

Major Future Initiatives at Fukushima Daiichi

TEPCO

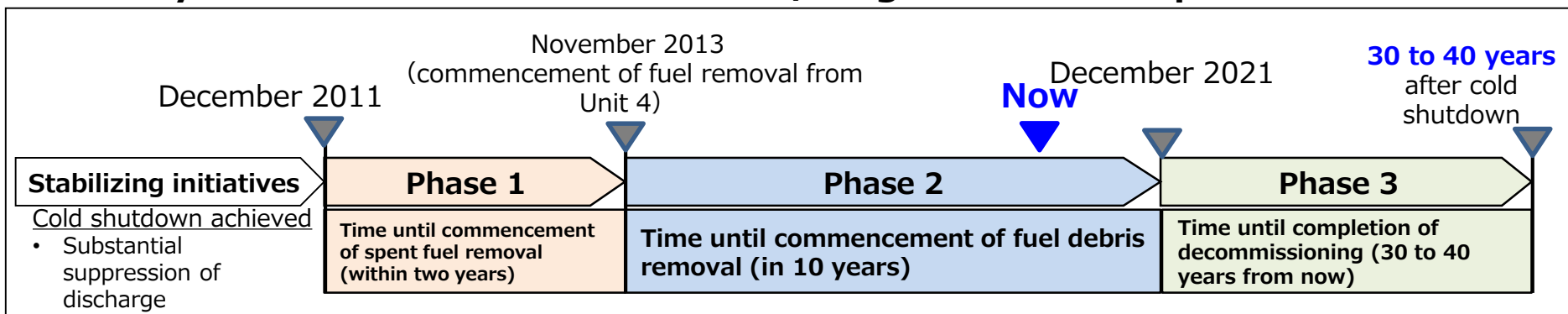
February 4, 2020

1. Mid/Long-Term Roadmap Revisions

About the Mid/Long-Term Roadmap

- As a general rule, **TEPCO HD is solely responsible for** Fukushima Daiichi Nuclear Power Station decommissioning and contaminated water countermeasures.
- However, **there are technical challenges that are unprecedented on a worldwide scale and based on the mid/long-term roadmap** it will take 30 to 40 years to complete decommissioning, so **the Japanese government is also taking the lead** to move safely and steadily forward with this endeavor.

<Primary milestones of the current mid/long-term roadmap>



Role of the Japanese government

- **The national government has created the mid/long-term roadmap**
Revised at the Cabinet Meeting on Decommissioning and Contaminated Water Countermeasures
(Chief Cabinet Secretary serves as chairman. First version created in December 2011)
- **Revised four times** to date (last revision was in **September 2017**)

- Based on this roadmap, mid/long-term initiatives are underway with firm resolution to **prioritize safety and reduce risks**


Major revisions proposed for the Mid/Long-Term Roadmap

- **As residents start to return and the surrounding region gradually recovers, the main objective of the roadmap will be to “balance recovery with decommissioning.”**


(Move forward while quickly reducing risks and prioritizing safety)

- Symbiosis with the region. Meticulously examine the current schedule (approximately 10 years) and “optimize the entire decommissioning process.”
- We are firmly resolved to completing the decommissioning process in 30 to 40 years.

① Fuel debris removal


 Choosing the first unit from which to remove fuel debris and selecting a removal method. We will begin removing fuel debris on a trial basis from Unit 2 from the side and in the open air (during 2021). The scale of the operation will be gradually enlarged thereafter.

② Pool fuel removal

 At Units 1 and 2 the method has been altered to control dust dispersion. Fuel removal commencement at Unit 1 and Unit 2 has been pushed back to within 4 to 5 years and within one to three years, respectively. We aim to complete removal from all Units 1 through 6 by the end of 2031.

