The 3<sup>rd</sup> International Forum on the decommissioning of the Fukushima Daiichi Nuclear Power Plant (1FD-Forum)

Day 1 Program mainly for the local community

Session to "Learn"

Facilitator Hiroshi Kainuma (Associate Professor of Ritsumeikan University)

# What often happens at regular restoration/nuclear power plant related events

### Listen→listen→listen

 $\rightarrow$ listen $\rightarrow$ ask a few questions $\rightarrow$ go home

It's mostly just "listening to explanations."

Patterns common in workshop type events Don't cover up "Thoughts", and talk with real intention

- $\rightarrow$ Talk thoroughly  $\rightarrow$  Talk enthusiastically and deeply
- $\rightarrow$  Become to know each other and friend
- $\rightarrow$  Feel to go a step ahead

Something decided? What is the next specific action? Got excited internally, however, what to do next? The biggest goal of today's event = to create a "dialogue" where anyone can join in

"Dialogue" = reflection (introspection) Amongst residents/with the decommissioning body/within oneself

Listen  $\rightarrow$  reflection (introspection)  $\rightarrow$ listen $\rightarrow$ reflection $\rightarrow$ listen $\rightarrow$ reflection  $\rightarrow$ listen $\rightarrow$ ...

> <u>After listening, always reflect</u> <u>= share, ask questions, think</u>

# This Year Let's start from the Session to "Learn"

## What does this "Learn" mean?

"To learn" = to share two things

1) What does it mean to "learn about reactor decommissioning" in the first place?

2) Learn about reactor decommissioning!

# 1) What does it mean to "learn about reactor decommissioning" in the first place?

"Learning about reactor decommissioning" Should we hold an information session for residents? =>Hold a one-sided talk about difficult topics

Can they understand? Would normal people even be interested?

Should we hold an intimate communication session such as a round-table discussion?

=>Build trust

Not everyone can come listen. Will participants be able to learn properly?

"I kind of understand, but kind of don't. It doesn't quite make sense..."

In either case, it means a lot to do it, but...

The majority of the people in the area aren't interested and forget most of it by the next day.

# 1) What does it mean to "learn about reactor decommissioning" in the first place?

It's not easy to "learn about reactor decommissioning."

= Creating a place for residents to discuss reactor decommissioning!:

Then what we should do ?!

Past three years of history of 1FD-Forum has been the steps of what we thought should be done.

#### April 10 - 11, 2016

1st International Forum on the Decommissioning of the Fukushima Daiichi Nuclear Power Station @Iwaki City



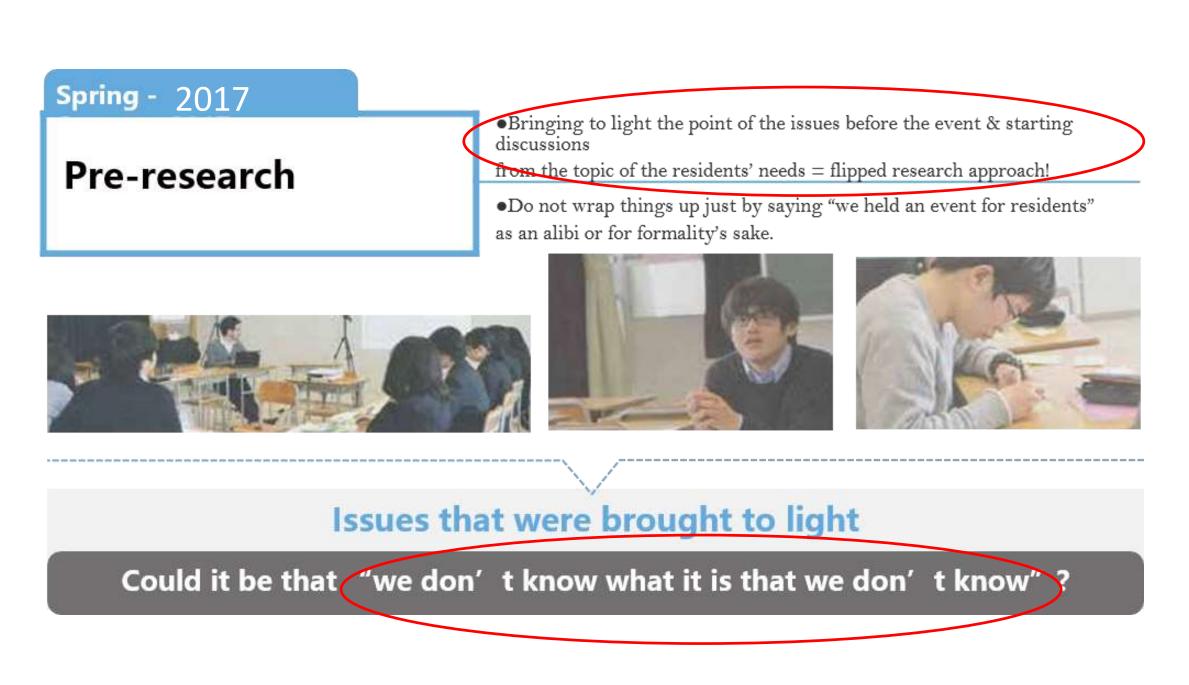




Should include more opinions from the residents when holding discussions!

Let's dedicate a whole day to sessions for residents!





The overwhelming Gap! Groove! Disparity! between the residents and decommissioning authorities

#### Issues that were brought to light

Could it be that "we don't know what it is that we don't know"?

#### July 2, 2017

2nd International Forum on the Decommissioning of the Fukushima Daiichi Nuclear Power Station @Hirono Town

Visualizing the residents' feelings (uncertainty, discontent, doubts, demands)

•From "I don't know what it is that I don't know" to "Oh, I see."



Visualizing! Sharing! (ex Graphic recording)

### То

"the 3<sup>rd</sup> International Forum on the decommissioning of the Fukushima Daiichi Nuclear Power Plant"

#### 2017年12月24日

Follow Up Mini Workshop @Fukushima City



New important question asked while confirming what has not been discussed

Why should we think about the decommissioning in the first place?

Why the local residents need to think or deal with troublesome issue such as the decommissioning of Fukushima Daiichi

#### Why should we think about the decommissioning in the first place?

## 1) What does it mean to "learn about reactor decommissioning" in the first place?

I. From "I don't know what it is that I don't know" to "Oh, I see." Make sure the residents can hold thorough discussions with the decommissioning body on remaining issues so information can be properly conveyed.

