

Overview of the Pollutant Release and Transfer Register (PRTR) System

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1. Overview of the Law concerning PRTR

Objectives of the Law concerning PRTR*

- Objectives -

On the basis of understanding of business operators and public, **PRTR system** and **SDS system** are introduced

- To promote improvement in self-imposed chemical control system by business operators
- To remove obstacles for environmental protection before problems emerge

◆ **PRTR system (Pollutant Release and Transfer Register)**

A system in which a business operator identifies the amounts of a hazardous chemical specified by the law to be **released** to the environment and amounts of the chemical contained in waste that is to be **transferred**, notified to the authority, and the information will be released by the government

Released amount: amounts released to the atmosphere, public water bodies, soil, and amounts of disposal by landfill

Transfer amounts: amounts transferred to a sewer, off-site (waste)

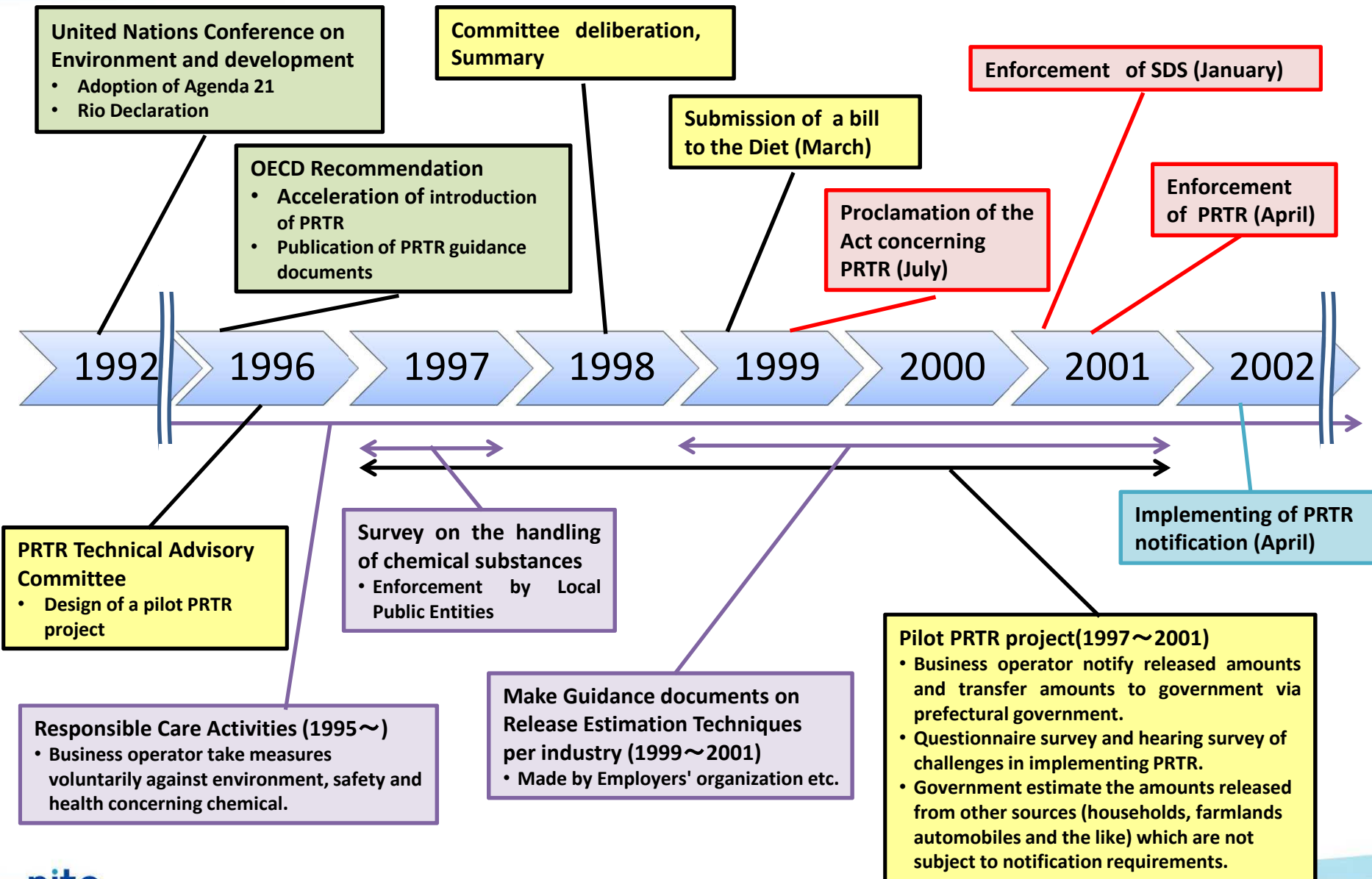
◆ **SDS (Safety Data Sheet) system**

In the system, when a business operator transfers/provides a chemical substance to other business operator, the business operator is required to provide information on the chemical properties and handling.