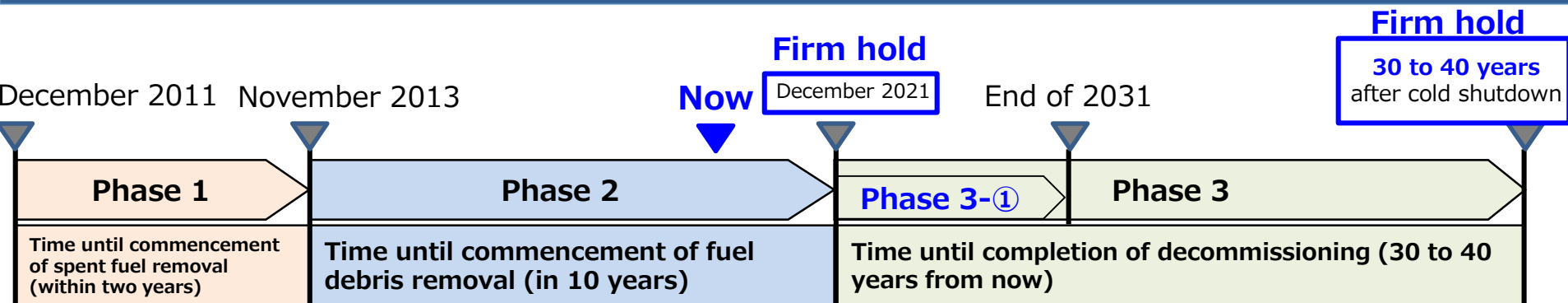
③ Contaminated water countermeasures

- The amount of contaminated water being generated has been greatly reduced by the countermeasures implemented to date 540m³/day. (May 2014) →170m³/day(FY2018)

 We remain firmly resolved to our current objective of reducing the daily amount of contaminated water generated to 150m³/day by the end of 2020. In addition, we have set a new objective of reducing this amount to 100m³/day by the end of 2025.

※We will continue to comprehensively deliberate how to handle ALPS-treated water.

Draft of the revised Mid/Long-Term Roadmap objective schedule



Primary objective schedule

		Currently	Proposed revision
Contaminated water countermeasures	Reduce the amount of contaminated water generated to approx. 150m ³ /day <u>Reduce the amount of contaminated water being generated to less than 100 m³/day</u>	During 2020 —	During 2020 <u>During 2025</u> New
	Accumulated water treatment Completion of the treatment of accumulated water in buildings※ <u>Reduce the amount of accumulated water in the reactor buildings to approximately half by the end of 2020</u>	During 2020 —	During 2020 (※) <u>FY 2022~FY2024</u> New
Fuel removal	<u>Completion of fuel removal from Units 1 through 6</u>	—	<u>During 2031</u>
	<u>Completion of construction of large cover over Unit 1</u>	—	<u>Around FY2023</u> New
	Commencement of fuel removal from Unit 1 Commencement of fuel removal from Unit 2	Around FY2023 Around FY2023	<u>FY2027~FY2028</u> Revised <u>FY2024~FY2026</u> Revised
Method change to further ensure safety and better prevent dust dispersion			
Fuel debris removal	Commencement of fuel debris removal from first unit <u>(Start at Unit 2. Gradually enlarge scale of operations)</u>	During 2021	During 2021
Waste countermeasures	Technical prospects for treatment/disposal plans and the safety of these plans <u>Elimination of temporary outdoor storage of rubble, etc.</u>	Around FY2021 —	Around FY2021 <u>During FY2028</u> New

※Excluding the Unit 1~3 reactor buildings, process main building, and high-temperature incinerator building