II. Search for the answer of "why we should we be thinking about decommissioning"?

Do not stop after only talking about the technical aspects of decommissioning. Make sure to think about decommissioning based on the residents' lives and the hopes of the young people's futures.

I. From "I don't know what it is that I don't know" to "Oh, I see." Websites and brochures

Located at the back of the booklet. Please feel free to take a look.

II. Search for the answer of "why we should be thinking about decommissioning" There are likely three directions...

1)Ethical: "To answer decommissioning questions = ethical."

Whatever else it may be, decommissioning a nuclear reactor is hard work and requires everyone to come together with the determination to return the region to the way it was.

So we need to think about decommissioning!

=>That may be true, but isn't it just self-satisfaction on the part of the government office and the Tokyo Electric Power Company? The residents are busy with other matters too. Why must they be dragged in?

2)Regulation: "It is necessary to understand decommissioning and put regulations in place."

If you don't understand matters related to decommissioning, you won't be able to handle the situation when something happens or when you need to make a decision!

You're going to be at a disadvantage if you don't know.

=>What happens if they say, "I don't mind being at a disadvantage. I'm busy with other things and can't be bothered listening to difficult talks."

3)Benefit: "Knowing about decommissioning is useful."

Decommissioning work has the potential to produce new employment and industry opportunities in the region, as well as a cultural uniqueness. Deepening your understanding of decommissioning matters increases those opportunities.

=>Can that really happen? Isn't that being indiscreet?

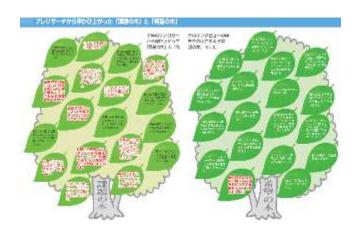
Hypothesis for time being: To explore the question of "Why should we think about the decommissioning in the first place?" It needs to be based on "Livelihood and day to day life in the area"

2) Regulation: "It is necessary to understand the Decommissioning to regulate it also from local community's point of view"
=> What kind of challenges does local community find important to live in the area where affected by the decommissioning.

3)Benefit: "Knowing decommissioning itself is beneficial"

=> What kind of hope and vision the local community has in mind for the future of this area.

It is necessary to illuminate "Challenges" and "Hope" based on the livelihood of the local residents.





Pre-research



#### August 5, 2018



3rd International Forum on the Decommissioning of the

Fukushima Daiichi Nuclear

Power Station @Naraha Town

## Summary

1) What does it mean to "learn about reactor decommissioning" in the first place?

I. From "I don't know what it is that I don't know" to "Oh, I see."

II. Search for the answer of "why we should be thinking about decommissioning"

In any case, this is not a matter that can be resolved after holding a one-time event with a limited number of people.

We had been exploring

"Why should we think about the decommissioning in the first place?"

Then let's explore

"Understand the decommissioning of Fukushima Daiichi NPS"

# Quiz on learning about reactor decommissioning

- Period, process
- Debris
- Number of workers
- Which organization is doing what
- Number of people living in areas that were once ordered to be evacuated



# Q1. How much time is needed to completely decommission the Fukushima Daiichi nuclear power plant?

The current completion estimate is between

2041 - 2051.

# What needs to be done to accomplish this plan?

Overcome each of the issues presented in the three large work processes "Decommissioning the Fukushima Daiichi nuclear power plant" = 3 tasks

1) Dealing with contaminated water

2) Defueling There is a "pool" and a "pressure cooker" inside the reactor.

(3) Dismantling/clean-up (decommissioning)

Currently, main efforts are beginning to shift from (1) dealing with contaminated water to (2) defueling.

