Safety Culture Assessment
by JANTI
～Knowledge, Awareness and Action～

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Jun Hamada

Safety Culture Division

JANTI

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～ **Toward the excellent Nuclear Safety** ～   **Japan Nuclear Technology Institute**

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Basic Stance
on Safety Culture

《3》 # JANTI's Stance on Promotion of Safety Culture

Promotion of Safety Culture is
- **One of the Most Important Activities** of JANTI
- by **"Peer Review"** and **"Safety Culture Fostering"**

Safety Culture Fostering is
- systematically promoted as activities
  to **recognize the gap**" between fostered State of
  Safety Culture and Current Situation"
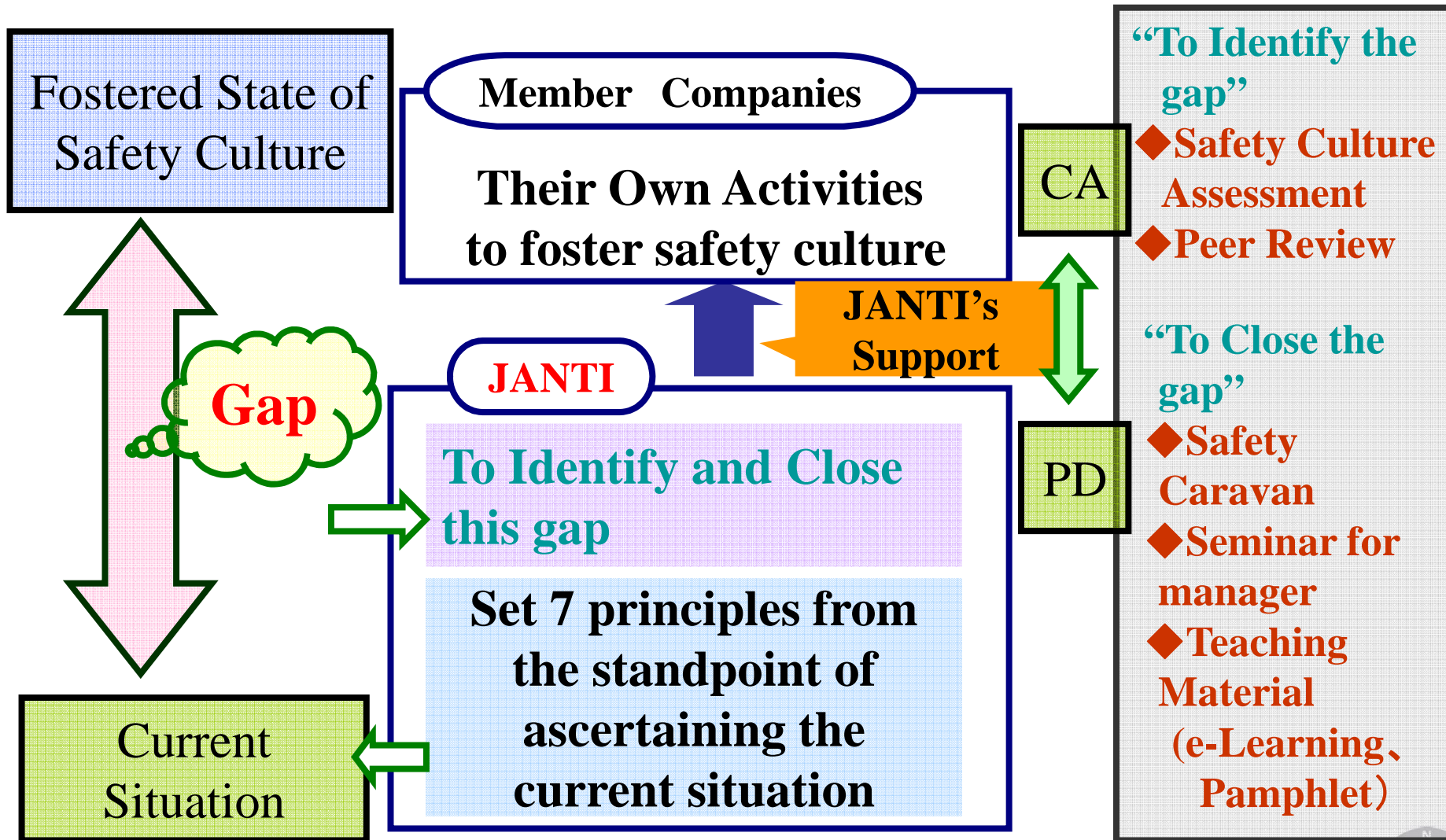 and to **close the gap**"

JANTI's Mission for Promotion

- JANTI supports activities to promote Safety Culture for mainly 32 member companies such as utilities, plant makers, fuel fabrication makers , nuclear related engineering companies and research institutes.

- These activities are based on the following policy,
  - all members share the same value; "safety is an overriding priority", and
  - all members encourage each other.

