

Environmental Technology Verification Program in Japan

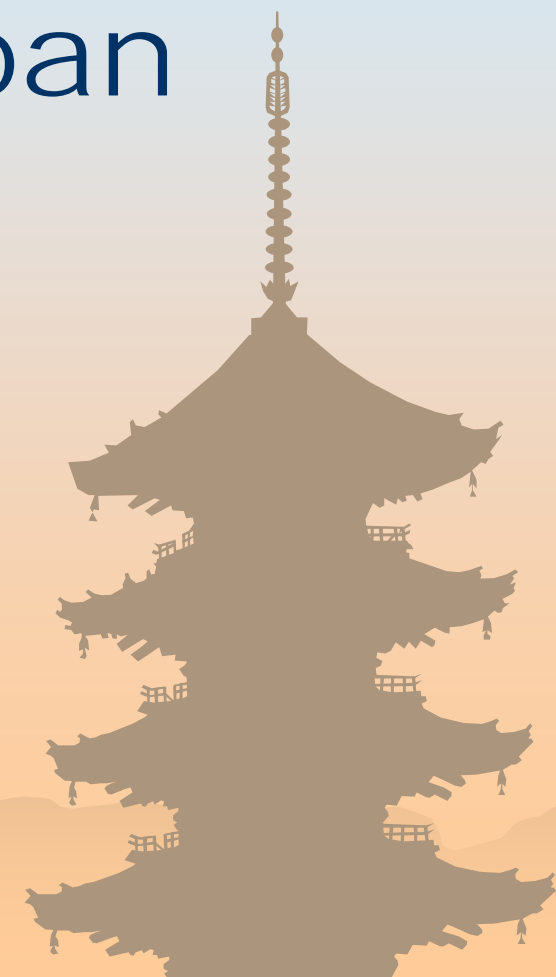
28 March 2006

Second International ETV Forum, Vancouver,
Canada

Ministry of the Environment, Japan
Kenji KAMITA



Ministry of the Environment, Japan



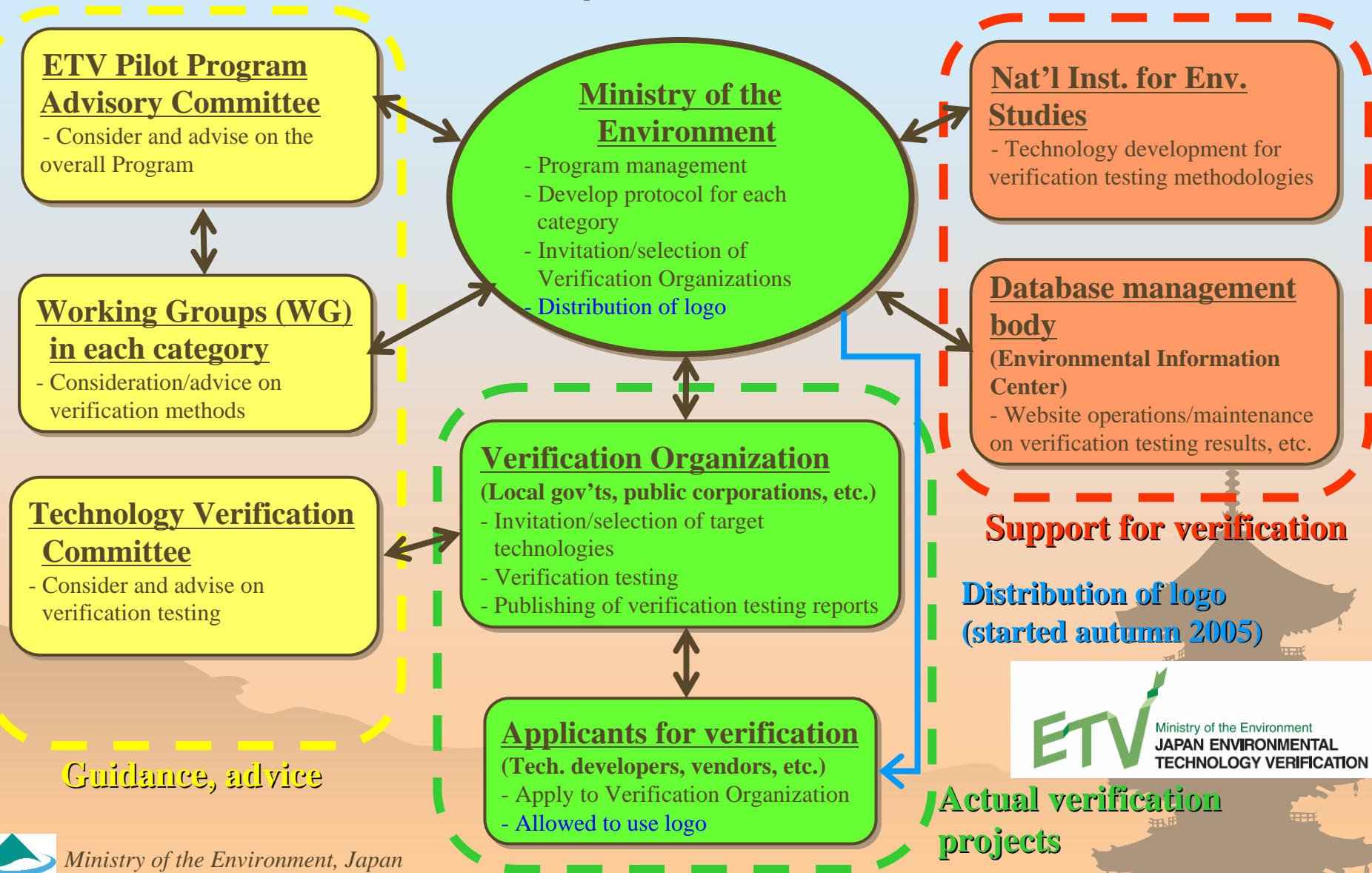
Outline

- I. Outline of Japan's Program:
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- II. Toward Int'l Cooperation:
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- III. Independence of Nat'l Verification Systems:
Government Needs and Issues
- IV. Future Initiatives and Topics