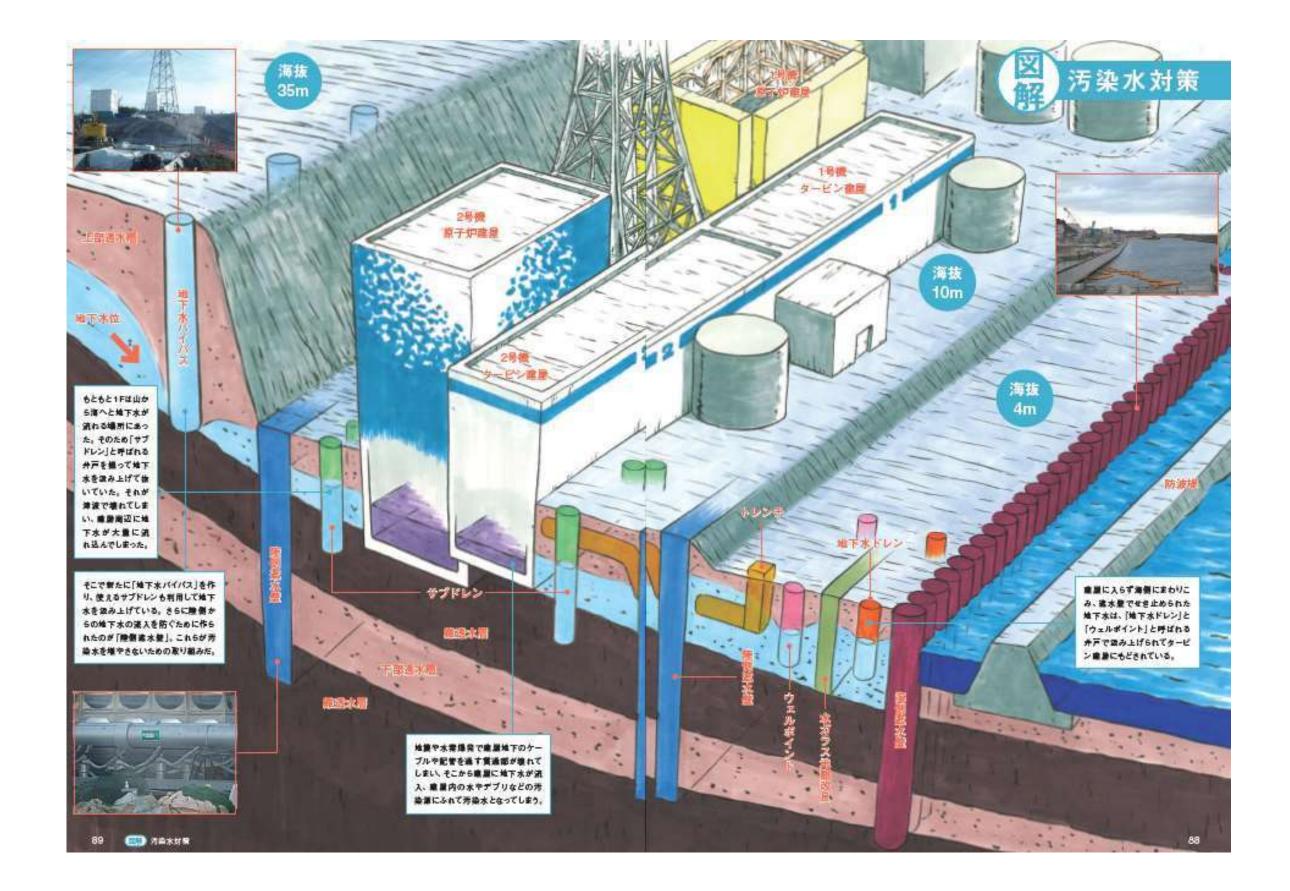
Contaminated water

Q2. How much water per day (in m<sup>3</sup>) was/is flowing into the basements of the buildings that house units 1 – 4 of the Fukushima Daiichi nuclear plant before the ice wall was completed?



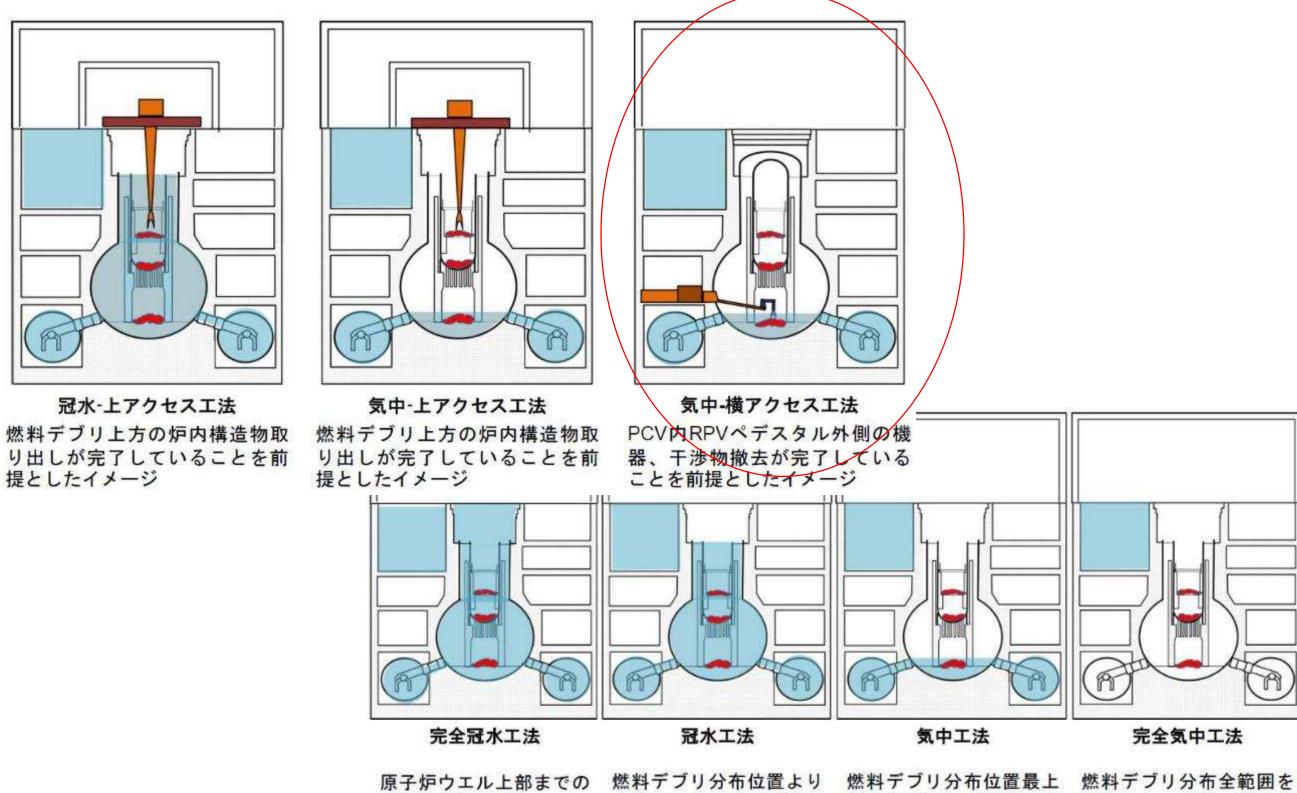
P11 http://www.meti.go.jp/earthquake/nuclear/osensuitaisaku/committtee/genchicyousei/2018/pdf/0606\_01\_01.pdf

# 1 loop 3 wells 2 types of walls



## How fuel debris will be extracted from now

• Goal: to thoroughly remove the debris consisting of fuel, metals and



工法

copyright (of Kantonna, mostility in Kights Koson oa.