Basic Scheme of JANTI's Activities

Fostered State of Safety Culture

Member Companies

Their Own Activities to foster safety culture

CA

"To Identify the gap"
◆ Safety Culture Assessment
◆ Peer Review

Gap

JANTI's Support

JANTI

"To Close the gap"
◆ Safety Caravan
◆ Seminar for manager
◆ Teaching Material (e-Learning、Pamphlet)

To Identify and Close this gap

PD

Set 7 principles from the standpoint of ascertaining the current situation

Current Situation

JANTI's 7 Principles

"The state in which all members of the organization share values that safety is an overriding priority,
these values are recognized throughout the organization, and
behaviors are based on this common recognition."

I. Recognized Safety as Priority Values

II. A well-defined Leadership with strong Commitment

III. Safety integrated into operations and activities
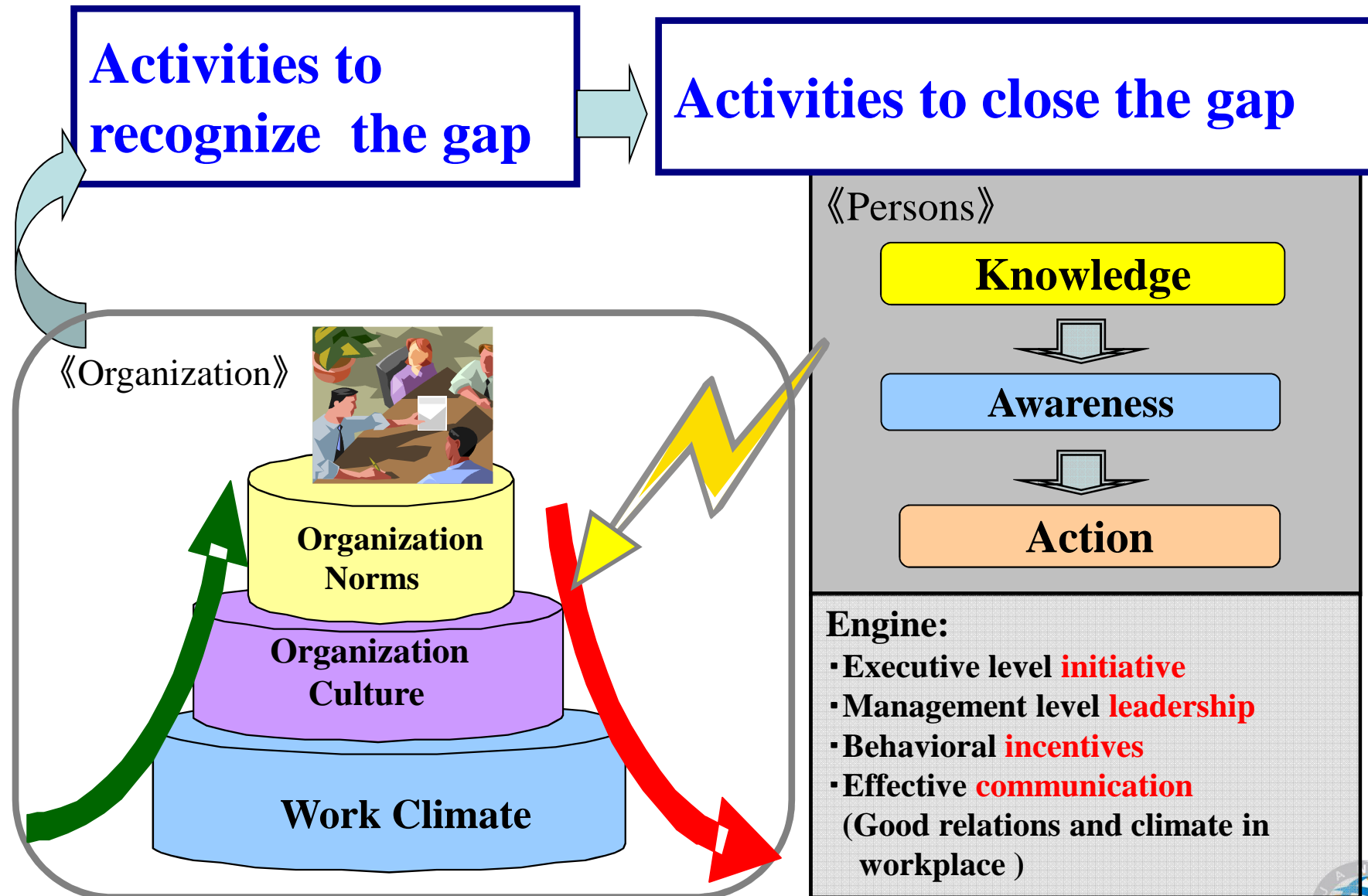
IV. Effective Communication

