

# **Actions of a Public Utility at a Disaster - Human-centered Scenario Analysis of a Memoir -**

2016 FIRST JSCE-CICHE JOINT WORKSHOP  
MAY 22, 2016

**KIKO YAMADA-KAWAI**, Dr. Eng.

Tokyo Institute of Technology

# **AGENDA**

- 1. Background and purpose**
- 2. Method and application**
- 3. Findings**
- 4. Conclusion**

# BACKGROUND & PURPOSE

- **Background**

- A part of study in Human-centered Design process into infrastructural planning
  - A method to understand stakeholders' actions and thoughts from speech and written records.
- Water supply is one of the indispensable service.
  - Mostly run by local government, now partly privatized.
  - Occasionally faces severe rainfall.

- **Purposes**

- of the talk is to introduce the method with a case study.
- of the case study are to clarify
  - actions by each stakeholder, and
  - the reasons to successfully overcome the accident.

# WHAT IS HUMAN-CENTERED DESIGN

- **What is Human-centered Approach?**
  - Reflecting users' satisfaction into design process.
  - Users' satisfaction is obtained by user research.
- **Methods?**
  - User research: contextual interview, observation, and tests.
  - Design: persona, scenario, customer journey map, etc.
- **Applied to?**
  - Product and service design.
  - ICT systems as web based systems, application, enterprise systems, etc.

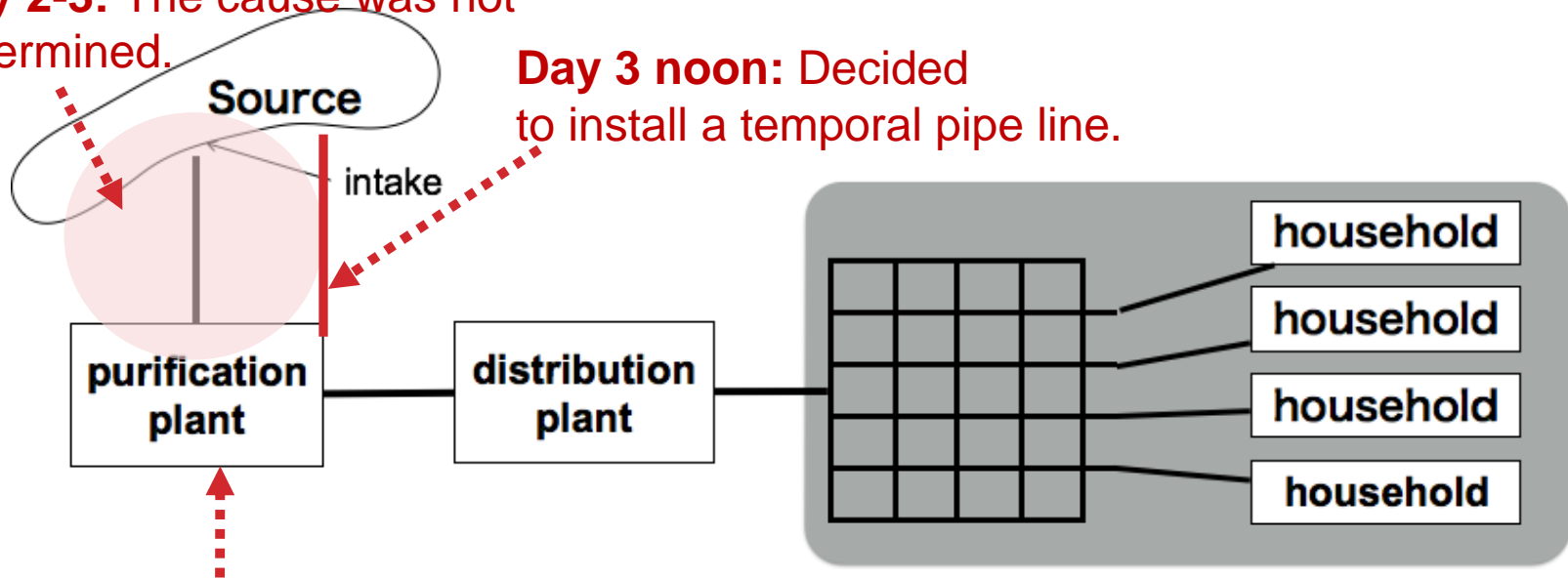
# TARGET OF ANALYSIS

## Day 1-2:

Rainfall in Aug. 2010 lasted a whole day up to 168.5 mm/day.

