

# The Case Study of Construction Information Modeling/Management for DAM

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## AGENDA

- 1. Introduction**
- 2. Objectives of DAM CIM and Overview**
  - 2.1. Visualize Measured Values**
  - 2.2. Report Export**
- 3. Future Prospects**

## 1. Introduction

Japan's construction industry currently faces a major challenge created by a lack of human resources.

As human resources and manpower become restricted, the series of streamlining for construction manufacturing processes, upgrading, and securing of quality and maintenance are becoming an urgent issue.

## 1. Introduction

As with other social infrastructures, where the emphasis of public building investments is shifting from new construction to operational management, dams is also require be systematic and optimized operational management in order to achieve reduction of life-cycle costs, based on the prerequisite of ensuring safety.



## 2. Overview of DAM CIM and Objectives

In this research, I worked on building the DAM CIM that can visualize information on maintenance management.

Objectives...

- Upgrading maintenance management
- Improve maintenance management efficiency

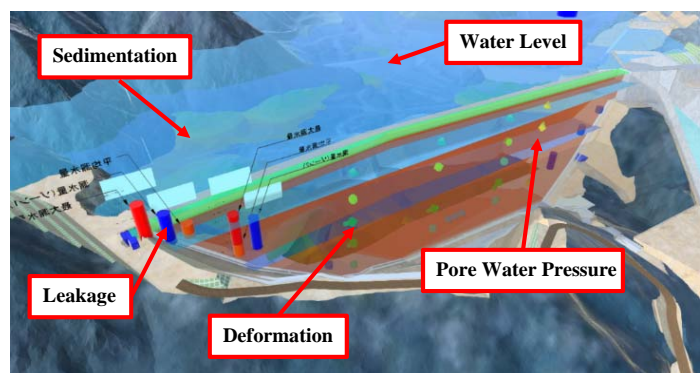
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### 2.1. Visualize Measured Values

#### Visualize Measured Values

I visualized information on maintenance management of five kinds of measured values.

They are visualized by registering csv files or text files in which measured values are entered.



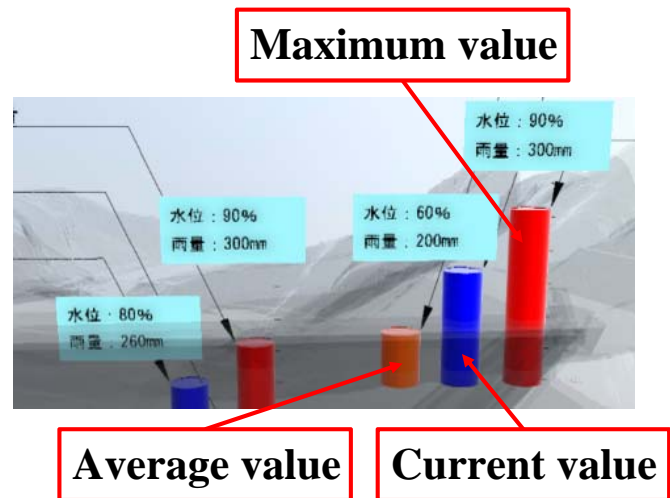
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## 2.1. Visualize Measured Values

### Leakage

Leakage is visualized at 1 / 10th of the measured value.

The visualized values are maximum value, average value and current value for each instrument.



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## 2.1. Visualize Measured Values

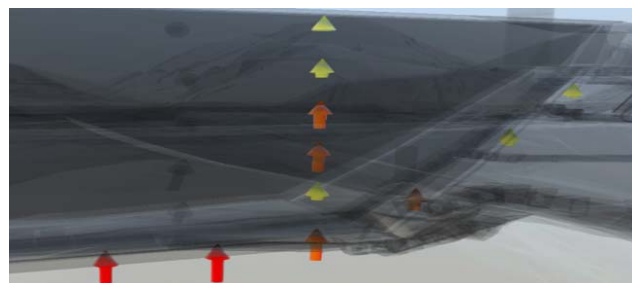
### Pore water pressure

Pore water pressure is visualized at 10 times the measured value.

The arrow shows the direction of pore water pressure.

The visualized value is current value for each instrument.

When it exceeds a certain value, it is displayed in red.



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## 2.1. Visualize Measured Values

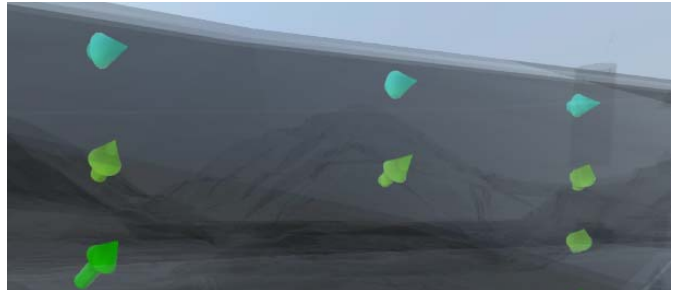
### Deformation

Deformation is visualized at 1000 times the measured value.

The arrow shows the direction of deformation.

The visualized value is current value for each instrument.

When it exceeds a certain value, it is displayed in red.