V. Questioning and Learning Attitude

VI. Recognized Potential Risks

VII. Vital and blame-tolerant Work Environment
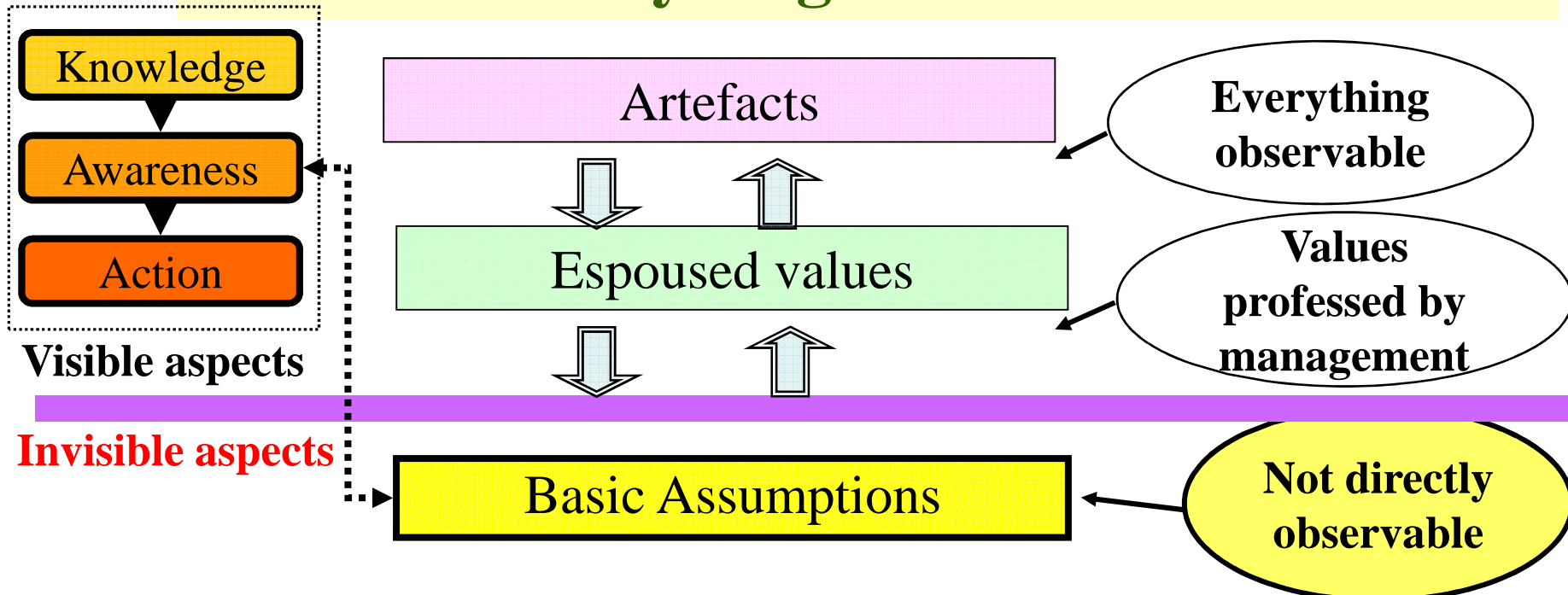
Basis of JANTI's Safety Culture Fostering

Activities to recognize the gap

Activities to close the gap

《Persons》

Knowledge

Awareness

Action

《Organization》

Organization Norms

Organization Culture

Work Climate

Engine:
・**Executive level initiative**
・**Management level leadership**
・**Behavioral incentives**
・**Effective communication**
 （**Good relations and climate in workplace** ）

Overview
of Safety Culture
Assessment

Organizational Culture Model by Edgar Schein

Knowledge

Awareness

Action

Visible aspects

Invisible aspects

Artefacts

Espoused values

Basic Assumptions

Everything observable

Values professed by management
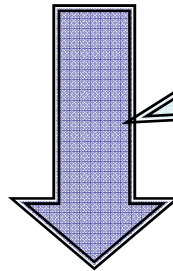
Not directly observable

To assess "invisible" aspects,
- **Seek out and evaluate "invisible" aspects from "visible" aspects, or**
- **Directly stimulate "invisible" aspects and evaluate the reactions.**

Overview of Safety Culture Assessment

Questionnaire Survey
on safety culture
**More than 10,000 employees at or below manager level
through nuclear industries**

Peer Review result , information on the current plant performance and activities related to Safety Culture

On-site Diagnosis (Interviews)
**30～40 employees at or below
assistant manager level**