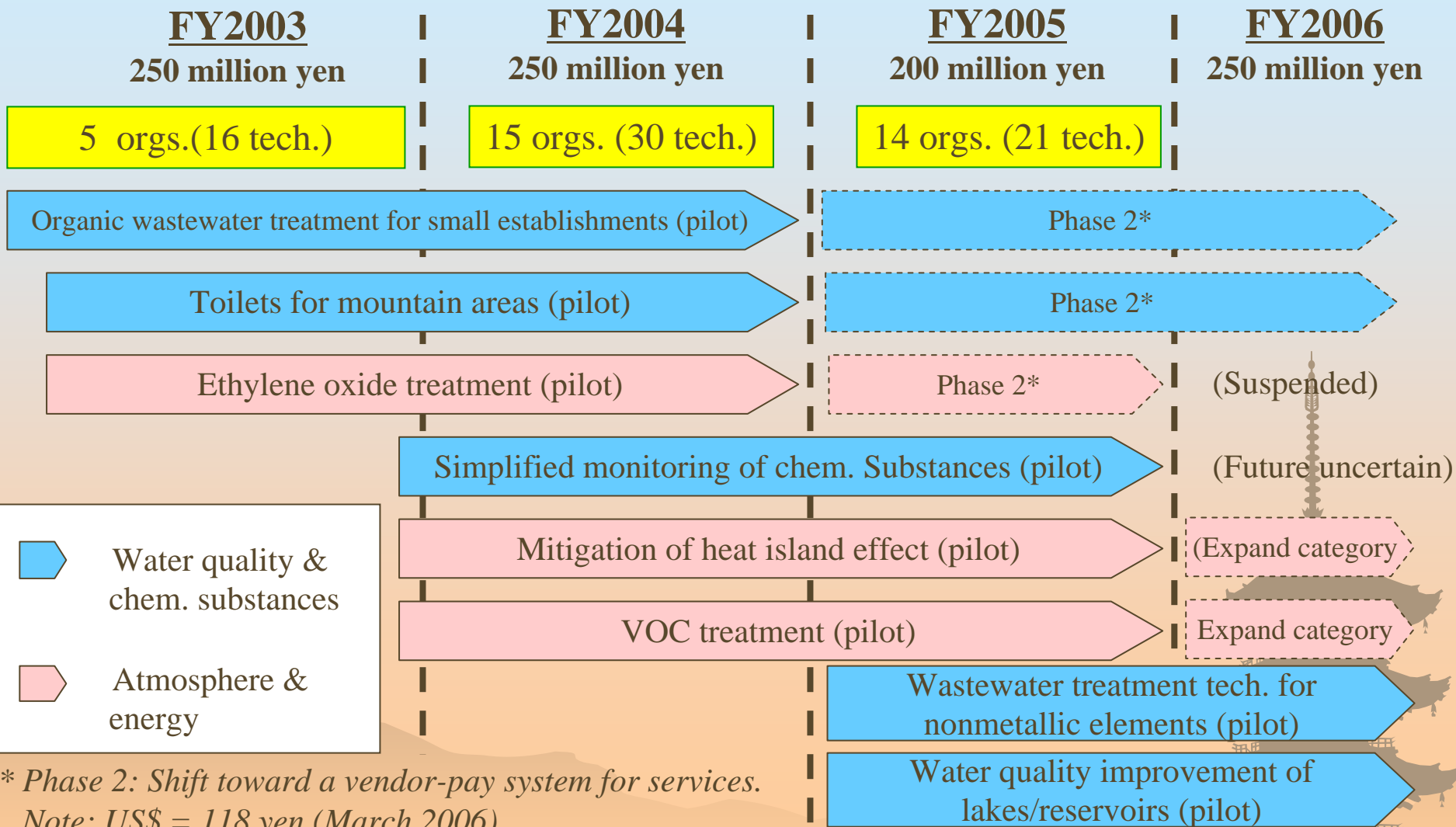
I. Outline of the Program

1. Program Structure



I. Outline of Program

2. Technology categories & budget size



* Phase 2: Shift toward a vendor-pay system for services.
 Note: US\$ = 118 yen (March 2006)

II. Toward Int'l Cooperation

1. E.g.: Simplified Monitoring of Chem. Substances

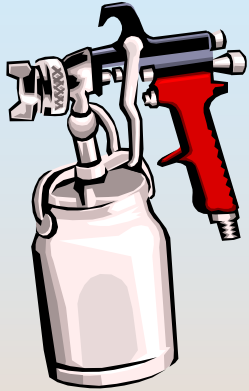
- ❁ In this technology category, Japan has conducted technology verification of a number of analysis kits that are based on the ELISA method.*
- ❁ At the first International ETV Forum, it became clear that both Japan and the U.S. were verifying similar analysis kits for atrazine. We agreed to share information (to exchange testing protocols, etc.).
- ❁ Later, however (in Feb. 2006), technical problems were discovered with ELISA method in the context of “verification”. And the Japanese government's need for verification of ELISA method ceased to exist. As a result, technology verification of the ELISA method was suspended.
- ❁ At present, we are working to find the needs for verification in the “simplified monitoring of chemical substances” category other than the ELISA method. Under these circumstances, translation of testing protocols (mentioned above) into English has been halted.