- Run by a local government.
- Operation of two plants were commissioned to a private sector.
- The network holds 1,162 households with 1,881 users (as of Mar. 2013)
- Two plants are operated by a private sector.

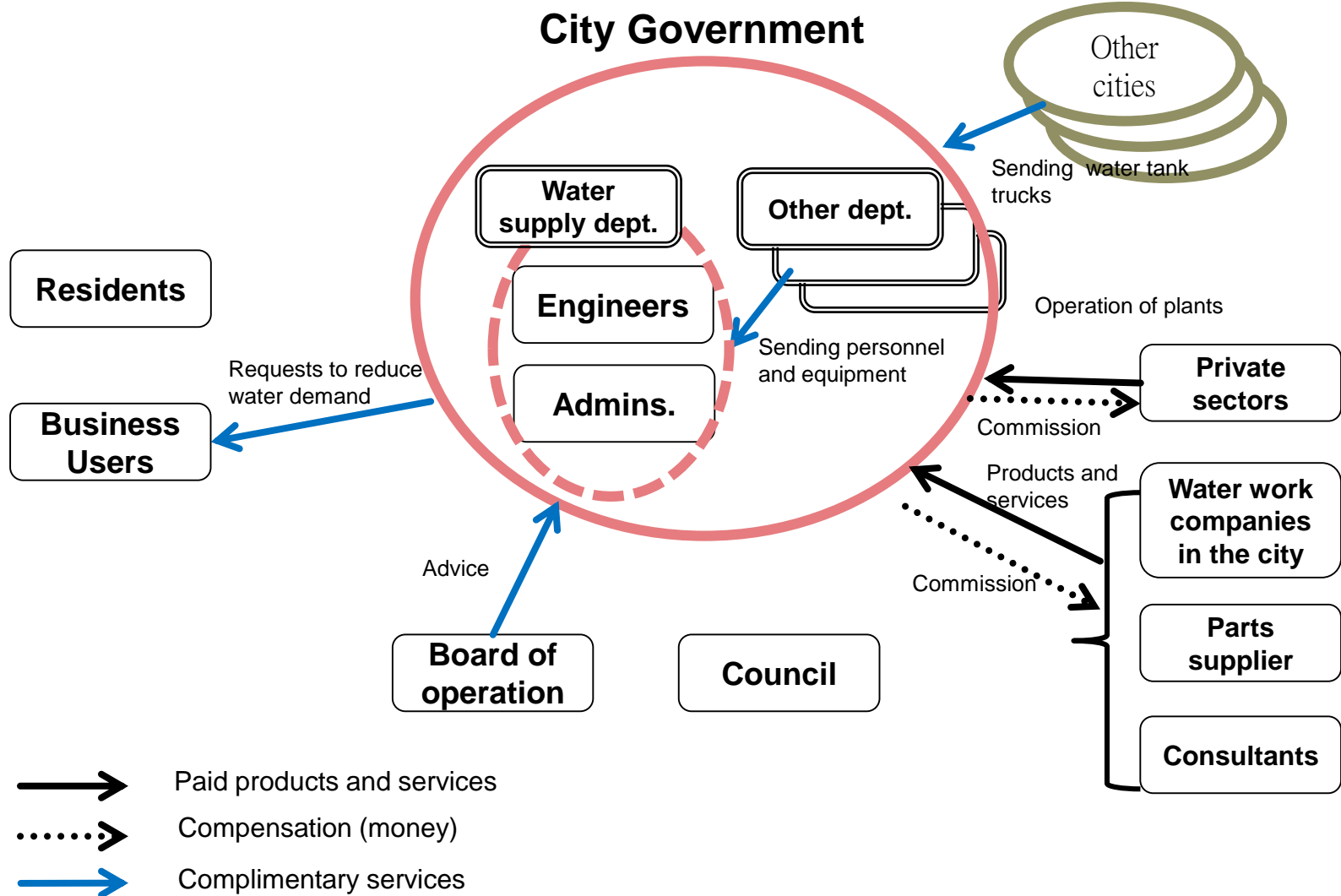
Day 2-3: The cause was not determined.