Safety Culture Questionnaire Survey

By means of questionnaire survey,
 - Show the relative situation among member companies based on the statistic analysis.
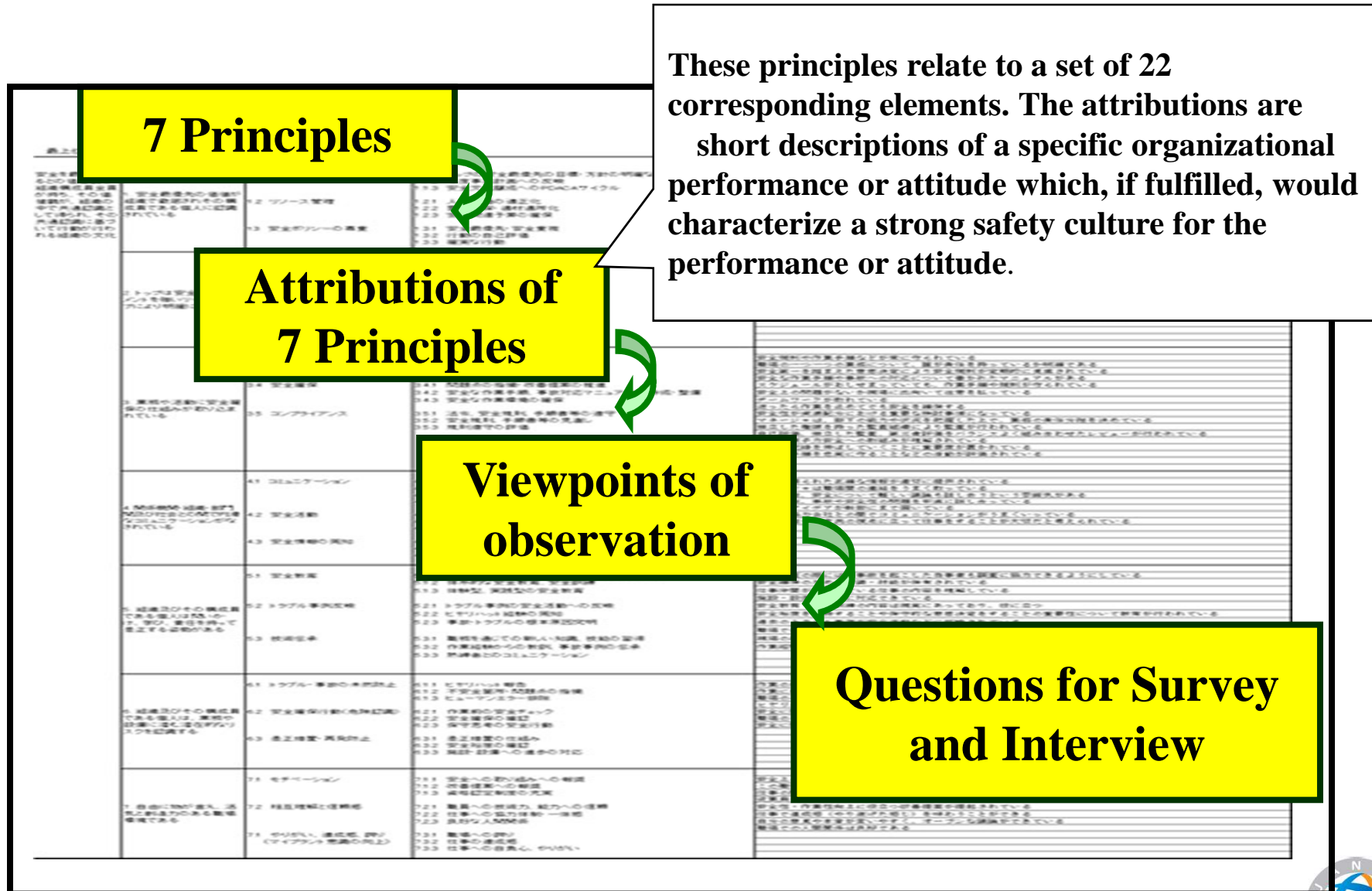 - Identify the trend by repetition of questionnaire.

Consequently
 - Identify the area to be enforced later
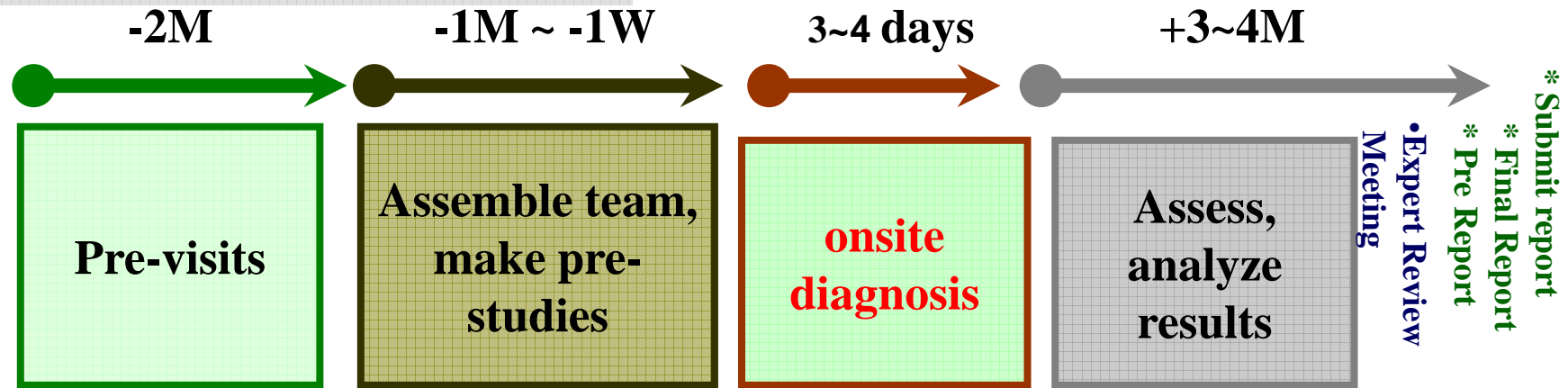 - Focus on the object of onsite diagnosis