- ❁ Regardless of the outcome this time, this example illustrates a situation where there was (at least for a while) an overlap in government needs in this category.

* *Enzyme-Linked Immunosorbent Assay*



II. Toward Int'l Cooperation

2. Example: VOC Treatment

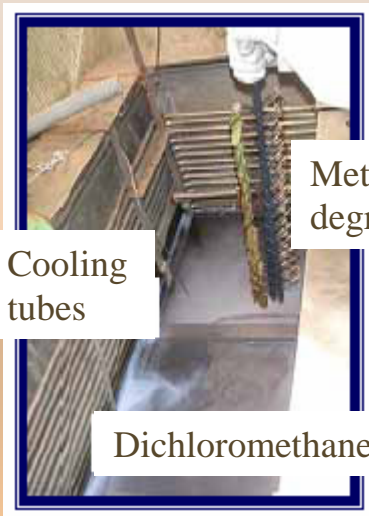


- At the 1st Forum, the U.S. reported it was also conducting verifications in VOC-related technologies (emissions reduction), including a spray gun for coatings. In Japan, the target of verification to date was technologies for treating tailpipe emissions (such as, incineration, chemical degradation, etc.).

- In Japan, the VOC treatment technology category was relatively narrowly defined as "emissions treatment from metal degreasing agents (dichloromethane) in metal processing industries," but private sector needs for verification no longer exist today. Thus, upon our experience of previous work, we intend to expand the target category.

- Whether or not to including technologies that are somewhat different, such as spray guns (non-tailpipe type), is future issue.

- In any case, one could say that government needs in the U.S. and Japan are similar if we look broadly at measures to deal with VOCs.