水張りを行う工法

上部までの水張りを行う

部より低いレベルまで水 気中とし、水冷、散水を

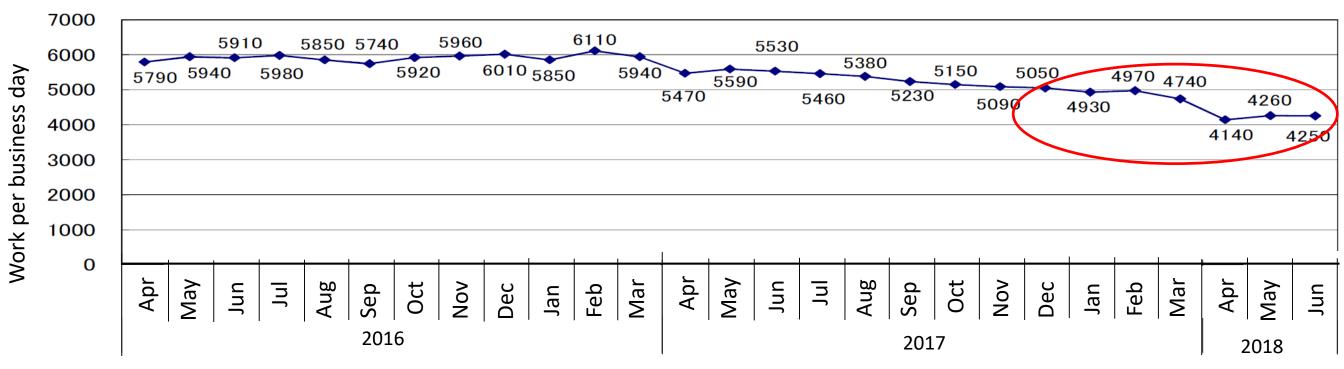
全く行わない工法

張りを行う工法

Contaminated water

# Q3. How many people are working at the Fukushima Daiichi nuclear power plant per day?

#### The number and age range of workers per day Total : approximately 4,000-5,000 people



Transition chart of average number of workers/day on month since FY2016 (record)

Local employment rate: 60% (on resident card basis)

#### Issue of securing workers

Securing and fostering young workers (looking ahead for 30 – 40 years) Stability as a local worker (dose rate, work content, wage)

P8 http://www.meti.go.jp/earthquake/nuclear/decommissioning/committee/osensuitaisakuteam/2018/08/2-1.pdf

## Work environment, local employment, securing



- Local employment rate: 50% (based on certificates of residence)
- Challenges of securing workers
  - Securing and training young workers (in anticipation of continuing work 30 40 years into the future)
  - Making it a stable place of employment in the region (radiation dosage, contents of work, wages)

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Who is doing the decommissioning work?

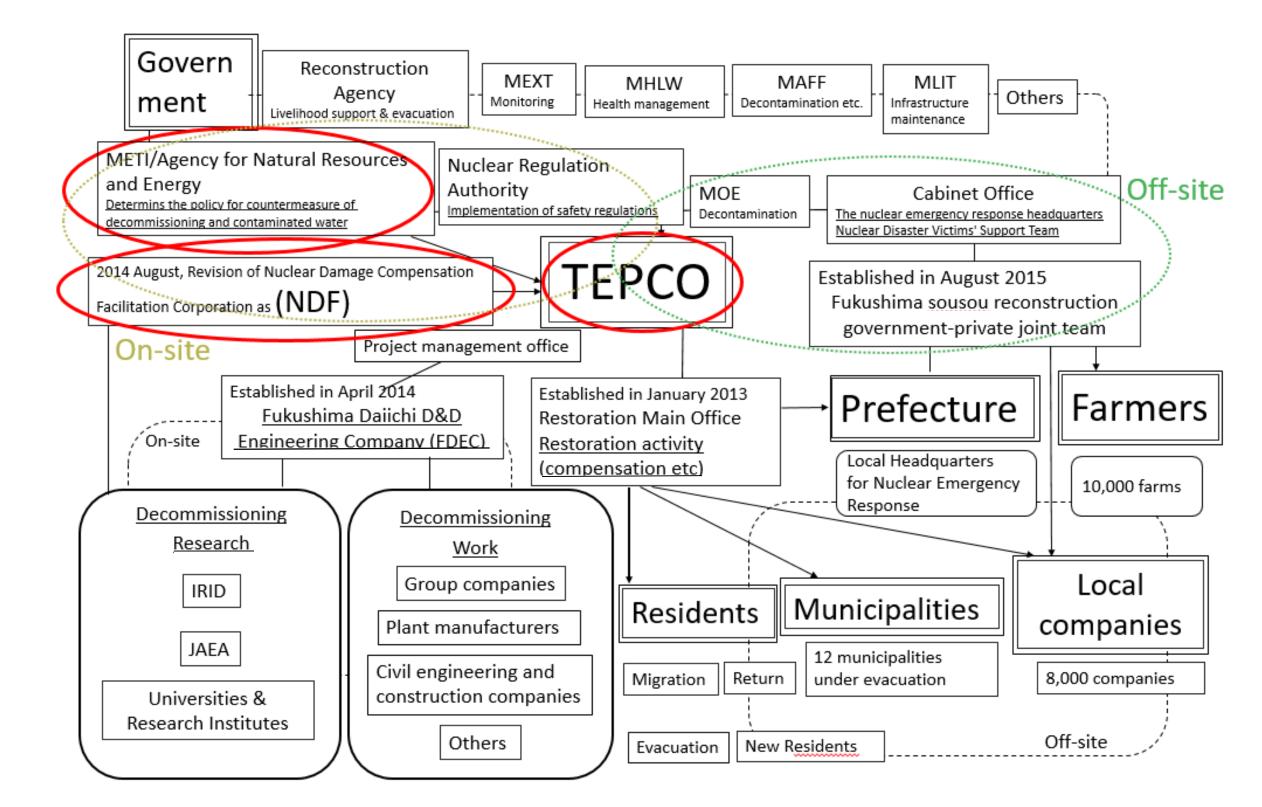
# Q4. Who is doing the

- decommissioning work? Is it
- the same as
- decontamination and other
- work? Or is it different?

#### General picture who is doing what

#### **Main actors**

- Government/administrative offices METI: decommissioning, MOE: decontamination, Cabinet Office: zone restructuring, etc.
- TEPCO FDEC & the Restoration Main Office: compensation, decontamination, reconstruction support work
- NDF/public-private company joint team



Housing situation

Q5. How many people have come back to live in the municipalities close to the Fukushima Daiichi nuclear power plant that once received evacuation orders?