Structure for the Survey & Interview

7 Principles

Attributions of 7 Principles

These principles relate to a set of **22** corresponding elements. The attributions are short descriptions of a specific organizational performance or attitude which, if fulfilled, would characterize a strong safety culture for the performance or attitude.

Viewpoints of observation

Questions for Survey and Interview

Standard Onsite Diagnosis Sequence and Team Formation

Standard Sequence

-2M	-1M ~ -1W	3~4 days	+3~4M
Pre-visits	Assemble team, make pre-studies	onsite diagnosis	Assess, analyze results

•Expert Review Meeting

* Submit report
* Final Report
* Pre Report
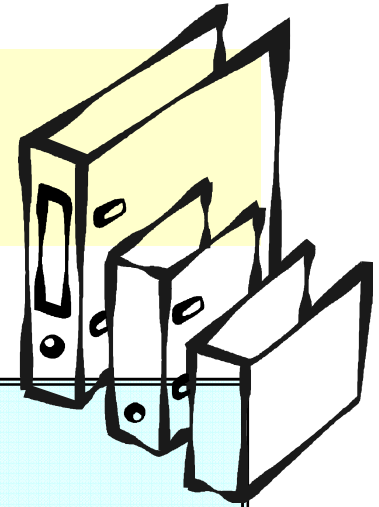
- Interviews; 30～42 employees at or below assistant manager level
  ; Organized 2 interview teams
  ; mainly for operation and maintenance
  including the demanded area by the utility
- Each individual interview lasting about one hour
- Participation of experts; transparency and specialty

Outputs of Onsite Diagnosis

- **Positive** and **negative** major opinions

- **Negative minor** opinions as a **potential risk**

- Suggestions for **negative** opinions
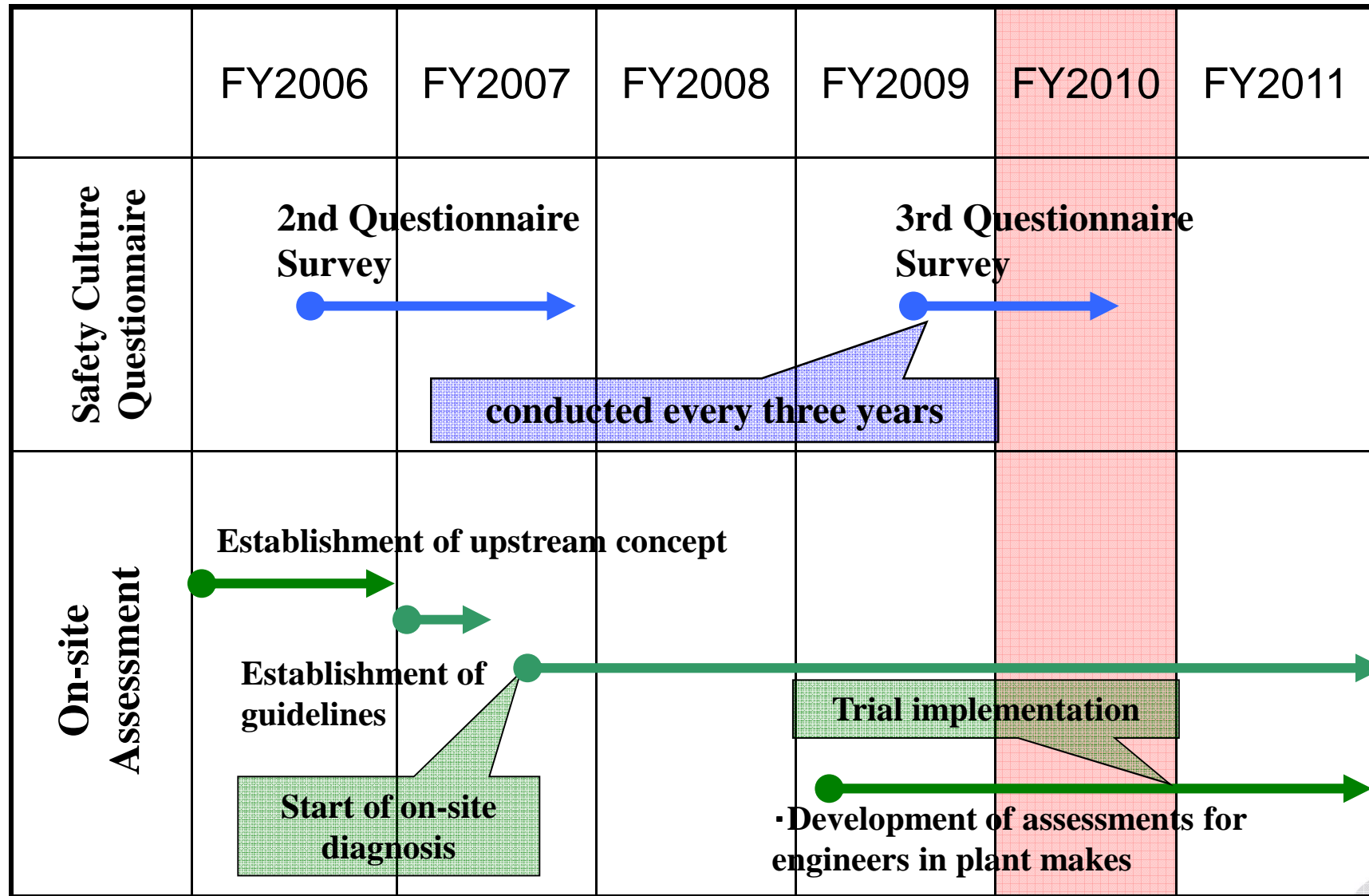
- Comparisons with the questionnaire survey