Metal for degreasing

Cooling tubes

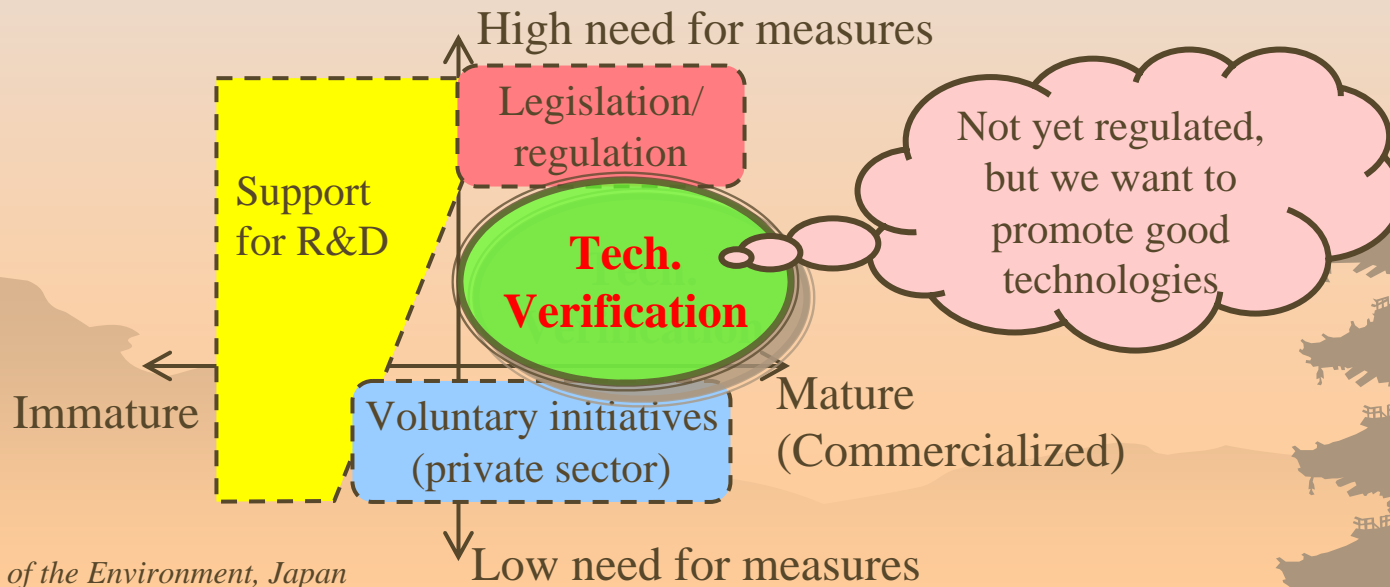
Dichloromethane vapor



III. Independence of Nat'l Verification Systems

1. Government Needs and Issues

- ❁ Technologies appropriate for "verification" are those that are (1) at the midrange in terms of the need for environmental countermeasures (i.e., legislation/regulation is not yet established but it is desirable to promote the technology), and (2) at a relatively mature level of development, such that they have already been (or are almost ready to be) applied in commercial products.
- ❁ The scope of legislation/regulation differs in each country. And naturally, the need for measures (i.e., priority) differs in each country. Nevertheless, for technology categories that several countries have in common, there is value at least in promoting information exchange.



III. Independence of Nat'l Verification Systems

2. Example of Government Needs in Japan

Tech. for organic wastewater treatment at small establishments

Regulation: Effluent standards across the board for premises discharging 50 m³ or more per day.

→Gov't wants to encourage efforts by smaller premises as well.

Water quality improvement in lakes/reservoirs

Regulation: Regulations exist for effluent flowing to rivers, but they have not improved water quality in lakes/reservoirs.

→Gov't wants to promote technologies that directly improve lake water.

Boron effluent treatment

Regulation: Japan's hotel industry is unable to treat boron effluent, and could not do so even if regulated.

→Gov't wants to promote simple/easy-to-introduce technologies.

Toilets for mountain areas

Regulation: No clear regulations/standards exist for toilets in mountain areas.

→Gov't wants to promote technologies with minimal impact on surrounding environment.

VOC treatment

Regulation: Large factories are subject to emissions regulations. Small factories not regulated.

→Gov't wants to promote technologies that can be used by small factories.

Mitigation of urban heat island effect

Regulation: No clear regulations other than transportation-related*.

→Gov't wants to promote technologies that can be used in countermeasures.



IV. Future Initiatives and Topics

- ❁ In the future, the following could be considered for international initiatives.
 - Identification of technology categories that are in common between countries.
 - Exchanges of testing protocols for similar technology categories, and efforts to incorporate aspects that are mutually beneficial.
- ❁ If countries are considering the future sharing of verification data, Japan is concerned about possible weaknesses in quality assurance (QA).
 - Currently in Japan, the credibility of verification data, provided by research institutes of local governments (verification organizations), depends to a certain extent on their impartiality and fairness. For example, they are conducting internal audits, but not external audits (such as by the Ministry of the Environment).
 - The reason for this approach is that now, only 3 years since start of this program, we have not imposed high hurdles for verification organizations (local government research institutes) to become verification organizations. This is in the interest of fostering more of these organizations.