Towns and cities experienced evacuation = 12 Municipalities Always status changes but they are going through 3 stages in its own way

(1) Over 80% of the residents prior the evacuation came back to Hirono Town 84.39% 4055 ⁄ 4805 (At the end of June 2018)
(2) Between more than 10 % to 50% has came back Naraha Town 48.05% 3367 ⁄ 7007 (At the end of June 2018)
(3) Less than 10% has came back Tomioka Town 5.6% 738 ⁄ 13170 (At the beginning of August 2018) To wrap up the discussion so far

"To understand" = Share Two things

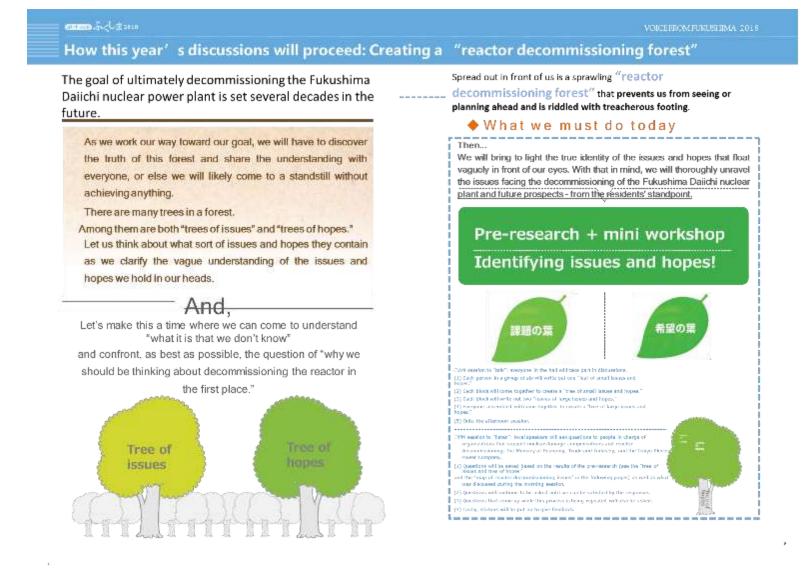
1) What does "Knowing about decommissioning of Fukuhima Daiichi NPS" really mean?

Importance to illuminate "Challenges" and "Hope"

2) "Understand the decommissioning of Fukushima Daiichi NPS"

# It is necessary to illuminate "Challenges" and "Hope" based on the livelihood of the local residents.

# In the session to "Discuss" we will try to find the way forward on the task.



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Day 1 Program mainly for the local community

Session to "Discuss"

Facilitator Hiroshi Kainuma (Associate Professor of Ritsumeikan University)

#### VOICE FROM FUKUSHIMA 2018

#### @ # # 2018

### How this year's discussions will proceed: Creating a "reactor decommissioning forest"

The goal of ultimately decommissioning the Fukushima Daiichi nuclear power plant is set several decades in the future.

As we work our way toward our goal, we will have to discover the truth of this forest and share the understanding with everyone, or else we will likely come to a standstill without achieving anything.

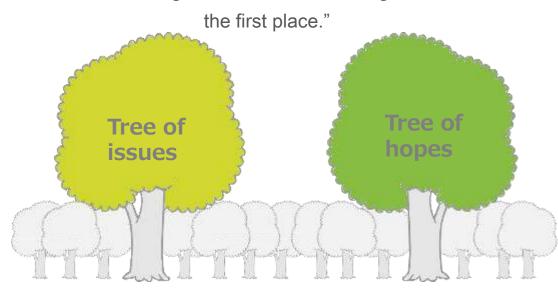
There are many trees in a forest.

Among them are both "trees of issues" and "trees of hopes." Let us think about what sort of issues and hopes they contain as we clarify the vague understanding of the issues and hopes we hold in our heads.

### And,

Let's make this a time where we can come to understand "what it is that we don't know" and confront, as best as possible, the question of "why we

should be thinking about decommissioning the reactor in



Spread out in front of us is a sprawling "reactor decommissioning forest" that prevents us from seeing or planning ahead and is riddled with treacherous footing.

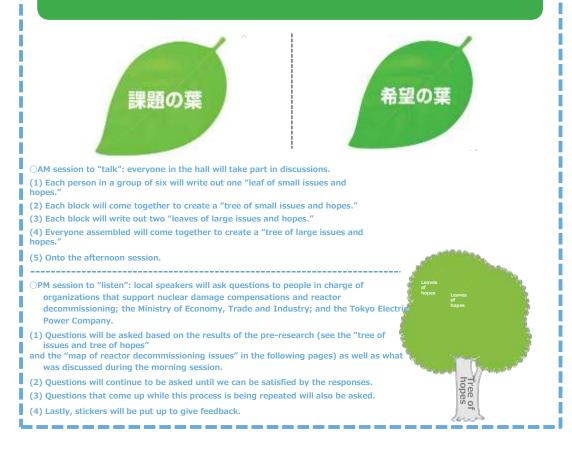
### •What we must do today

#### Then...

We will bring to light the true identity of the issues and hopes that float vaguely in front of our eyes. With that in mind, we will thoroughly unravel the issues facing the decommissioning of the Fukushima Daiichi nuclear plant and future prospects - from the residents' standpoint.

### Pre-research + mini workshop

### Identifying issues and hopes!



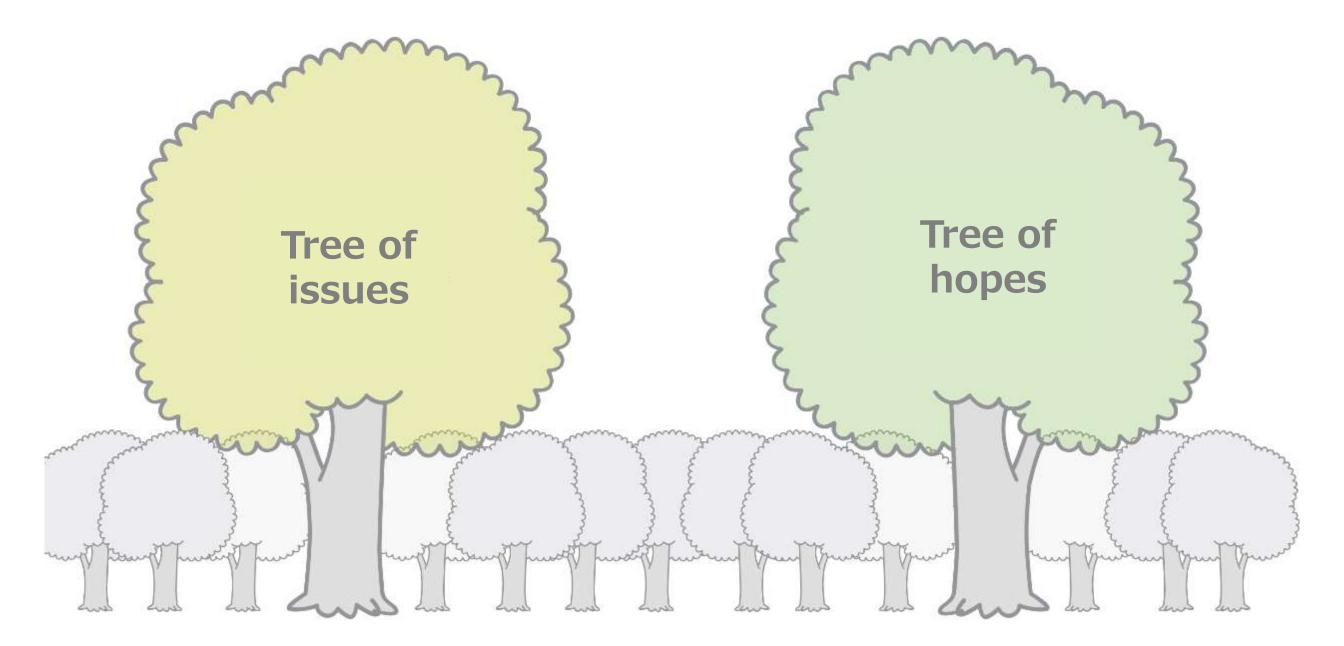
Let's start "Session to Disucuss"

