend to take a tour in order to get familiar with the surroundings where the school would evacuate. Many nursery schools seemed to be making efforts for parents to gain a better understanding of the school's disaster prevention measures and plans.

**Handing over Children to Parents :** "In an emergency, it had been arranged for parents to pick up their children immediately. So, (at the disaster,) we were relieved when we handed the children over to their parents." As highlighted in this comment, for parents, it was a norm to pick up children immediately in an emergency, and, for nursery schools, it was natural to hand over the children to their parents. However, even though their children were all safe after handing them over to parents immediately following the earthquake, some nursery schools reflected: "We should not have handed over the children," or "We should have told parents 'Let's evacuate together', or 'Please escape towards the mountain.'"

Because of these experiences, many nursery schools in the coastal area are now revising and proposing the procedures regarding handing over the children to parents in an emergency as follows:

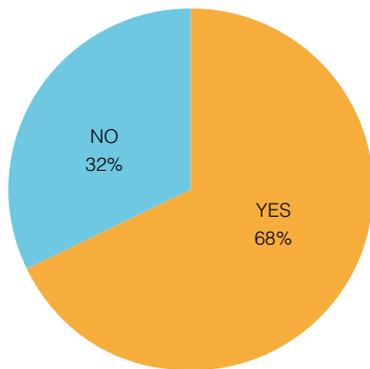
- 1) When a disaster (tsunami) advisory or warning is issued, nursery school will take safety measures including immediate evacuation.
- 2) Parents should not come for their children by risking their lives. They should secure their own safety first.
- 3) Even if they come, schools will not hand over children to parents immediately. Schools will evacuate and take refuge together, children with parents until the disaster advisory or warning is canceled.
- 4) Only after confirming the safety, schools will let children and parents go home.

**Emergency Contact with Parents :** The survey showed that 68% of the nursery schools in Iwate had systems in place to contact parents in case of an emergency (e.g., emergency contact book, others) (Chart 25).

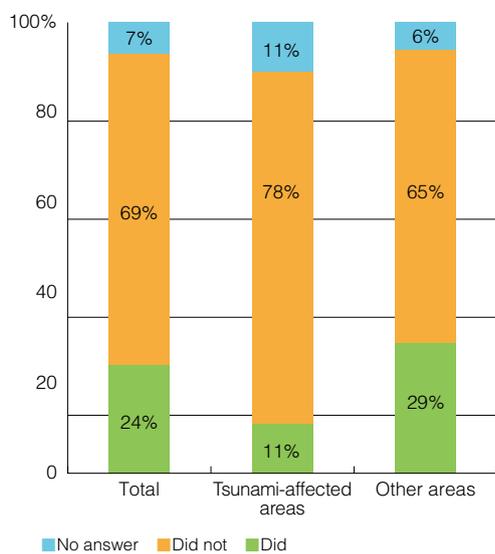
However, due to the power failure, or because it was in the middle of evacuation, only 24% in Iwate actually contacted parents as outlined in the manual. In the tsunami-affected area, the number remained as low as 11% (Chart 26).

Since the communication tools including cell phones became

**Chart 25 : Did your school have a system to contact parents in an emergency?**



**Chart 26 : Were you able to contact with parents following the manual?**



unusable at the disaster, it was necessary to use other methods to transmit the information besides the telephone. For example, some nursery schools prepared signs to indicate the evacuation areas beforehand. When evacuating, they put them up at the entrance so that parents could follow the signs to the evacuation areas to pick up their children. When schools had to move from one evacuation area to another, they put up a poster or left a message with the shelter staff so that even if they arrived late, parents would know where their children were.

As for the post-disaster safety confirmation, some nursery schools used mobile phone e-mail and text messaging systems, since the recovery of landline telephone and other communication systems were delayed. Some used mass messaging services to stay in touch with parents during the time living at centers.

There were a few cases in which even family members were unable to get in touch with each other. In one case, one parent came to the school shortly after the other parent had

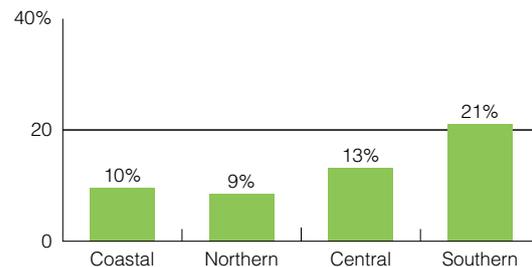
already picked up his/her child, and both of them had no idea where each other went. Later, some staff looked back and responded, "We should not only check the hand over of children to parents, but also ask where they were going or whether or not their houses were safe."