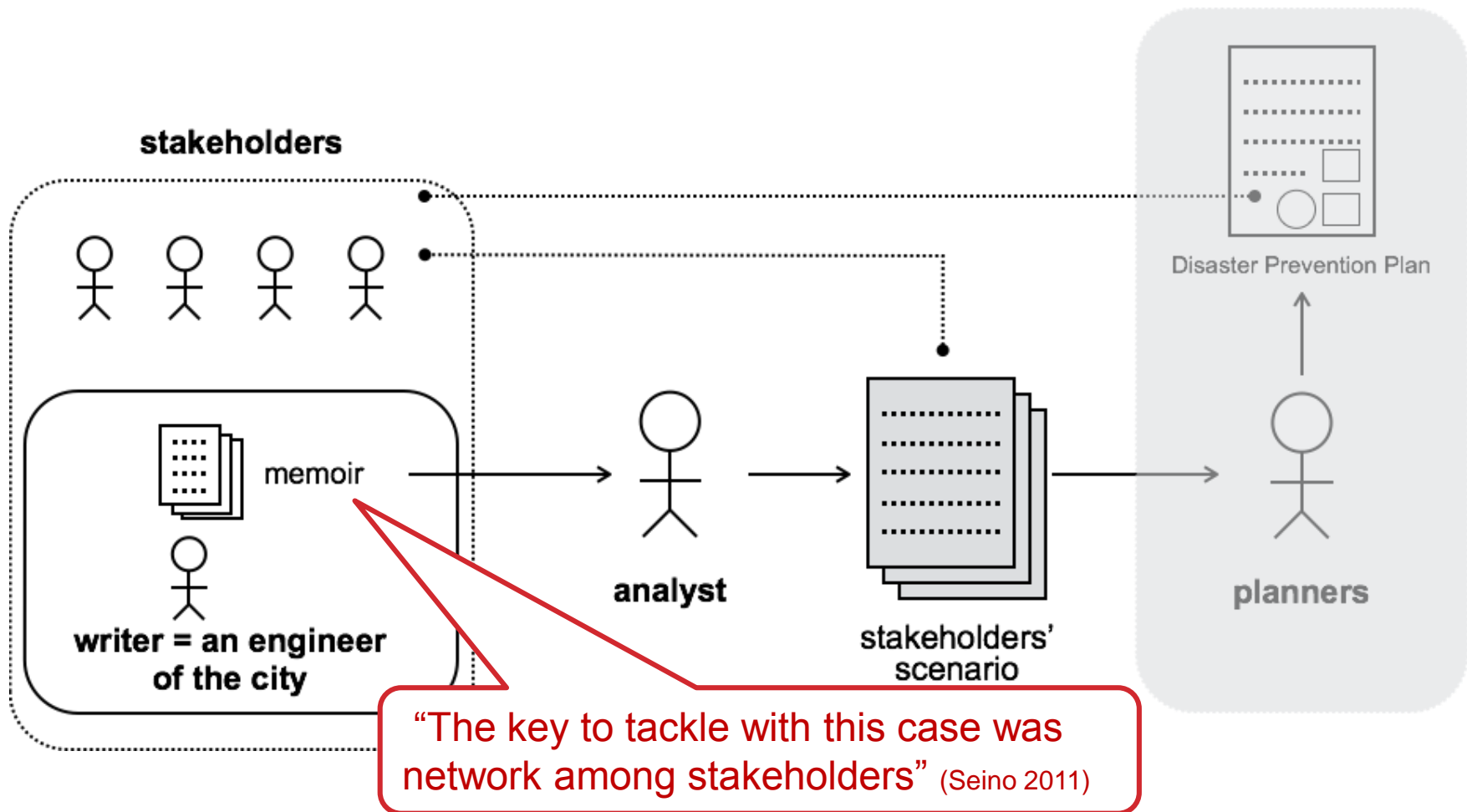
## Day 2:

Level of water declined.