How to proceed with the discussion: make a "forest of D&D"

D&D of 1F whose goal is set in a few decades ahead. In front of us there is a deep, precarious "Forest Leading to D&D" where we are unable to have a clear foresight.

- •Without finding out what the forest is really like when heading to the goal, we will be transfixed in the middle of the forest.
- •There are many tress in the forest where both the trees of challenge and trees of hope also grow. Let us think about what challenges and hope can be found there by revealing the challenges and hope that we obscurely perceive.

Finding out what we do not know, let us work on the question "Why should we have to think about the D&D in the first place?" as much as we can.





What we do today: Clarify challenges and hope that vaguely lie in front of us. Then we thoroughly ellucidate challenges and future prospect of 1F D&D.

# Preliminary research and mini-workshop

Extraction of challenges and hope.

# Extraction of challenges and hope



Step 1:make sure you are in a group of six.

Step 2: make sure you have sticky the notes, which are the small leaves of challenges (yellow) and hope (green) respectively.

Step 3 : please discuss in the group (start the discussion from the person sitting the furthest right) and decide what to write on the yellow leave of challenge and green leaf of hope (10 mins).

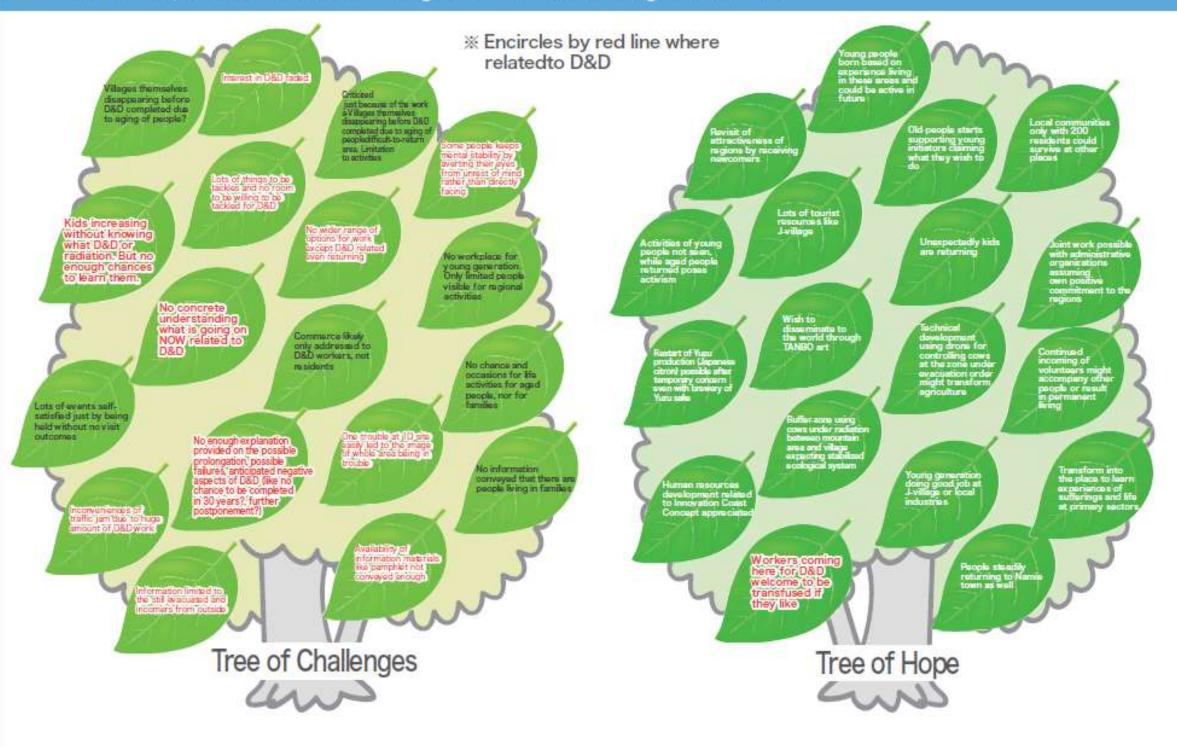
Step 4: Put the yellow leaves and green leaves on the small tree (Please pass the leaves to the volunteer supporter.)



#### CONTRO 5 2018

#### VOICE FROM FUKUSHIMA 2018

### "Tree of Hope" and "Tree of Challenges" illuminated through interviews



6 steps:

visualize the challenges and hope that participants have, extract "Large tree", which is the agenda today.

Step 1:make sure you are in a group of six.

Step 2: make sure you have sticky the notes, which are the small leaves of challenges (yellow) and hope (green) respectively.

- Step 3 : please discuss in the group (start the discussion from the person sitting the furthest right) and decide what to write on the yellow leave of challenge and green leaf of hope (10 mins).
- Step 4: Put the yellow leaves and green leaves on the small tree (Please pass the leaves to the volunteer supporter.)
- Step 5: please discuss to make big leaves of challenges and hope (two each).
- Step 6: please fill in the two pairs of leaves to prepare for the afternoon session.