Parents also lost their means to get in touch with nursery schools. After the disaster, nursery schools were unable to contact children's families for a while, and it took a considerable amount of time for them to confirm the safety of all children and their families. "For future emergencies, we will ask parents to try to get in touch with schools for safety confirmation, using any means (such as putting up a poster or leaving a message)." The study indicated that it would be crucial for both parents and schools to keep mutual contact/communication even under difficult circumstances.

### Partnerships with the Communities

**Implementation of a Joint Drill with Local Residents :** The survey showed that 42% of the nursery schools in Iwate had established some kind of cooperation mechanisms within the communities. However, only 15% of the nursery schools throughout the prefecture held a joint drill with local residents (Chart 27).

**Chart 27 : Did you carry out a drill with local residents?**



The reasons for this result are the following: 1) many residents work outside during the day; 2) many of those residents in the school's neighborhoods who stay at home during the day are elderly; or 3) those residents who were active usually belonged to the fire brigades, and it would be difficult for them to assist the nursery school during an actual emergency.

Despite the difficulties for schools to have local residents participate in the drill, the study highlighted that there had been different forms of community collaborations by nursery schools such as:

- "Local residents formed a 'watch group', and helped our school during the drill as guards."
- "Our school has participated in the annual disaster prevention training in the community once a year."
- "Members of our parent association participate in the local female fire brigade club."
- "Our nursery school has carried out joint training on disaster prevention with the nearby institutions (e.g., kindergarten, children's center, elementary/junior high

schools, community center, and children's club)."

- "We are considering that, by adopting the same drill as the elementary school does, our children may easily master how to evacuate as they transition from the nursery to elementary school"

In fact, many nursery schools implemented the evacuation with other nearby schools, recalling the following accounts:

- "Junior high school students led our children by holding their hands."
- "Local residents assisted our evacuation by holding the hands of the children."
- "Members of the local fire brigade and children's parents stopped the traffic to let our school group cross the road during the evacuation."
- "Local fire brigade volunteers led us to the evacuation area."

It was clear that many nursery school staff recognized the importance of community cooperation/collaboration from their own experiences in which they had received much help from the community for the safe evacuation of the children.

**Disaster Prevention Measures in the Community :** During the disaster, many nursery schools took refuge with children for long hours and stayed at shelters with many other evacuees. It was important for nursery schools to have prepared emergency carry-out items on their own. At the same time, they gained the cooperation from the local residents; they helped evacuating, secured the evacuation spaces, providing warm clothes, blankets, food and drinking water, etc.

Based on their experiences during the evacuation, many nursery schools suggested that "shelter locations in the communities must keep certain stocks of emergency provisions" or "the buildings assigned to be shelters should be equipped with toilet facilities for children." It had become an opportunity for nursery schools to reassess the important issues in regards to the stockpile of emergency provisions and equipping shelters with community disaster prevention measures.

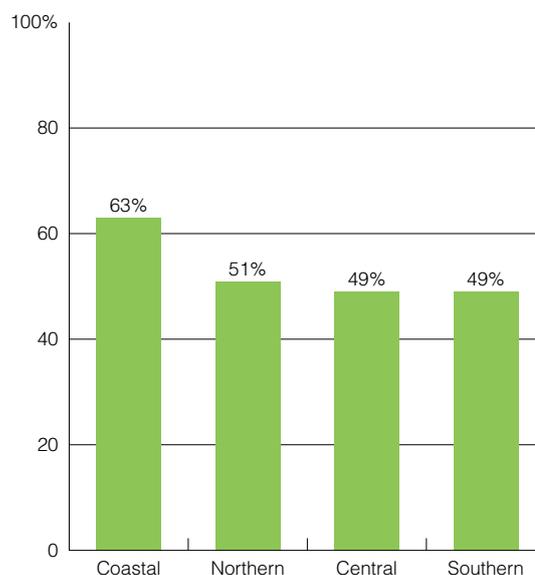
**Cooperation with Disaster Prevention Related Parties :** Many nursery schools carried out joint fire or evacuation drills with staff from the fire department once or twice a year. They also held a workshop on disaster prevention, conducted training on how to make an emergency call, or participated in the local disaster prevention group. Many maintained the cooperative relations with disaster prevention related personnel.