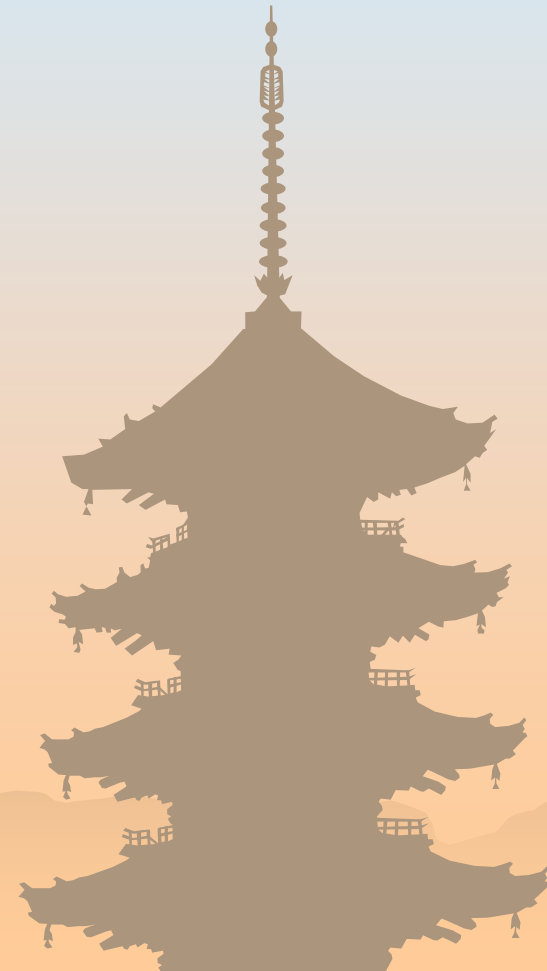
Thank you!

J-ETV Website (English)

<http://etv-j.eic.or.jp/en/index.html>

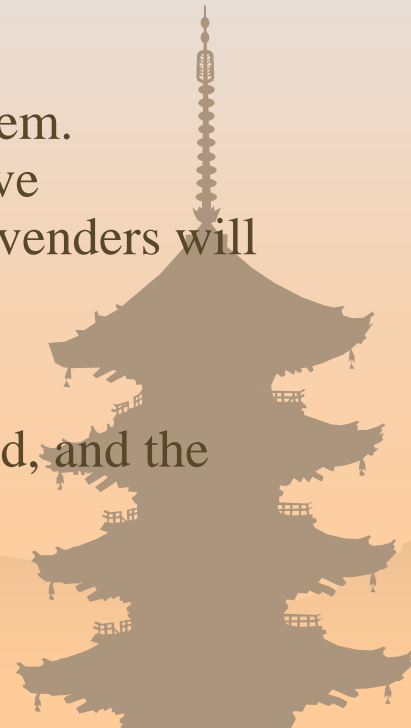
<http://etv-j.eic.or.jp/index.html>

(Japanese)



Appendix 1. ETV Pilot Program Objectives in Japan

- ❁ For advanced environmental technologies for which no objective performance data exists, promote the spread of technology by having independent parties verify performance of the technologies. This will promote both environmental protection and environmental business.
Note: “Verification” differs from “certification.” Under the verification program, technologies are not judged as good or bad according to some standard. Evaluation of data is left up to users.
- ❁ 2003 to 2007 is the pilot period to establish a verification system. Verifications on a trial basis will be conducted in representative technological categories, which will lead to Phase 2 in which vendors will be expected to pay for verification services.
- ❁ Starting in FY2008 the technology categories will be expanded, and the verification program will enter into full operation.



Appendix 2. Guidance/Advisory Structure

**ETV Pilot Program
Advisory Committee**

- Considers and advises on the overall Model Project

- Academia: 8 persons (incl. Chair)
- Industry: 3 persons
- Local governments: 3 persons
- NPOs: 1 person



**Working Group in
each tech. category**

- Considers and advises on verification methods

WG	Ethyl-ene oxide	Organ-ic	Moun-tains	Chem-istry	Heat island	VOCs	Boron	Lakes
Academia	2	2	2	2	3	3	1	3
Industry		2	2		1	2	1	
Local gov't.	1	1	1	2	1	1	1	2
Other*	2		2	2	1	2	2	

* Other: Public research institutes, public corporations; non-profits, etc.