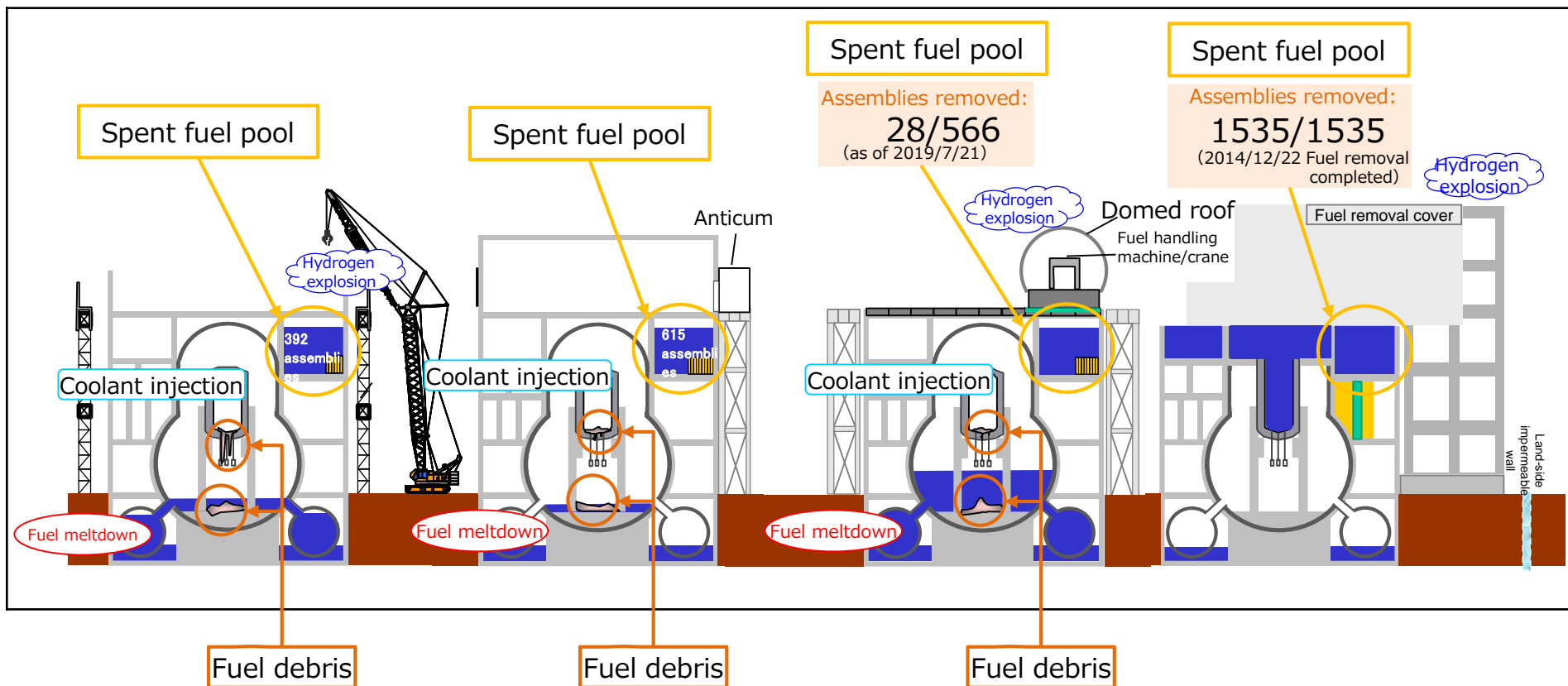
(Reference) Current state of Fukushima Daiichi NPS Units 1~4

Unit 1

Unit 2

Unit 3

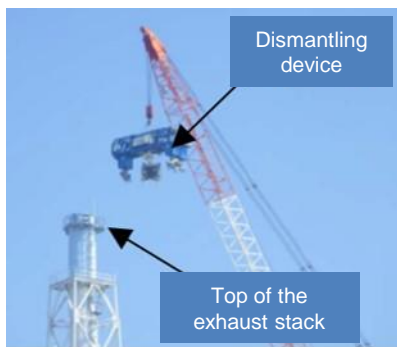
Unit 4



<Unit 1/2 exhaust stack dismantling>

<Fuel debris removal>

<Fuel removal>



Local company serving as general contractor. [2019.8]



We have confirmed that deposits assumed to be fuel debris can be grasped and moved (Unit 2). [2019.2]