Particularly, it had been crucial for those school staff who felt uneasy about disaster prevention to have an opportunity to ask questions or discuss the subject with a firefighter or other staff from the disaster prevention related departments. During this disaster, the public official who was assigned to assist the nursery school in an emergency actually joined and supported the school during the evacuation. Many nursery schools realized that it was important to strengthen their cooperation with disaster prevention related parties, municipalities, and community social workers to support their disaster prevention efforts.

## Disaster Awareness and Emergency Arrangement among School Staff

**Awareness toward Disaster Prevention in Nursery Schools :** Depending on their location, some nursery schools do not face the risk of a tsunami. However, the survey showed that prior to the disaster, 52% of the nursery schools in Iwate had recognized the risks of earthquake and/or tsunami and taken measures to prepare for such calamities (e.g., checking the earthquake resistance of the school buildings and the safety of the school environments). In the coastal area, the number was as high as 63% (Chart 28).

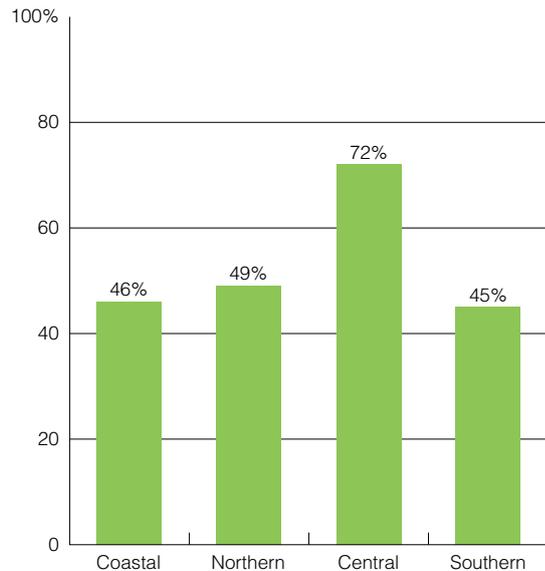
**Chart 28 : Did your nursery school have measures against earthquake and tsunami risks?**



The survey showed that 54% of the nursery schools in Iwate had opportunities to receive training and workshops on disaster prevention for their school staff. Central Iwate was the highest at 72% (Chart 29). While not in the form of formal "training" or "workshop", keeping the cooperative relations with and receiving lectures from officials working in the disaster prevention areas can help nursery school staff deepen their understanding of and reduce their anxieties toward disaster prevention.

Some nursery schools had a strong awareness of disaster prevention among their staff even prior to this disaster. Others had never expected to face such a large-scale calamity. This study proved that the level of disaster awareness among the staff varied by school. In order not to forget about the disaster experience, many nursery schools have begun taking further disaster prevention measures. Some have been actively involved in local disaster prevention action groups in their communities. As governments' reconstruction plans had been developed, it has been an opportunity for many nursery schools to reevaluate their own future disaster response plans.

**Chart 29 : DRR training for staff members**



Additional related comments/responses received include:

- “Although our staff was anxious, they were desperate to save the children’s lives.”
- “The most important thing was the children’s lives. We could manage without bankbooks or official seals.”
- “It is important for each staff to have the ability to stay calm, make decisions, and take action quickly during an emergency.”
- “If the school staff behave calmly, the negative effect on the children would be minimal.”
- “In order to save our children’s lives, adults must live.”
- “Because they have responsibility of their job, school personnel should avoid taking any risks.”

These comments highlighted that school personnel recognized the importance of taking the safest actions for children. At the same time, these indicated that the relations between children and adults were significant because adults could protect children. Thus, in order to keep children safe, it is important for child caregivers and other school personnel to stay safe themselves.

**Roles of School Staff and Organizational Structures for Disaster Prevention :** The study found that in many nursery schools, each staff was assigned beforehand a specific role in case of an emergency. For example, those at management level (e.g., director and chief child caregiver) were in charge of providing evacuation instructions, collecting information, conducting safety checks. Child caregivers who are in charge of each class would focus on leading the evacuation of their children. The infant class would require additional assistance from other school staff (e.g., school meal staff, childcare support center staff).

School staff discussed and coordinated among themselves the small details of the procedures beforehand. “Who will carry the emergency bags?” “Who will push the evacuation

trolleys?” “Which staff will carry which baby on her/his back?” They repeated the drill and reviewed and discussed the elements to improve. Many groups of school personnel established a working environment where everyone could share their opinion, and built the trust among each other. They understood that this led to the stronger teamwork during an actual event.