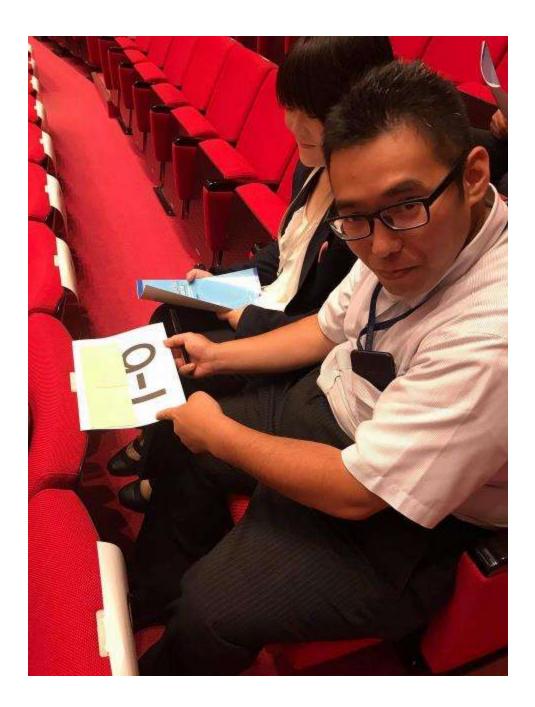
## Step 1: Make sure you are in a group of six





Step 2:

STEP2 Step 2: make sure you have sticky the notes, which are the small leaves of challenges(yellow) and hope(green) respectively.



STEP3

Please start discussing what to write on the leaves, starting from the person sitting furthest right facing to the stage. (10 min)

- Example) "What I think are the challenges and hope for D&D or this community are....."
- "What I am concerned is.. I think is it is a challenge".
- "Good things about this community is that...., which is hope."

Note:

- please do not talk too long (please pass it to the next person in 30 seconds or 1 minute)
- We will notify in 5 minutes so please summarize to tell what to write on the leaves.

## STEP4

Put the yellow leaves and green leaves on the small tree (Please pass the leaves to the volunteer supporter.)



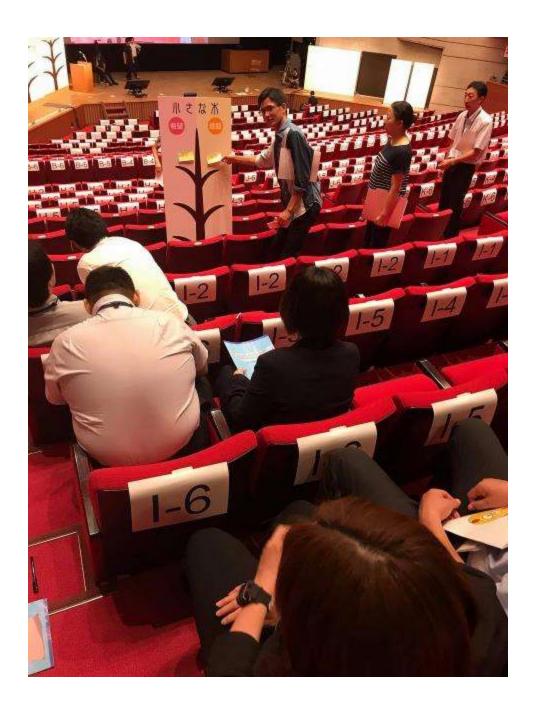


## STEP5

Please discuss to make big leaves of challenges and hope(two each).

- The volunteer supporters will check at first if there are "similar contents", "the contents on the leaves are diverse" or "whether there is noticeable discussion"
- Based on the above you will exchange your opinion in the group to select what is the most important challenge and hope in your group
- It is ideal that you are positively engaged in the discussion. If no one is likely to start talking, the volunteer supporter will pick on someone in the group.
- Please discuss so that as many as people in your group can talk. Note:
- Please do not talk too long (please pass it to the next person in 30 seconds or 1 minute)
- Even though, please do not hesitate and express your own opinion.
- We will notify in 5 minutes so please summarize to tell what to write on the leaves

Step 6: please fill in the two pairs of leaves to prepare for the afternoon session.



# Lunch Break

In the lunch time, we are going to make large version of Tree of hopes and challenges.

Trying to include as many opinions as possible. We welcome any participants to join / see us what we do on stage! The 3<sup>rd</sup> International Forum on the decommissioning of the Fukushima Daiichi Nuclear Power Plant (1FD-Forum)

Day 1 Program mainly for the local community

Session to "Ask Questions"

Facilitator Hiroshi Kainuma (Associate Professor of Ritsumeikan University) Session to "ask questions"

- (1) Ask questions through referring to the comments gathered through the interviews and the today's morning session
- (2) Keep on asking questions until the answer is satisfactory
- (3) Also ask questions from floor in the session
- (4) After the session, stick the stickers on the graphic recording for your feed back

# Foundation of Session to "ask questions"

- Conducted interviews prior to this forum to gather thoughts towards the decommissioning of Fukushima Daiichi Power Station (19 groups and 50 people in total from 2017 to 2018), putting them together in Voice from Fukushima 2017 and 2018.
- Summarized the challenges illuminated into "Strata of people's concerns Fukushim area"
- Local residence will "aske questions" about the challenges such as in the strata to decommission implementing body and also the supporting organizations
- Take into the account what's has been gathered in the tree of hope and challenges and discuss on the topics illuminated.