Merits of Safety Culture Assessment

- To **identify the uncovered employees' honest opinions** which are **difficult** for the executives to recognize **through middle manager.**
- To pick out **minority opinions**
- To get the **basic data** for planning of safety culture fostering.
- To provide **an Unique method** to evaluate interview results.

History of Safety Culture Assessment

	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011
Safety Culture Questionnaire	2nd Questionnaire Survey			3rd Questionnaire Survey		
On-site Assessment	Establishment of upstream concept / Establishment of guidelines / Start of on-site diagnosis			Trial implementation / ·Development of assessments for engineers in plant makes		

conducted every three years

Hint of how to instill Safety Culture into organization

Key persons for changing culture (example)

Koujima (Kushima City, Miyazaki Prefecture) is the birthplace of wild monkey research in Japan.
Ever since the Kyoto University Research Group was able to successfully feed to individually distinguish members of wild monkey troupes.
In particular, researchers around the world were astounded to observe one-and-a-half year old female monkeys **washing sweet potatoes in seawater before eating**. Now almost all monkeys wash potatoes in seawater.
(excerpted from the Koujima HP)

Transmission Points

Why did sweet potato washing behavior spread through the group?

The salty potato was tasty, so the first monkey continued the behavior.
Another monkey watched the first monkey , began to imitate it and found it tasty,
Then more and more imitators meant that the behavior was transmitted.

・It is important to have a few key persons who recognize the
 significance of efforts to foster safety culture.
・When they are convinced and incorporate safety culture elements
 into their behavior, they experience its merits, or incentives are
 provided for their daily duties in a safety-conscious way, and these
 promote them to continue.
・This behavior spreads to other members of the organization until it is
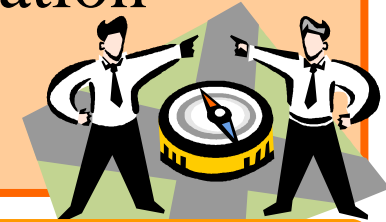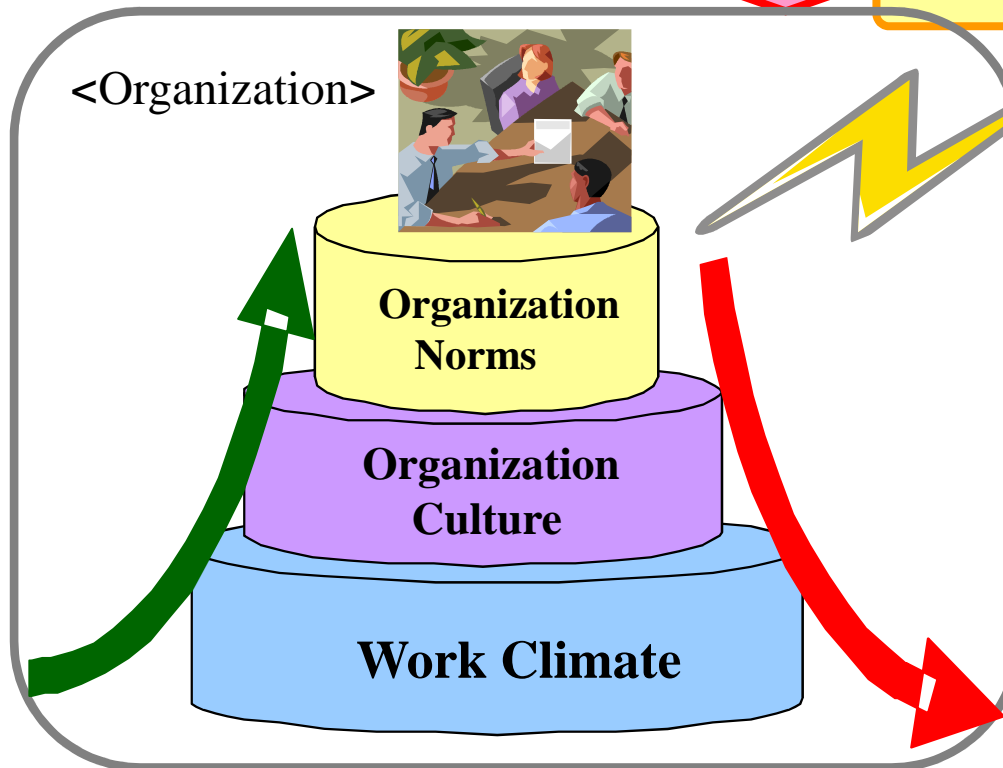 incorporated by the entire organization.