For the safe evacuation of children in an emergency, thus, many realized that the cooperation inside the school was crucial. There were some staff who felt uneasy and thought, “Would it have been possible for us evacuate only by ourselves if all the children had stayed with us at the school?” when looking back at the disaster.

Each child at a nursery school has different abilities by age. Children who are age three or above, can evacuate in a group, with child caregiver’s guidance. For the infants and those younger than three years of age, it would be impossible to evacuate on their own, and they require some assistance, utilizing the evacuation trolleys or walking ropes. During the evacuation in the disaster, children had to not only run on the flat road but also climb up the slopes and mountains. Furthermore, some staff said, “It is necessary to prepare ourselves for an evacuation in the early morning or the evening, or on Saturdays when there are few staff around.” This shows that many nursery schools have been reconsidering their disaster prevention and evacuation measures, keeping all sorts of situation in mind.

**Post-Disaster Psychosocial Care for Nursery School Personnel :**

This study showed that even after the disaster, there have been many school staff who have continued asking themselves “Wouldn’t it be better if we had done ...” or “We should have done ...” countless times. Some expressed, “There were no opportunities where we could share our experiences or feelings with those who went through the similar situations.” Many child caregivers and school administrators were looking for the opportunities or occasions where they could share their experiences or consult their distresses with specialists, like psycho-therapists. Through the survey, it became clear that it was important to provide care and help to those adults who support children.



Evacuation drill, working together with the company from the evacuation destination  
Photo provided by a nursery school in Otsuchi city.

## Looking back at the day of the disaster –

### Listening to the voices of nursery school staff

- “Because our nursery school is located by the sea, all staff are well-aware of the following: earthquake = tsunami.
- “Since lectures on a tsunami had been increasing these days, we thought that it was important to train ourselves to be able to make the best judgments in an emergency.”
- “We didn’t think like, ‘Let’s wait and see for a while’, or ‘It (tsunami) won’t come’. Because we thought ‘We’re in danger!’ or ‘This is really scary!!’ we were able to take rapid actions.”

- “We did not think that a tsunami would come.”
- “Even though the local governments showed us the simulation of an earthquake and a tsunami, our school was not in the tsunami flood area so we were not worried.”
- “There was a tradition of saying ‘when there is an earthquake, a tsunami will come.’ However, because there were not many people that had experienced (a tsunami) before, we did not know the real fear of a tsunami.”
- “Because we hadn’t experienced a tsunami until then, the idea of ‘earthquake = tsunami’ had faded out.”

- “Because it was during the day, despite the power failure, we could see the surroundings and our steps. If it had been at night, preparing for the evacuation would have been much harder.”
- “We thought what would have happened if it had rained on that day.”

- “Each child caregiver has been more and more conscious about disaster prevention and emergency evacuation process.”
- “By carrying out a surprise drill (without notice), every child caregiver started thinking of what they need to do or what assistance they need when evacuating, and shared their opinions with others.”

- “(When the earthquake occurred,) it was at a time where we knew what each child was doing. If children were in different locations, it would have taken more time to gather them or enforce the roll-call.”
- “At the actual evacuation, children quickly followed the teachers’ instructions. Because the disaster happened in March, even small children and those who were in their first year of nursery school had already done the drill eleven times during the year so it seemed to be that drills had become familiar to them. If it had been at the beginning of the new school year, it might have been chaotic and the children would not have been calm.”





Supplemental  
Materials

---

List of Reference Materials

---

Survey Questionnaires on Emergency Evacuation  
Measures by Nursery Schools in Iwate in the East  
Japan Earthquake and Tsunami

---



## List of Reference materials

---

Ministry of Economy, Trade and Industry

**“Disaster Prevention Handbook for Nursery Schools”**

Download: Kawasaki-city, Kanagawa Homepage

<http://www.city.kawasaki.jp/259/cmsfiles/contents/0000032/32758/file8.pdf>

Shizuoka Prefecture Health and Welfare Department Childcare Division

**“Earthquake and other Disaster Prevention Manual for Nursery Schools (updated in January 2012)”**

Download: <http://www.pref.shizuoka.jp/kousei/ko-130/kosodate/bousai.html>

Kochi Prefecture School Board

**“Disaster Prevention for Nursery Schools and Kindergartens -Protecting Children’s Lives- (updated in April 2012)”**

Download: <http://www.pref.kochi.lg.jp/soshiki/311601/bousaimanyuaru.html>

Japan Private Kindergarten Joint Association

**“Handbook of Safety Measures to Protect Children from Accidents and Disasters at Nursery schools (updated in 2010)”**

Download: <http://www.youchien.com/modules/tebiki/>

Japan Society for Civil Engineers

Special Committee for Handling Enormous Earthquake Disasters

A Working Group for Developing Human Resources through Education on Earthquake Disaster Prevention