Appendix 3. Japan's ETV Program Info

(Annual Tech. Categories, No. of Verification Organizations, No. of Technologies Verified)

FY2003

Ethylene oxide treatment (6)

- Tokyo Metro. (6)

Organic wastewater treatment for small scale establ. (8)

- Ishikawa Pref.(2)
- Hiroshima Pref.(2)
- Osaka Pref.(4)

Toilets for mountain areas (2)

- Toyama Pref.(2)

Began 2003

3 categories, 5 orgs.
(16 technologies)

FY2004

Ethylene oxide treatment (2)

- Tokyo Metro.(2)

Mountain toilet (4)

- Nagano Pref.(1)
- Shizuoka Pref.(1)
- Kanagawa Pref.(1)
- Mountain ECHO (NPO) (1)

Mitigation of the urban heat-island effect (4)

- Osaka Pref.(4)

VOC treatment(2)

- Tokyo Metro.(2)

Began 2004

6 categories, 15 orgs.
(30 technologies)

Organic wastewater Treatment (10)

- Fukushima Pref.(1)
- Saitama Pref.(2)
- Hiroshima Pref.(3)
- Osaka Pref.(2)
- Kagawa Pref.(2)

Simplified monitoring of chemicals (8)

- Yamaguchi Pref.(4)
- Hyogo Pref.(2)
- Aichi Pref.(2)

FY2005

Ethylene oxide treatment (-) Organic wastewater Treatment (-)

- (Suspended)
- (Suspended 1 year)

Mountain toilet (-)

- (Suspended 1 year)

Simplified monitoring of chemicals (9)

- Iwate Pref. (1)
- Aichi Pref. (1)
- Hyogo Pref. (1)
- Tottori Pref. (2)
- Yamaguchi Pref.(2)
- Nagoya City (2)

Heat island (2)

- Osaka Pref. (2)

VOC treatment (2)

- Tokyo Metro Gov. (2)

Water quality improvement (7)

- Saitama Pref.(3)
- Osaka Pref.(1)
- Hiroshima Pref.(1)
- Kagawa Pref.(1)
- Ehime Pref. (1)

Boron wastewater Treatment (1)

- Chiba Pref.(1)

Began 2005

8 categories, 14 orgs. (21 technologies)

Note: Figures in parentheses are number of technologies being verified. **Red** indicates organizations participating two or more times.

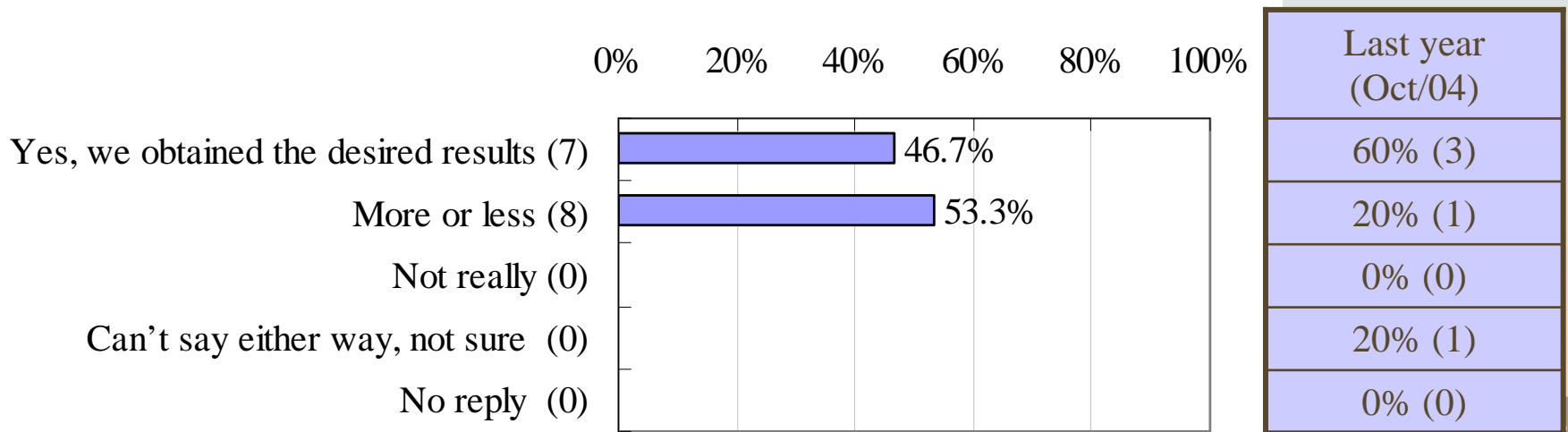
Appendix 5-1. Impacts of Verification

Survey of participating organizations in 2005

1. Samples from survey of participating Verification Organizations

(Sent: 15 organizations. Replies: 15 organizations)

Did your organization obtain its desired results by becoming a Verification Organization in this pilot program? (Choose one.)