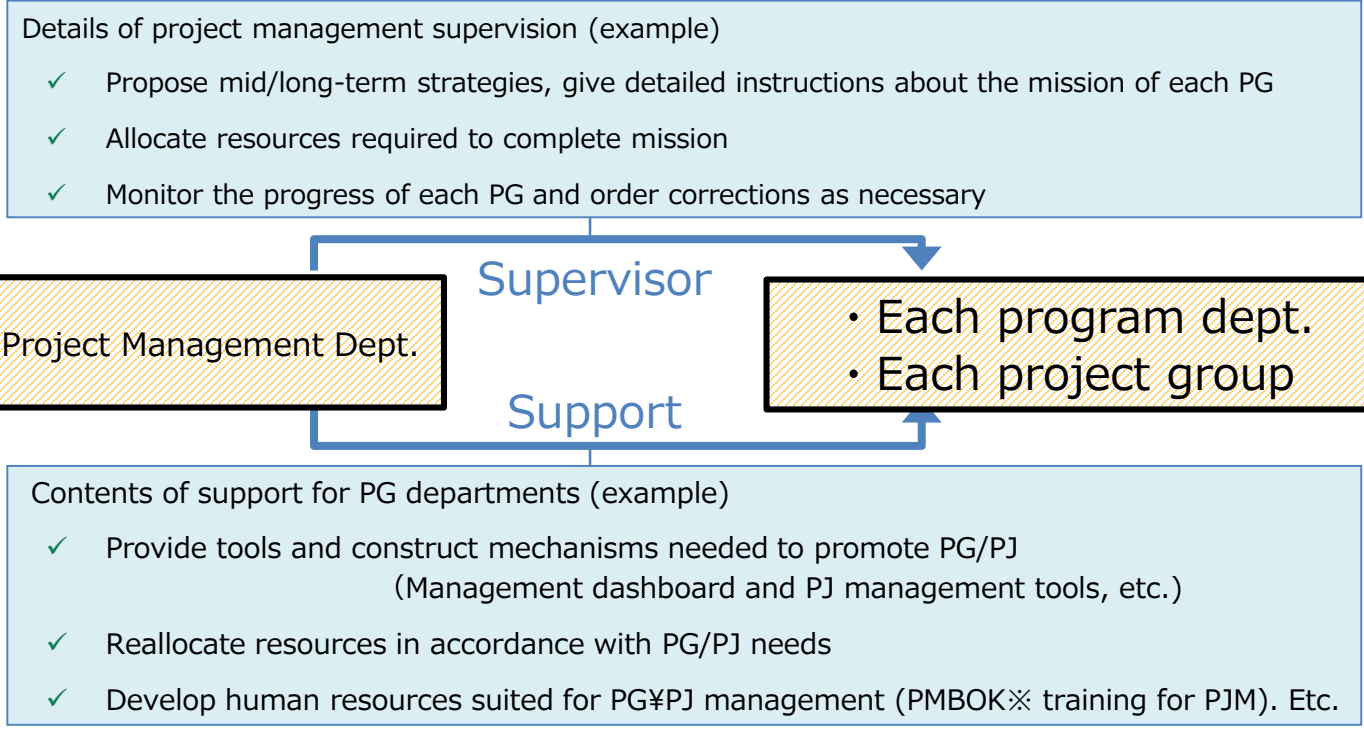
Fuel removal from a spent fuel pool via remote operation commences for the first time at a reactor in which fuel has melted (Unit 3) [2019.4]