# STAKEHOLDERS

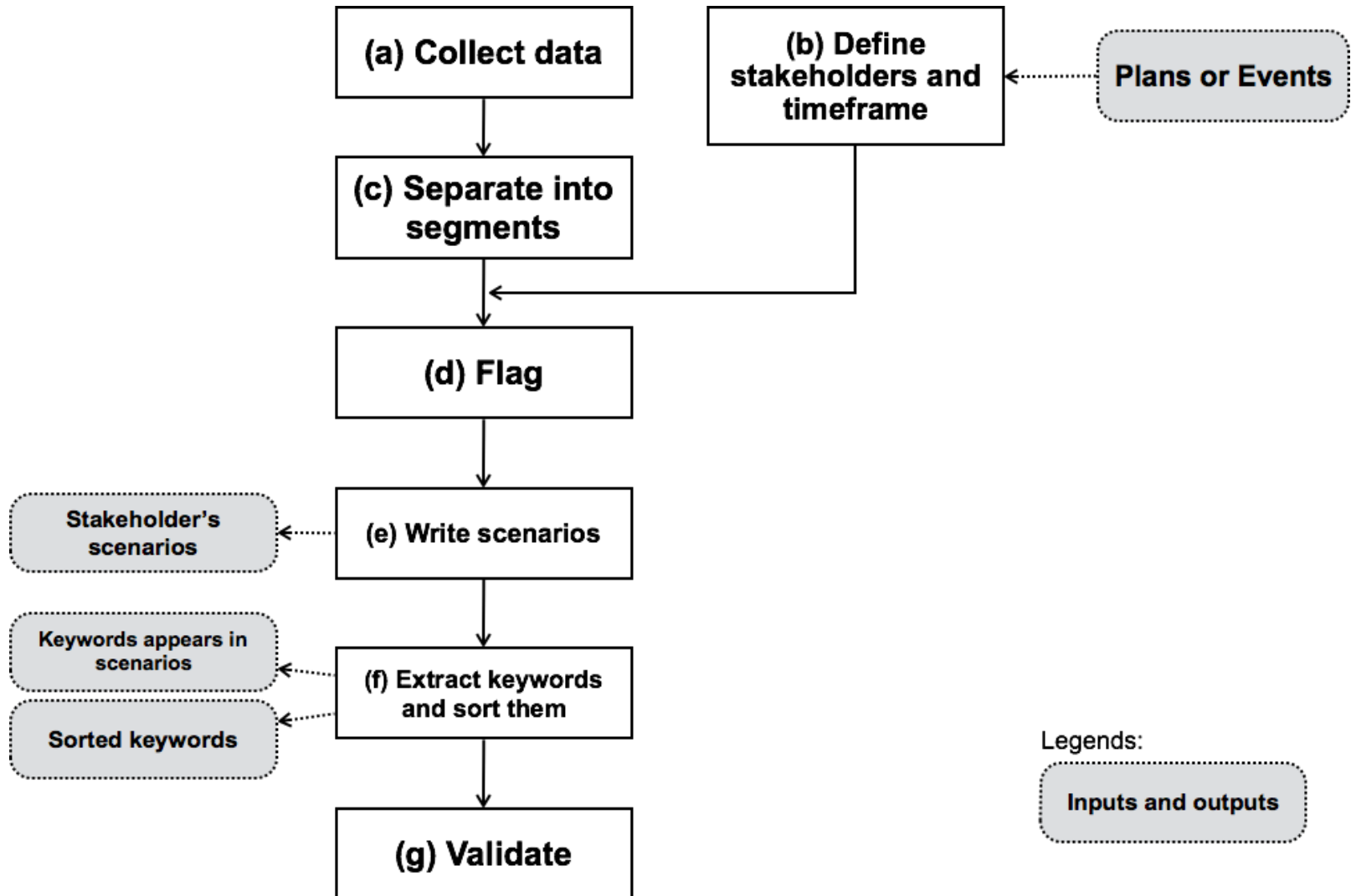


# FRAMEWORK OF ANALYSIS



Seino, Kaoru: Avoiding water stoppage in Ishikari City – with the strong bonds of public private partnership, *Suido Koron*, Vol. 47, No. 2, pp. 32-42, Feb. 2011, in Japanese.

# METHOD





# MEMOIR AND SCENARIOS

## Memoir (Seino 2011)

- Written by an engineer at the local government
- Published in an engineering magazine for water supply
- 9 pages including 21 episodes.
- Describing his actions and feelings in chronological order, followed by discussion.