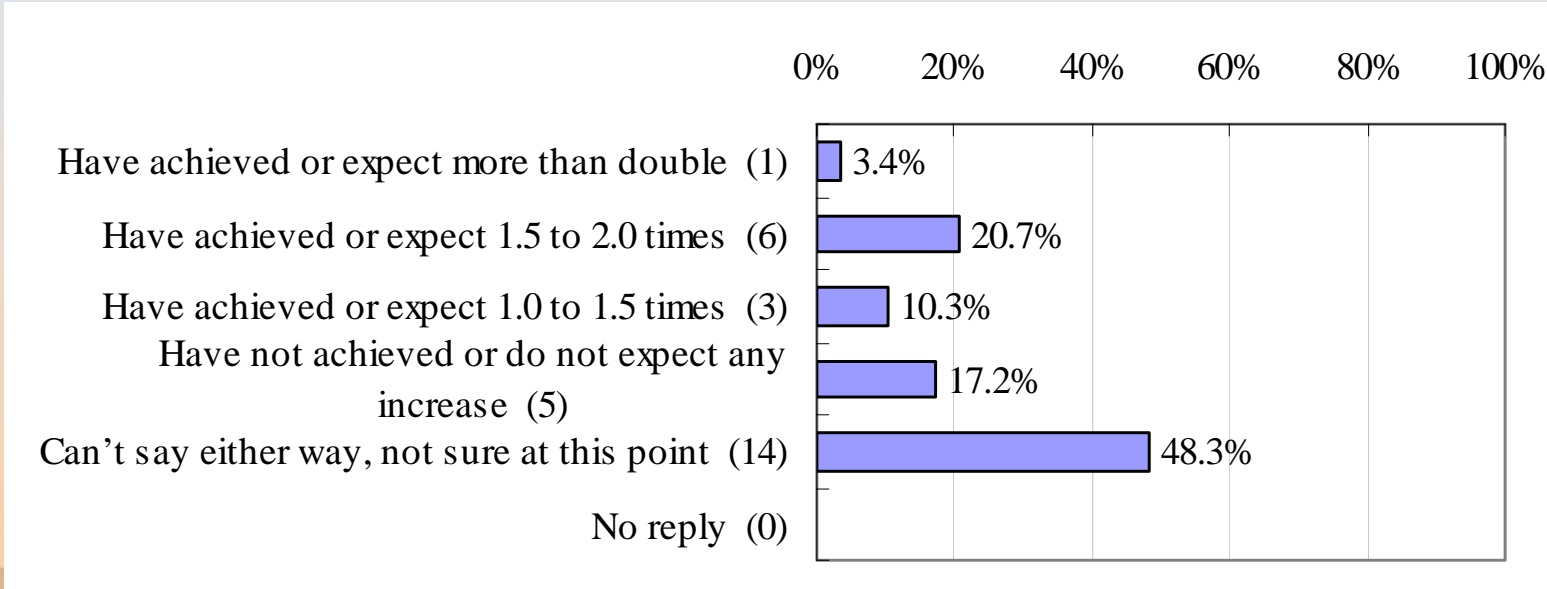
- **Examples of free responses:** "We boosted technical capabilities of our staff." "We were disappointed to receive fewer applications from developers than we originally expected." "We gained a better understanding of areas where the technology needed improving, and were able to develop strategies for improvement." "This was a good opportunity for us to collaborate with industry."

Appendix 5-2. Impacts of Verification (Ctd.)

2. Samples from survey of participating companies (example 1)

(Sent: 40 companies. Replies:29companies)

Did your revenues increase compared to the same period last year for technologies or projects that were verified under this pilot program? (Choose one.)