**“Developing Skills to Resist Earthquake -Building a Stronger Nursery School-”  
Announced in January 2006**

Download: <http://www.bousai-gate.net/handbook/>

---

**Multiple-choice Survey Questionnaire on Emergency Evacuation Measures by Nursery Schools in Iwate in the Great East Japan**

**Earthquake and Tsunami**

Form 1

Municipality: \_\_\_\_\_ Nursery School: \_\_\_\_\_ Name: \_\_\_\_\_ (Post: \_\_\_\_\_)

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_ email: \_\_\_\_\_

**1. State of pre-3.11 earthquake and tsunami disaster risk reduction (DRR) measures and preparedness at your nursery school**

(1) Did you have your school assessed on the following earthquake resistance and other safety measures? (Multiple selections permitted)

- Had school buildings assessed/approved for earthquake resistance
- Took measures against earthquake and tsunami risks
- Conducted safety checks on exits/doorways and evacuation routes
- Secured safe outdoor spaces (e.g., in the playground)
- Others ( \_\_\_\_\_ )

(2) Did you take the following DRR measures against earthquakes? (Multiple selections permitted)

- Anti-tipping measures on large equipment and furniture
- Anti-shatter measures on window glasses
- Safety measures on light fixtures
- Safety measures on electrical appliances and handling fire
- Others ( \_\_\_\_\_ )

(3) Did you take the following measures and preparation for earthquake/tsunami disaster? (Multiple selections permitted)

- Developed an earthquake (tsunami) disaster response manual
- Developed an emergency contact system for children's parents/guardians
- Developed an emergency contact system for families of staff members
- Prepared a specific measure in case when parents/guardians cannot pick up their children at the time of disaster
- Built cooperation/coordination mechanisms with neighbors
- Identified and confirmed of evacuation locations and routes
- Others ( \_\_\_\_\_ )

(4) How often did you carry out regular evacuation drills with children/staff?

- Less than once per month       Once per month
- More than once per month       Have not implemented

Did you incorporate the following methods? (Multiple selections permitted)

- A surprise drill
- With parents/guardians
- With neighbors
- Others ( \_\_\_\_\_ )

(5) Were you implementing the following DRR education? (Multiple selections permitted)

- DRR training for staff members
- Book reading and video viewing about earthquake DRR
- Book reading and video viewing about tsunami
- Others ( \_\_\_\_\_ )

(6) How did you inform parents/guardians DRR measures of your school? (Multiple selections permitted)

- Held workshops       By letters
- Explained verbally
- Others ( \_\_\_\_\_ )