## Scenario

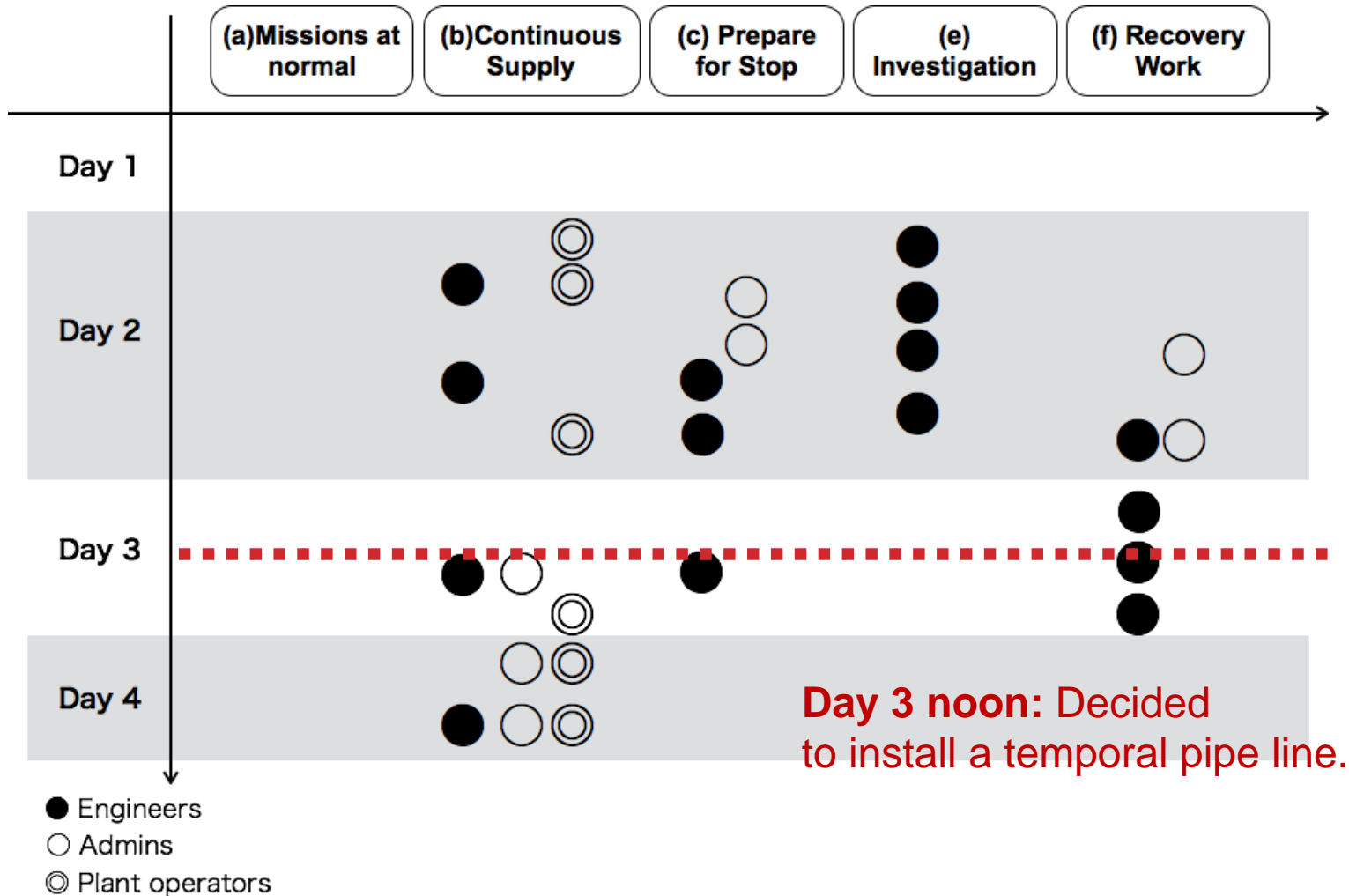
- 11 stakeholders' stories in natural language.
- Written from the memoir by the analyst
- # of episodes
  - Engineers 13
  - Admins, and Plant operators 8 each
  - Others 3 each
  - Residents 0

Engineer A has majored sanitary environmental engineering, been working for at the city for 20 years.