2. Organizational changes

Strengthening project management

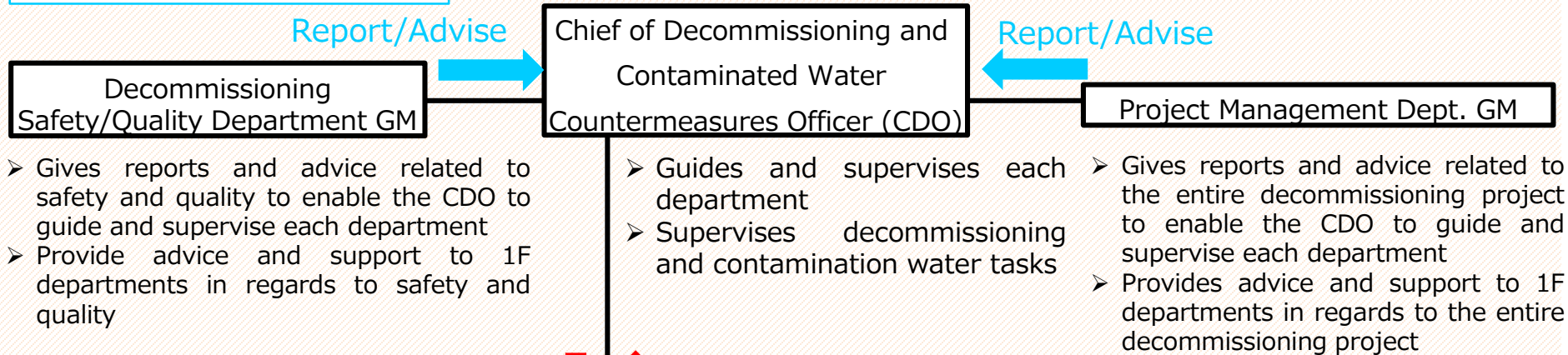
- Create a project management department during this reorganization and achieve the following
 - Clarify the authority and responsibilities of program managers
 - Improve performance by having personnel dedicated solely to project management
- } Improve PJ promotion ability

- Establish a project management department and supervise, such as by quickly identifying risks, etc., while also providing support for mechanism construction and the reallocation of resources