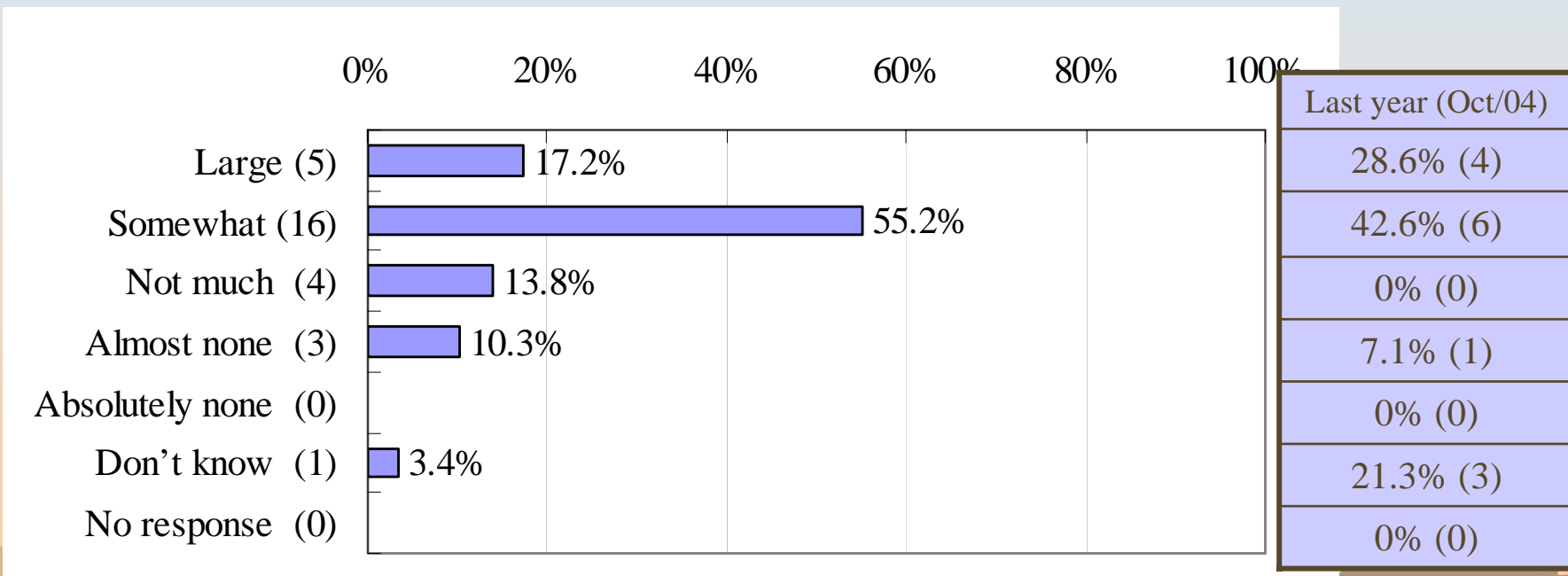
- **Examples of free responses:** "We have not received any inquiries to date." "We are counting on our future promotional efforts to raise sales." "We experienced a definite improvement in revenues." "We expect big results within two or three years."

Appendix 5-3. Impacts of Verification (Ctd.)

2. Samples from survey of participating companies (example 2)

(Sent: 40 companies. Replies: 29 companies)

How much of a benefit was there on your company's overall business activities (sales, R&D, etc.) from verification in this pilot program? (Choose one.)



- **Examples of free responses:** “Higher credibility with customers.” “Were able to expand sales by using verification data.” “We have boosted brand recognition nationwide.” “We received more inquiries but this didn’t lead to more sales.” “Not many inquiries.”

Appendix 6. Quality Assurance in Japan's Program

--Selection Criteria for Verification Organizations (excerpt)--

Organization, structure

- Have in place a quality control system such as one that complies with ISO 9001:2000 (Requirements for quality management systems) or ISO/IEC 1705 (General requirements for the competence of testing and calibration laboratories). *Note: These are not mandatory.*
- Documentation of quality management systems
- Regular internal audits

Assurance of fairness

- Have no concern that information and treatment will differ depending on the Verification Applicant, in terms of procedures for selection of verification target technology and conduct of verification testing, etc.
- Have no concern that procedures to ensure confidentiality of technical information, etc., obtained through verification tasks will differ depending on the Verification Applicant

Assurance of impartiality

- Have no concern about obstacles to impartial implementation of verification testing, caused by advice or other conduct favoring any particular Verification Applicant
- Have no concern that special interests, such as with a particular Verification Applicant, will affect procedures for selection of verification target technologies and conduct of verification testing, etc.