He was reported by a plant operator that the water level of purification plant had drastically dropped in the course of heavy rainfall. (continues)

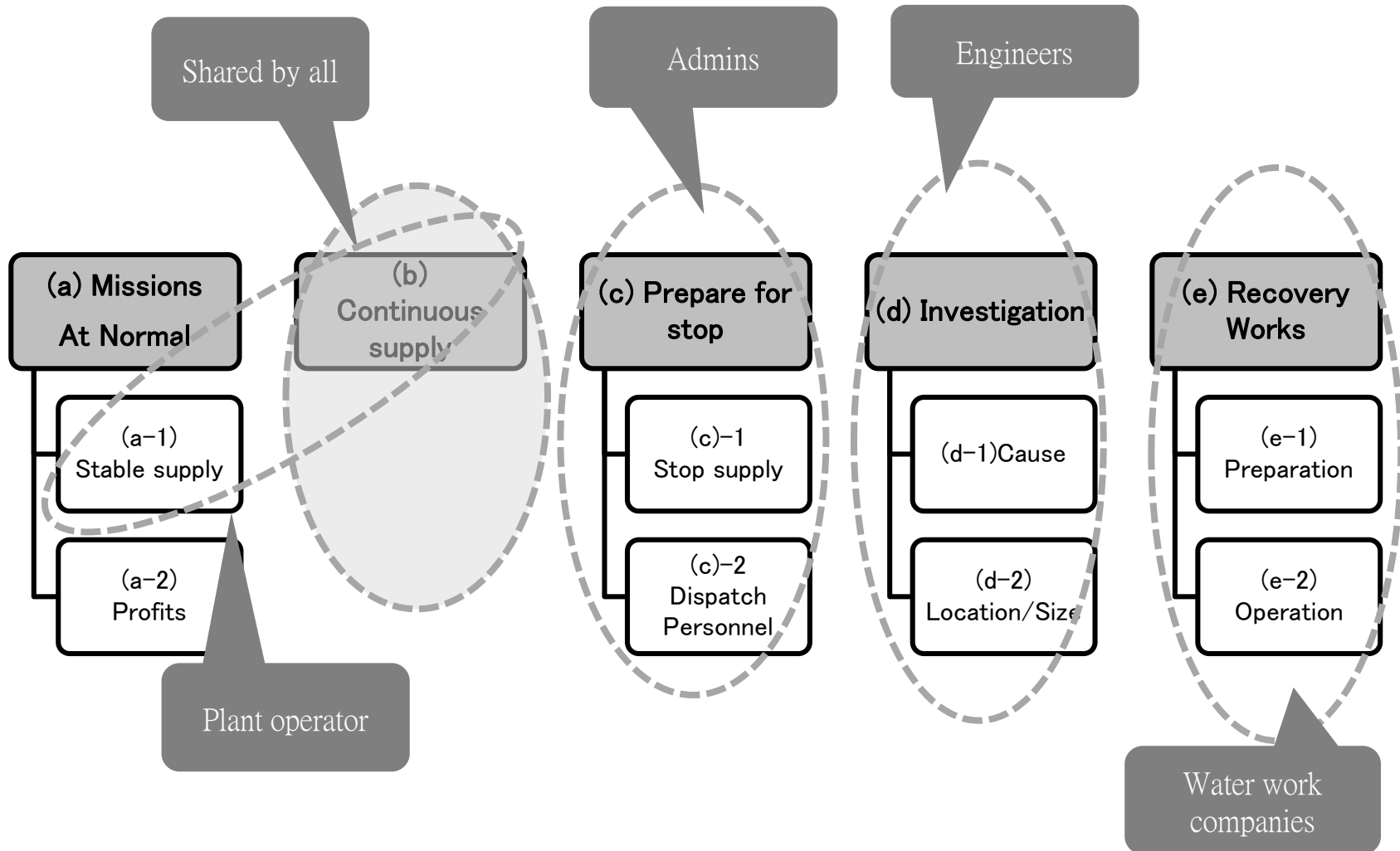
# STAKEHOLDERS' INTERESTS

## Keywords appeared in scenarios



# STAKEHOLDERS' INTERESTS

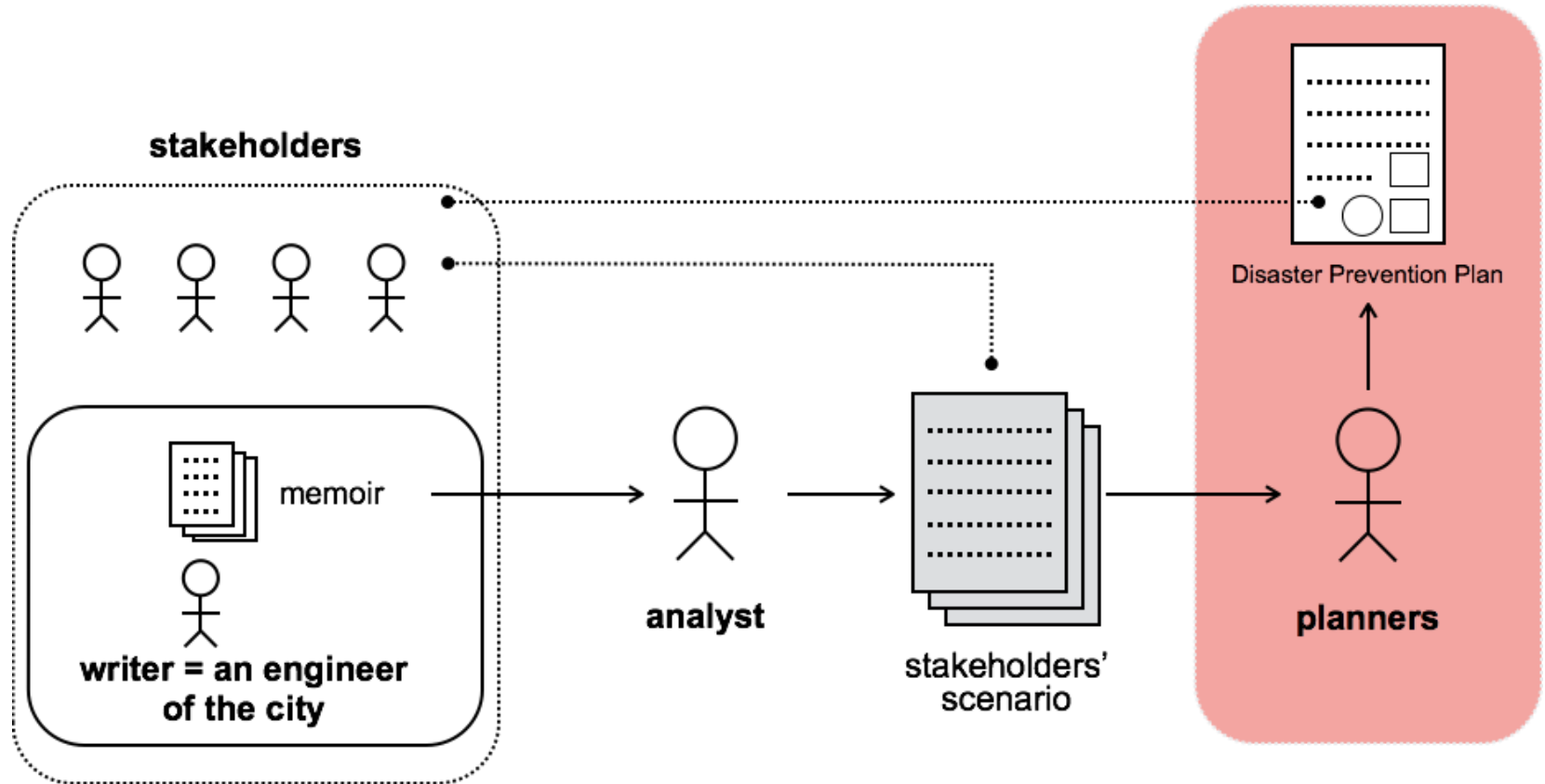
## Keywords



# FINDINGS

- **One interests was shared by all stakeholders**
  - Continuous supply = a part of missions at normal time
- **Other interests varied among stakeholders**
  - Engineers: investigate the cause
  - Plant operators: operate the plants
  - Admins: prepare for the stoppage
- **Memoir by one stakeholder helped us to write all the stakeholders' scenarios**
  - Additional interviews should have been conducted to strengthen the validity of scenarios.
  - Residents' scenarios were not written.

# FUTURE CHALLENGE



**Stakeholders' scenario may help planners in :**

- **Drawing plans**
- **Evaluating the plans.**

**THANK YOU!**

**Kiko Yamada-Kawai, Dr. Eng.**

**[kiko.yamada@plan.cv.titech.ac.jp](mailto:kiko.yamada@plan.cv.titech.ac.jp)**