(7) Pre-3.11 emergency stocks and usage at the 3.11 disaster

	Stocked regularly	Used at the 3.11 disaster
Fire extinguisher	<input type="checkbox"/>	<input type="checkbox"/>
Tools (hammer, saw, crowbar, etc)	<input type="checkbox"/>	<input type="checkbox"/>
First aid kit	<input type="checkbox"/>	<input type="checkbox"/>
Disinfectant	<input type="checkbox"/>	<input type="checkbox"/>
Matches/lighter	<input type="checkbox"/>	<input type="checkbox"/>
Evacuation guiding tools (whistle, loudspeaker, etc)	<input type="checkbox"/>	<input type="checkbox"/>
Flashlight (with extra batteries)	<input type="checkbox"/>	<input type="checkbox"/>
Radio	<input type="checkbox"/>	<input type="checkbox"/>
Radio phone	<input type="checkbox"/>	<input type="checkbox"/>
Satellite phone	<input type="checkbox"/>	<input type="checkbox"/>
Generator	<input type="checkbox"/>	<input type="checkbox"/>
Hard hats	<input type="checkbox"/>	<input type="checkbox"/>
Protective hoods	<input type="checkbox"/>	<input type="checkbox"/>
Blankets (for cold weather)	<input type="checkbox"/>	<input type="checkbox"/>
Towels	<input type="checkbox"/>	<input type="checkbox"/>
Extra clothes (incl. underwear)	<input type="checkbox"/>	<input type="checkbox"/>
Diapers	<input type="checkbox"/>	<input type="checkbox"/>
Emergency provisions (food)	<input type="checkbox"/>	<input type="checkbox"/>
Emergency drinking water	<input type="checkbox"/>	<input type="checkbox"/>
Baby milk	<input type="checkbox"/>	<input type="checkbox"/>
Baby food	<input type="checkbox"/>	<input type="checkbox"/>
Plastic/tarpaulin sheets	<input type="checkbox"/>	<input type="checkbox"/>
Tents	<input type="checkbox"/>	<input type="checkbox"/>
Ropes	<input type="checkbox"/>	<input type="checkbox"/>
Garbage bags	<input type="checkbox"/>	<input type="checkbox"/>
Tissues	<input type="checkbox"/>	<input type="checkbox"/>
Masking tape	<input type="checkbox"/>	<input type="checkbox"/>
Work gloves	<input type="checkbox"/>	<input type="checkbox"/>
Plastic tanks	<input type="checkbox"/>	<input type="checkbox"/>
Bicycles/motorbikes	<input type="checkbox"/>	<input type="checkbox"/>
Portable gas cooker (incl. gas cylinders)	<input type="checkbox"/>	<input type="checkbox"/>
Emergency carry bag	<input type="checkbox"/>	<input type="checkbox"/>
Small change (coins)	<input type="checkbox"/>	<input type="checkbox"/>
Name registers of children	<input type="checkbox"/>	<input type="checkbox"/>

Others: \_\_\_\_\_

**2. State of your nursery school when the 3.11 earthquake happened**

(1) Numbers of children and staff enrolled as of 03/01/2011

No. of Children: \_\_\_\_\_ No. of Staff: \_\_\_\_\_

(2) Numbers of children and staff present at school when the earthquake happened on 03/11/2011

No. of Children: \_\_\_\_\_ No. of Staff: \_\_\_\_\_

(3) Did you notice the earthquake when you were at school?

- Clearly noticed  
 Somehow noticed  
 Did not notice at all

(4) What were the children doing when it happened? (Multiple selections permitted)

- Under care inside school       Under care in the playground  
 Taking for a walk outside       Taking a nap  
 Getting ready for home  
 Closed (no children in school)  
 Others ( \_\_\_\_\_ )

(5) What did your children and staff do when it happened? (Multiple selections permitted)

- Went down under tables/desks and covered heads  
 Turned off stoves/heaters  
 Went out to the playground  
 Checked around inside the school  
 Did nothing  
 Others ( \_\_\_\_\_ )

(6) When the tremor stopped, what did you do? (Multiple selections permitted)

- Carried out the roll call and safety confirmation inside the buildings  
 Carried out the roll call and safety confirmation outside  
 Checked the earthquake information  
 Contacted children's parents/guardians  
 Did nothing (Went back to regular care work)  
 Others ( \_\_\_\_\_ )

(7) How did you confirm the earthquake/tsunami information?

- Via radio       On TV  
 Via the Internet       By phone  
 From the neighboring residence  
 Others ( \_\_\_\_\_ )

(8) Conditions of the school facilities after the earthquake

	Usable	Unusable	If unusable, when did it come back?
Electricity	<input type="checkbox"/>	<input type="checkbox"/>	
Landline phone	<input type="checkbox"/>	<input type="checkbox"/>	
Cellular Phone	<input type="checkbox"/>	<input type="checkbox"/>	
Water supply	<input type="checkbox"/>	<input type="checkbox"/>	
Sewage water (toilet)	<input type="checkbox"/>	<input type="checkbox"/>	
Gas	<input type="checkbox"/>	<input type="checkbox"/>	

**3. Evacuation measures following the earthquake**

(1) Did you evacuate outside the school compound?

- Evacuated to the temporary evacuation point assigned by the local municipality  
 Evacuated to other location determined by school in advance  
 Waited in the playground (standing-by)  
 Stayed inside the school building ( Nursery school was the assigned evacuation location)  
 Evacuated to other location  
 (Reason: \_\_\_\_\_ )

(2) How many children and staff evacuated from school together?

No. of Children: \_\_\_\_\_ No. of Staff: \_\_\_\_\_

(3) What did you bring when you evacuated?