### Strata of people's concerns Fukushima area

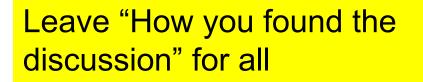
		Much of "Requests" identified => Specific presentation and implementation of idea required	Much of "Concerns" identified => Restructure solution of fundamental challenges and mutual trust	Much of "Questions" identified
Tendency observed	Correct information to be shared	Dissemination of information, Communication	Safety and emergency measures	Business plan/Promotion of D&D
Slow solution (No ultimate solution?)	What remains after D&D?     Kids increasing without knowing what D&D or radiation. But no enough chances to learn them.	Why local residents have to be engaged in the talk of D&D7     No enough explanation privided on the positive prolongation, positive failures, anticipated negative approx of D&D (like no chance to be completed in 90 years7, further postponement)	Continued risk of propagation of contamination so long as there exist contaminated buildings and waste generated from them	How debris retrieved disposed?     Cost or burden of waste being thrust to rest generations?     No risk that schedule could be maneuvered by shortening or prolonging the schedule of 30-40 years?
(Maybe any solution some day?)	No vision of regional renovation in place to incorporate people coming for construction work     Not easy to raise children without serious concerns     What to do regional economy after innovation Coast project and TF decommissioned     Interest in D&D faded away already     No wider range of options for work except D&D related even returning	<ul> <li>One single trouble or incident overcasts the image that whole of Fukushima area is at risk</li> <li>Perception of Fukushima overseas extremely bad</li> <li>Some people keeps mental stability by everting their eyes from unrest of mind rather than directly facing</li> </ul>	Continued risk of propagation of contamination so long as there exist contaminated buildings and waste generated from them?	<ul> <li>End state is reaching to green field or incomplete?</li> <li>Sure to secure the works in long run?</li> <li>Fuel debris retrieval actually possible? If possible, how? If not, what could be done?</li> <li>How could be the decision-making for tritlated water disposal?</li> </ul>
(Immediate solution possible»)	Inconveniences due to huge amount of D&D work     Lots of things to be tackles and no room to be willing to be tackled for D&D     Advantages to the region by innovation Concept Program Invisible	Websites, pamphlets etc. by TEPCO, government not easy to understand     One trouble at 1D site easily led to the image of whole area being in trouble     Information limited to the still evacuated and incomers from outside	No new problem occurring to primary sector and peripheral areas by implementing D&D work?	What is the future of 1F     No unnecessary cost paid so far?     What would be the increase of water in tanks     In future?
(Already solved?) Close to be solved	No sultable occasions for local people to discuss D&D	Availability of information materials like pamphlet not conveyed enough		No unknown leakage of contaminated water?

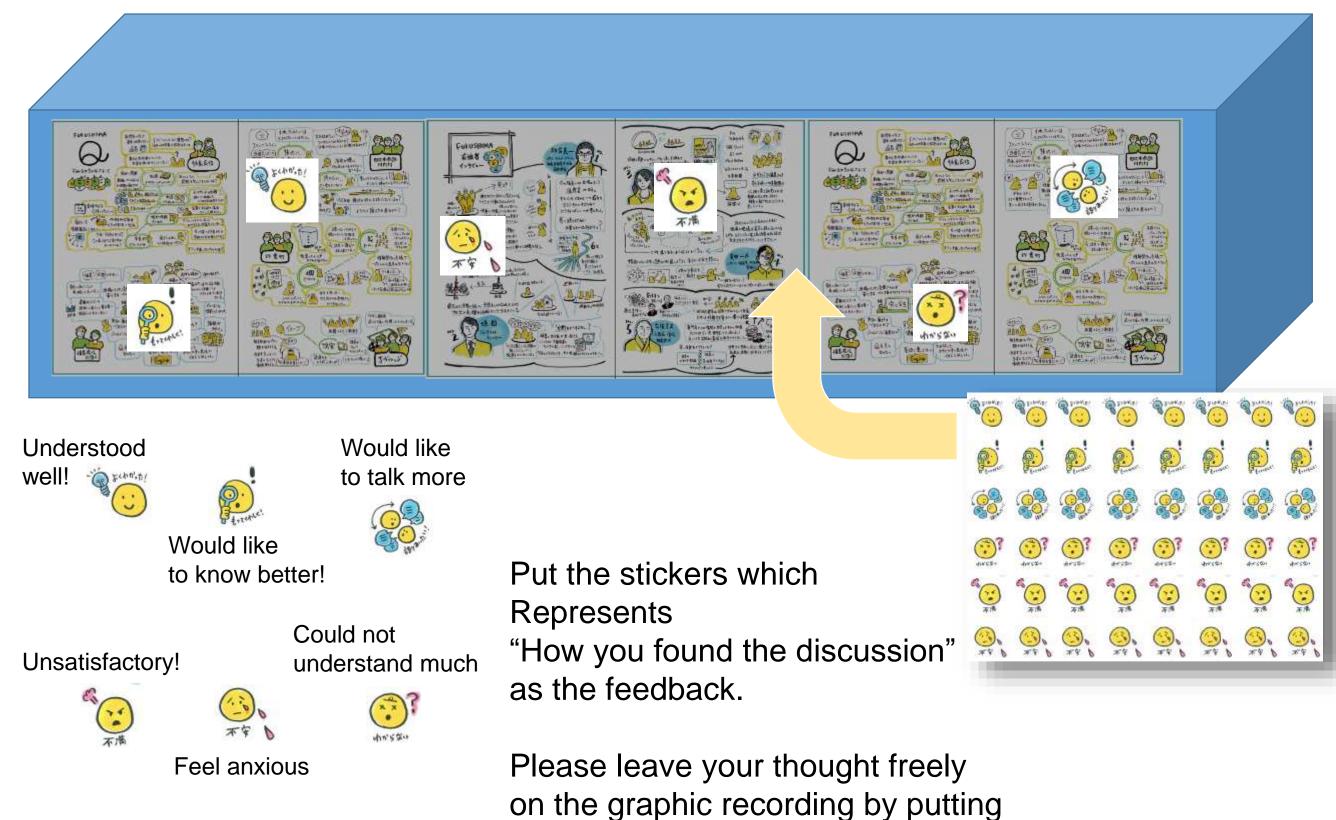
# Steps in the session to "ask questions" & panels

- How this session work
  - (1) Seven panels from local community will be on board
  - (2) Panels from local community have confirmed
    - what has been gathered in the trees of hope and challenges
  - (3) Discuss on the priority to choose what topics need to be asked today. (As the time is limited, if 10 minutes /question then only 7-10 questions will be maximum number of questions can be asked.
  - (4) Q&A session from the higher priority issues. Try to clarify things that is uncertain.
  - (5) Check if the floor understood what has been said on the stage="Real time system"
  - (6) Ask some input from commentator from abroad
  - (7) Go onto the next topic... and so on and on. Until the time is up.
  - (8) If you have any doubt or comments please ask your closest Volunteer supporter for the questionnaire paper to fill in. They will carry your message to the facilitator. The paper needs to be handed to the volunteer supporters by 15:30, to be discussed in this session.
  - \* All the discussion will be recorded in the Graphic Recording

# Lastly but not least • •

# Feedback session





on the stickers, before you leave the venue!