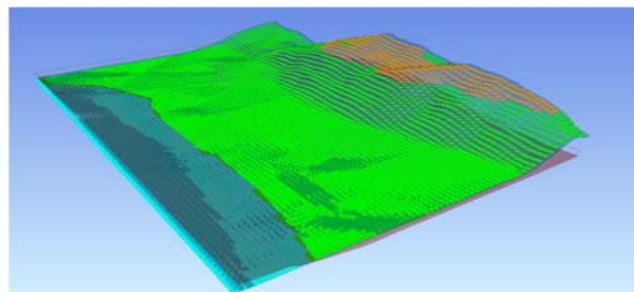
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## 2.1. Visualize Measured Values

### Sedimentation

Sedimentation is visualized by volume.

The volume is calculated from the surface model created from past and current survey results.

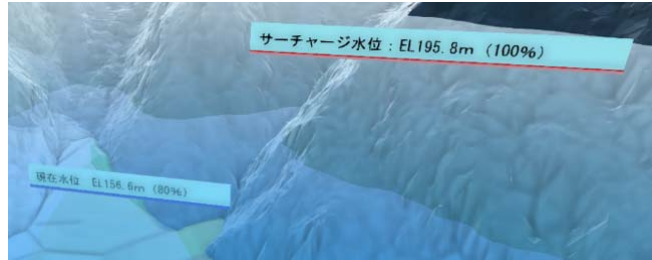


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## 2.1. Visualize Measured Values

### Water level

Water level is visualized high water level, normal water level, low water level, and the present water level.



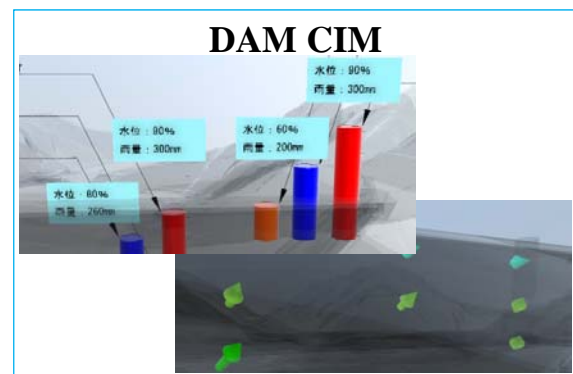
## 2.1. Visualize Measured Values

### Visualize Measured Values...

- It becomes possible to visually judge the problem or the relation of the measured value.
- It becomes possible to grasp the deformation of the dam three-dimensionally.

#### Until now

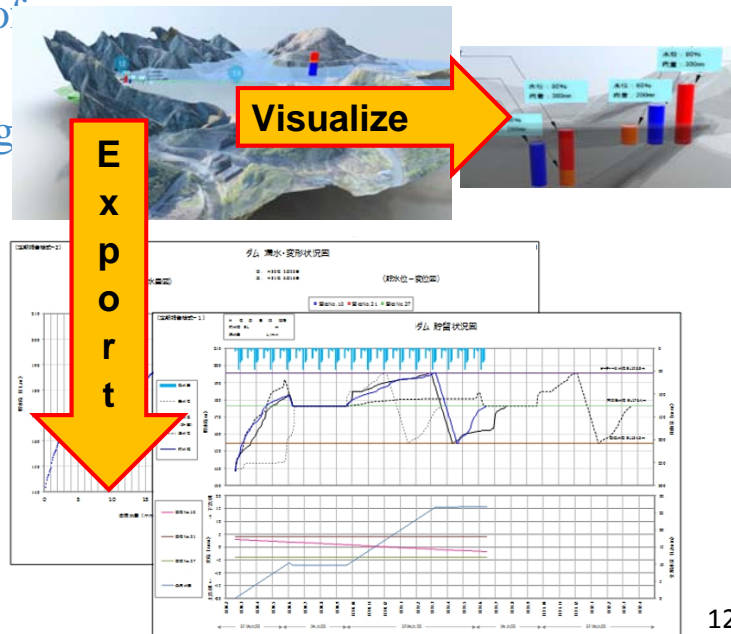
- Judgment by measured value and graph.
- Judgment by plan view and longitudinal section.



## 2.2. Report Export

DAM CIM can export reports of leakage and deformation.

This is a function for improving efficiency of administrator's work.



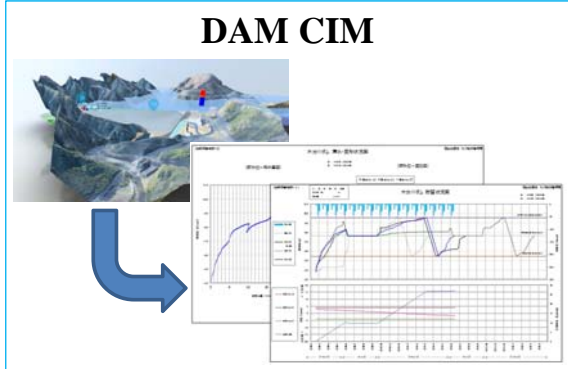
## 2.2. Report Export

Report Export...

- It become possible to shorten the time for preparing the report.
- It become possible to avoid mistakes made by people. Because the report is created automatically.

**Until now**

- Extracted the necessary values from the table of measured values, calculated the total value, etc. and created the report.



In the future, there are two points to effectively use DAM CIM for maintenance management.

Points...

- Adaptation to daily management
- Information sharing

#### **Adaptation to daily management**

It is necessary to improve the interface and system of the DAM CIM so that the administrator can use it easily.

For example, if csv files are automatically updated, DAM CIM will be easier to use and more efficient daily management will be possible.

#### **Information Sharing**

It is necessary to share the DAM CIM with third-party specialist organizations.

For example, if it is possible to share the DAM CIM using a cloud or the like, it is possible to consider the problem countermeasures more quickly.



**Thank you for listening**