From a Few to Many to the Entire Organization

Any prospective culture change in an organization creates resistance to change
(One of Basis characteristics of Culture by IAEA)

Do not yield to resistance!!

<Organization>

Organization Norms

Organization Culture

Work Climate

Engine:
・Executive level **initiative**
・Management level **leadership**
・Behavioral **incentives**
・Effective **communication**
  (Good relations and climate in workplace)

Primary agents:
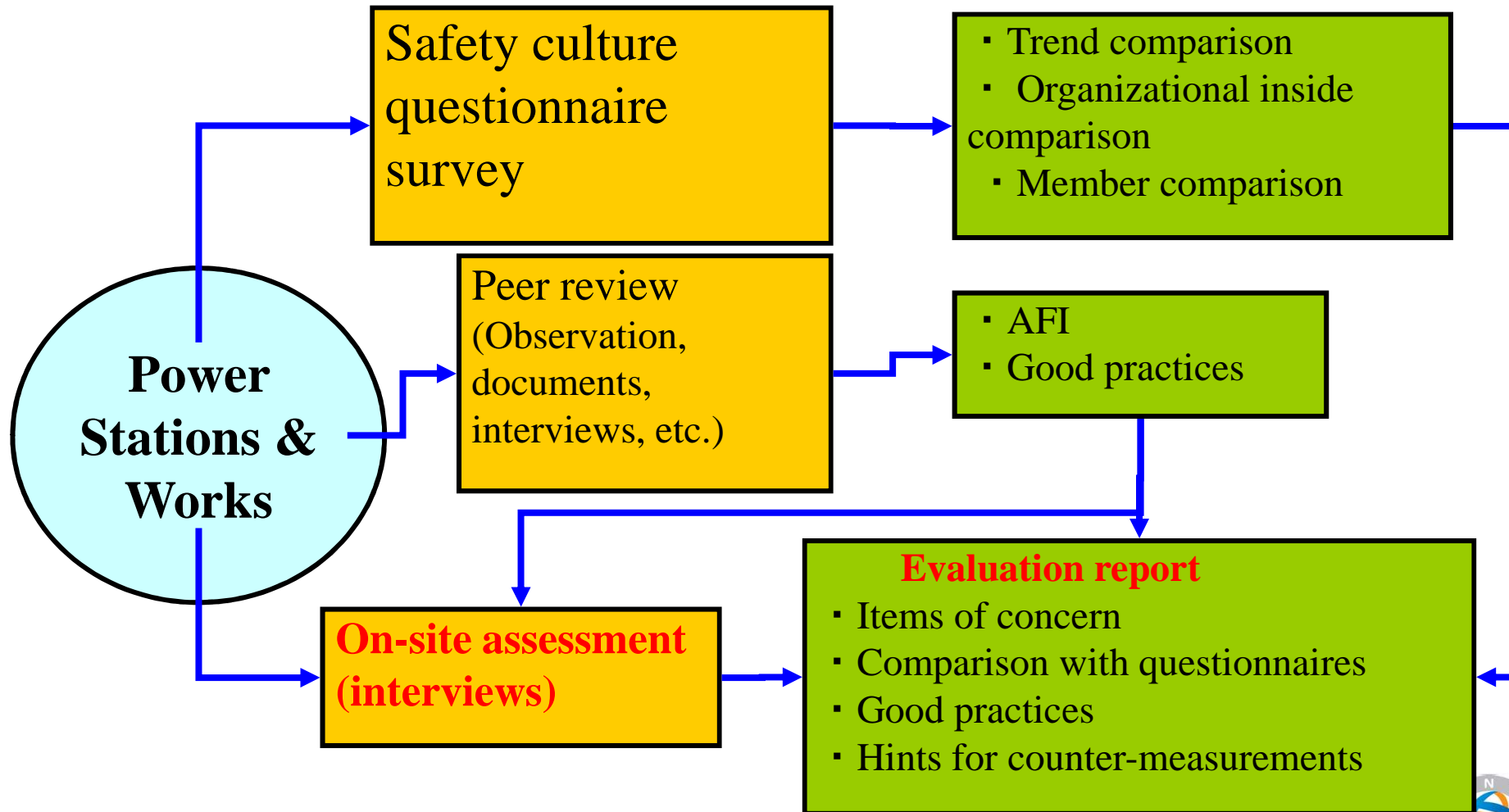**Initially, use a few key persons to win over 15% of people in the organization**