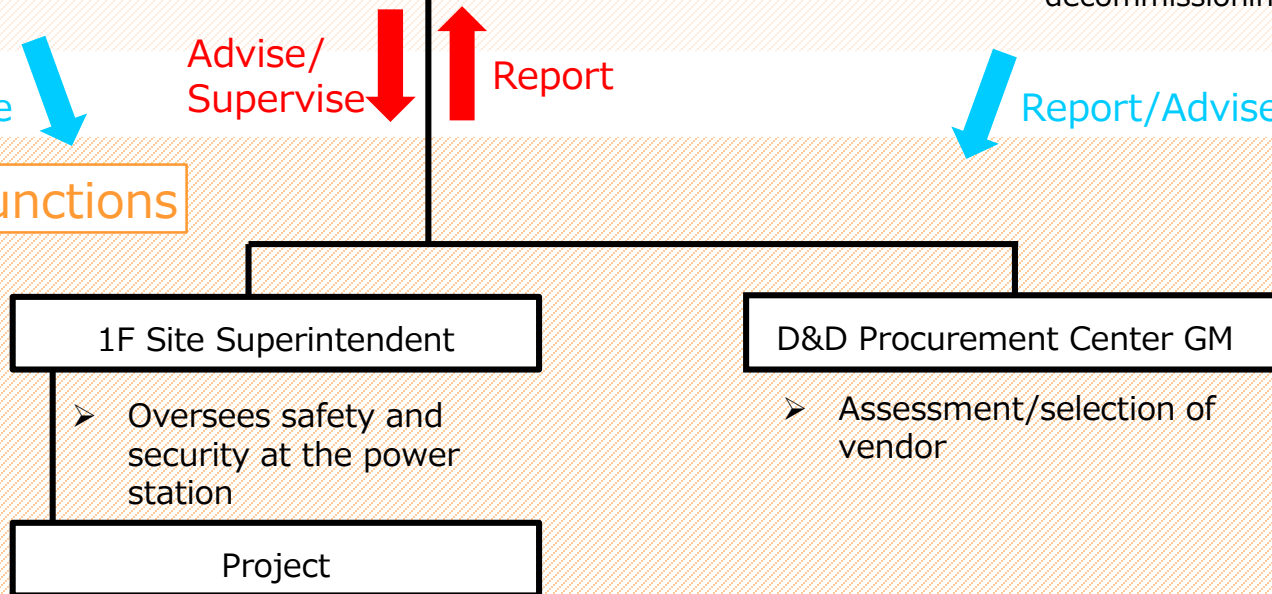


Organizational change concept

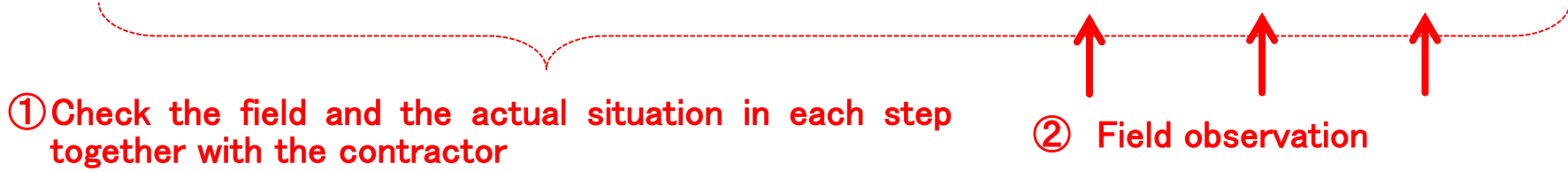
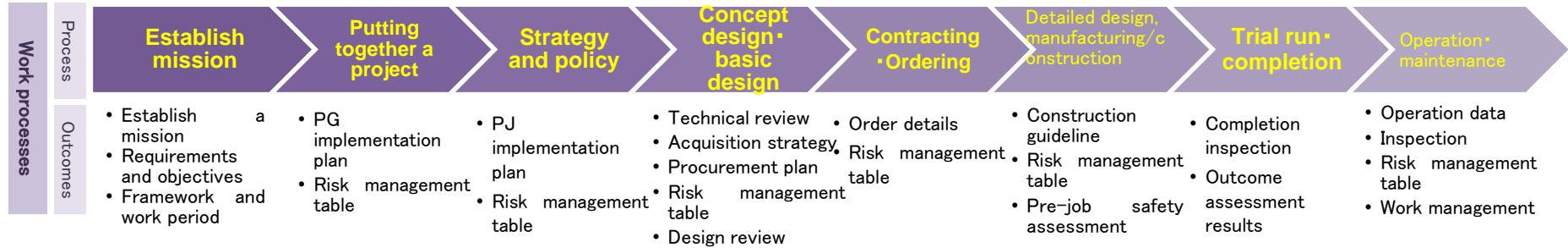
Supervisory functions



Executive functions



Thoroughly grasp the state of the field and actual situation, improve that capability



- ① Thoroughly grasp the field and the actual situation for each step from project conception.
- ② Observe the level to which TEPCO employees are aware of the field and the actual situation and provide feedback.
- ③ Ensure the effectiveness of initiatives ① and ② as follows:
 - The Project Management Department (PMO) shall confirm overall progress and the to-do lists for each process.
 - The Decommissioning Safety & Quality Department shall confirm the status of ensuring the safety and quality of each process and shall provide continual support for the improvement of field observation capability.

Enhance Personnel and Organization Capabilities **TEPCO**

- Transferred 70 to 90 personnel from the head office in Tokyo to Fukushima Daiichi in the organizational restructuring, so that the organization structure reflects the importance of the field.

- Also increased the number of personnel for radiation control and analysis work as the workload for those areas will be increasing.

- Restructured the organization to create an organization better equipped to execute projects and improve safety and quality

- Increased the number of personnel in the PMO and the Decommissioning Safety and Quality Office

- **Reviewed work allocation so that the same person is not in charge of both a project and routine work** (reduce discrepancies in workload and the number of decisions that need to be made)