- Name registers of children       First aid kit  
 Protective hoods/hard hats       Blankets/towels, etc  
 Radio, radiophone, cellphone, etc  
 Money, including small change  
 Others ( \_\_\_\_\_ )

(4) Were you able to follow the evacuation manual?

	Did	Did not
Guiding evacuation	<input type="checkbox"/>	<input type="checkbox"/>
Turned off stoves/heaters	<input type="checkbox"/>	<input type="checkbox"/>
Roll-calls of children	<input type="checkbox"/>	<input type="checkbox"/>
Safety check inside school	<input type="checkbox"/>	<input type="checkbox"/>
Contact with children's parents/guardians	<input type="checkbox"/>	<input type="checkbox"/>

What were the reasons why you could not take the above actions?

( \_\_\_\_\_ )

(5) Where did you hand over the children to their parents/guardians?

How many children? (Multiple selections permitted)

- At nursery school      No. of children: \_\_\_\_\_  
 At evacuation location      No. of children: \_\_\_\_\_  
 On the evacuation route      No. of children: \_\_\_\_\_  
 Others ( \_\_\_\_\_ )      No. of children: \_\_\_\_\_

(6) When did you hand over the last child to his/her parents/guardians?

- During the business hours on that day (e.g., by 7:00pm)  
 During the same day (before midnight)  
 Next day (03/12/2011)       Day after next day (03/13/2011)  
 Others ( \_\_\_\_\_ )

(7) When did you complete confirming the safety of all children and staff (including those absent on that day)?

- Same day     Next day (03.12)     Day after next day (03.13)  
 Others ( \_\_\_\_\_ )

(8) When did you reopen school? Month: \_\_\_\_\_ Day: \_\_\_\_\_

Under what condition did you reopen your school?

- Full-time care (including school lunch)  
 Half-day care (no lunch)  
 Others ( \_\_\_\_\_ )

**Open-ended Survey Questionnaire on Emergency Evacuation Measures by Nursery Schools in Iwate in the Great East Japan Earthquake and Tsunami**

Form 2

Municipality: \_\_\_\_\_ Nursery School: \_\_\_\_\_ Name: \_\_\_\_\_ (Post: \_\_\_\_\_)

**1. Actions taken on the day when the earthquake and tsunami happened  
(If you took evacuation actions for the tsunami, please describe the situations following the earthquake.)**

Time	Subject	Description
14 : 26	(Before the earthquake)  At the time when the earthquake occurred  (After the earthquake)	

- Include timelines for each subject as much as possible.
- Fill out up to the point when you returned all children under care to their parents/guardians.
- For the column of "Subject," describe in details as such examples as "Stand by at school," "Beginning of evacuation," "Contact with parents/guardians," "Arrival at high ground," "Return to school," etc.
- For the column of "Description", describe in detail about damages to your school, state of children, conditions of returning children to their parents/guardians, specific locations and names of evacuation locations, food access, and others.

To the other side→

**2. Other items**

**(Please describe in details the following conditions, as you took evacuation measures and actions.)**

(1) Evacuation methods

(2) Evacuation locations

(3) Food access (including drinking water)

(4) Measures against the cold weather

(5) Sanitation

(6) Staffing

(7) Conditions of children

(8) Information access

(9) Handing over children to their parents/guardians

(10) Others

**3. Reflections/opinions or any other notes looking back at the disaster**

(Please feel free to write any subjects. For example: Things that should have been put in place/prepared prior to the disaster; Things that your school has changed/improved after the disaster, etc.)

**4. Others**

Please attach any reference materials, such as photos.

If the above space is not enough, please feel free to write your comments/descriptions in additional sheets.

## East Japan Earthquake and Tsunami: Survey Study on the Evacuation of Nursery Schools in Iwate

How were children saved?



### Japan Committee for UNICEF

4-6-12, Takanawa, Minato-ku  
Tokyo 108-8607, Japan  
TEL: 03-5789-2011

### Iwate Prefecture's Children and Family Division of the Health Welfare Development

10-1, Uchimaru, Morioka-shi  
Iwate 020-0023, Japan  
TEL: 019-651-3111

Cover photo credit:  
©JCU/K.Goto

Back cover photo credit (from the left):  
©JCU/K.Goto  
©JCU  
©JCU/K.Goto

Photo Provided by a nursery school in Otsuchi city  
©JCU  
©JCU/K.Goto