Some Learning Points from the assessments done for 3.5 years

Relationship between On-site interviews and other Methods

Power Stations & Works

Safety culture questionnaire survey

・ Trend comparison
・ Organizational inside comparison
・ Member comparison

Peer review (Observation, documents, interviews, etc.)

・ AFI
・ Good practices

On-site assessment (interviews)

Evaluation report
・ Items of concern
・ Comparison with questionnaires
・ Good practices
・ Hints for counter-measurements

Correlation among JANTI's 7 Principles (example)

☑ Taken from results of the Third Safety Culture Questionnaire (data from approx. 14,000 people)
☑ **Positive correlation for all seven principles**
☑ Leadership and communication show significant linkage with the other principles

Principle 1
Value of Safety First

Principle 7
Vital & Blame-tolerant Work Environment

0.82

0.70

0.67

Principle 2
Leadership by Top Management

0.78

Principle 4
Effective **Communication**

0.76

0.72

Principle 5
Attitude of Individuals and the Organization

0.72

Principle 3
Safety integrated into Operations & Activities

0.71

0.79

0.71

Principle 6
Recognition of Potential Risk

Correlation factor of 0.7 or higher

Examples of Good Results found in on-site Diagnosis (1/3)

Leadership and Commitment

・ When on-site operators ask safety issues to the section chief , he/she quickly and accurately assess the situation and offer advice.

・ The section chief and division chief are able to clearly and easily convey their expectations to those under him/her.

・ The supervisor takes a digital camera to the site almost daily. Also, he/she uses a risk table to give instructions and comments to those under him/her.

・ By having top manager visit on-site, their value; safety first as the whole company is firmly conveyed to those under him/her.

・ The supervisor maintains an attitude to go out to the operating site no matter how busy he/she may be.

Examples of Good Results found in on-site Diagnosis (2/3)

Safety Assurance Behavior

・ When faced with an unexpected or unfamiliar situation, workers stop and report it to their supervisor, consult about what should be done and get reports from those under them as well. After stopping operations , the reasons for stopping are explained to those working at the site, as much as possible.

・ On-site workers are encouraged to be proactive about reporting unsafe areas , operational near miss ,problems by section chief and division chief. In result ,many needs, concerns that they have are absorbed.

・ By providing partner companies with written details of these unsafe areas and operational problems, or by having the construction supervisors discuss them, information on site safety is absorbed.

Examples of Good Results found in on-site Diagnosis (3/3)

Corrective Action and Resolution

・In investigations into the causes of problems, assigning blame and issuing penalties is not the focus. Ascertaining the cause of the problem so as to prevent a recurrence is what's important.

・Teachable problem examples are incorporated into manuals. This helps ensure that the problems illustrated in the manual do not happen again.

・Simulation training using simulators incorporating similar elements to past accidents and problems are used to give workers experience with handling such situations.

・Even for small problems, those who were involved discuss all the facts. Information exchange meetings are established to help reduce resistance to sharing information about problems.

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Organizational Characteristics with Good Practice

Common characteristics found in organizations
which produce good results in our assessments are,

- **Clear safety policy and strong attitude to improve** by top management
- **Strong resolve to instill safety** deeply into on-site operations
- Activities to **close the distance between management and on-site operations** (including partner companies)
- **Strong manager leadership** and **understanding and consensus (followership) of site operators**

Fail-Safe and Feel-Unsafe

Fail-Safe

Mechanisms ensure the operating safety of equipment or devices, even when there is a partial failure or incorrect operation.

Feel-Unsafe

Equipment or device operators feel unsafe.

Sensitivity to ask "will we run the risk?" is important, whenever something seems unusual.

Never judge based on excessive consideration and mistake.

Source: Michio Yoshida, lecture at the 70th JANTI Safety-Promotion Visit

Be Aggressive with the sense of "Feel Unsafe" for Safety

Thank you