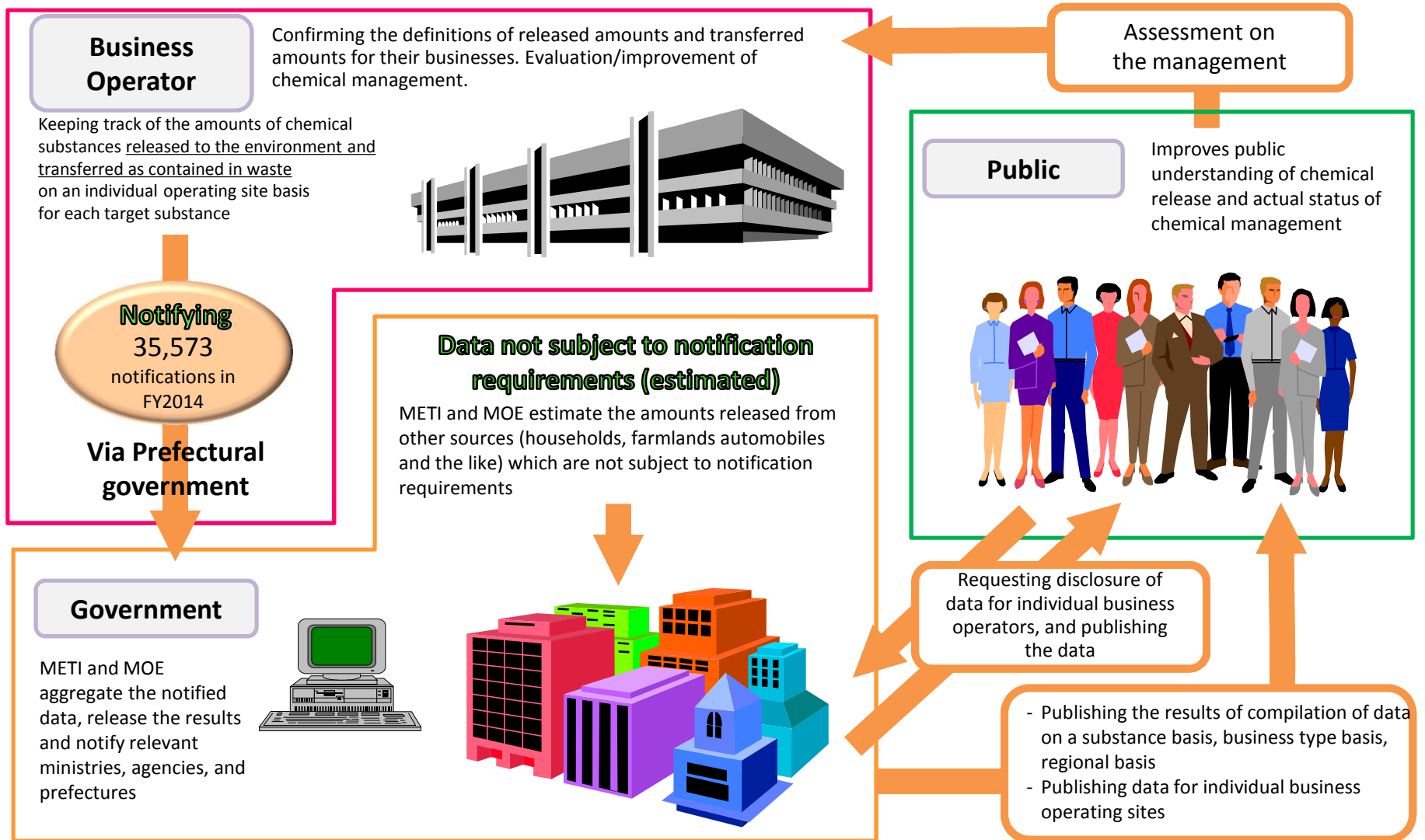
*Official name of the Law concerning PRTR:

“Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof”

Background of the enactment of the Law concerning PRTR



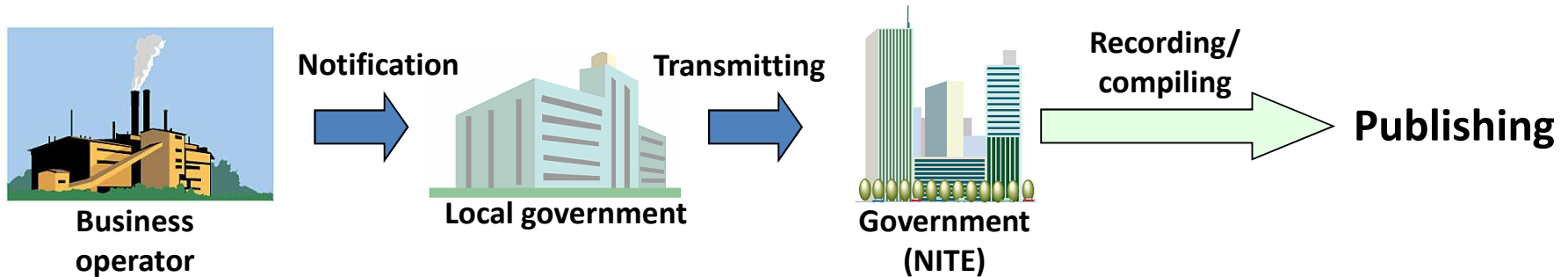
Structure of the PRTR system



2. PRTR Notification systems

- Notification Requirements and Notification procedures
- Published PRTR Data

Overview of the PRTR Notification systems



- **Tracked period** : one year period starting on April first of the previous year
- **Notification period** : From April 1 to June 30
- **Target substances** : **462** Class 1 Designated Chemical Substances (including **15** Specific Class I Designated Chemical Substances)
- **Who must report** : conditions for business operators required to notify **business type, business scale, annual handling amounts, and specially required facilities**
- **Submitting Notifications** : Electronic, Magnetic disc and Written form submissions

PRTR Chemical Substances

Class I Designated Substances: 462 substances

are selected focusing on hazards + exposure potential

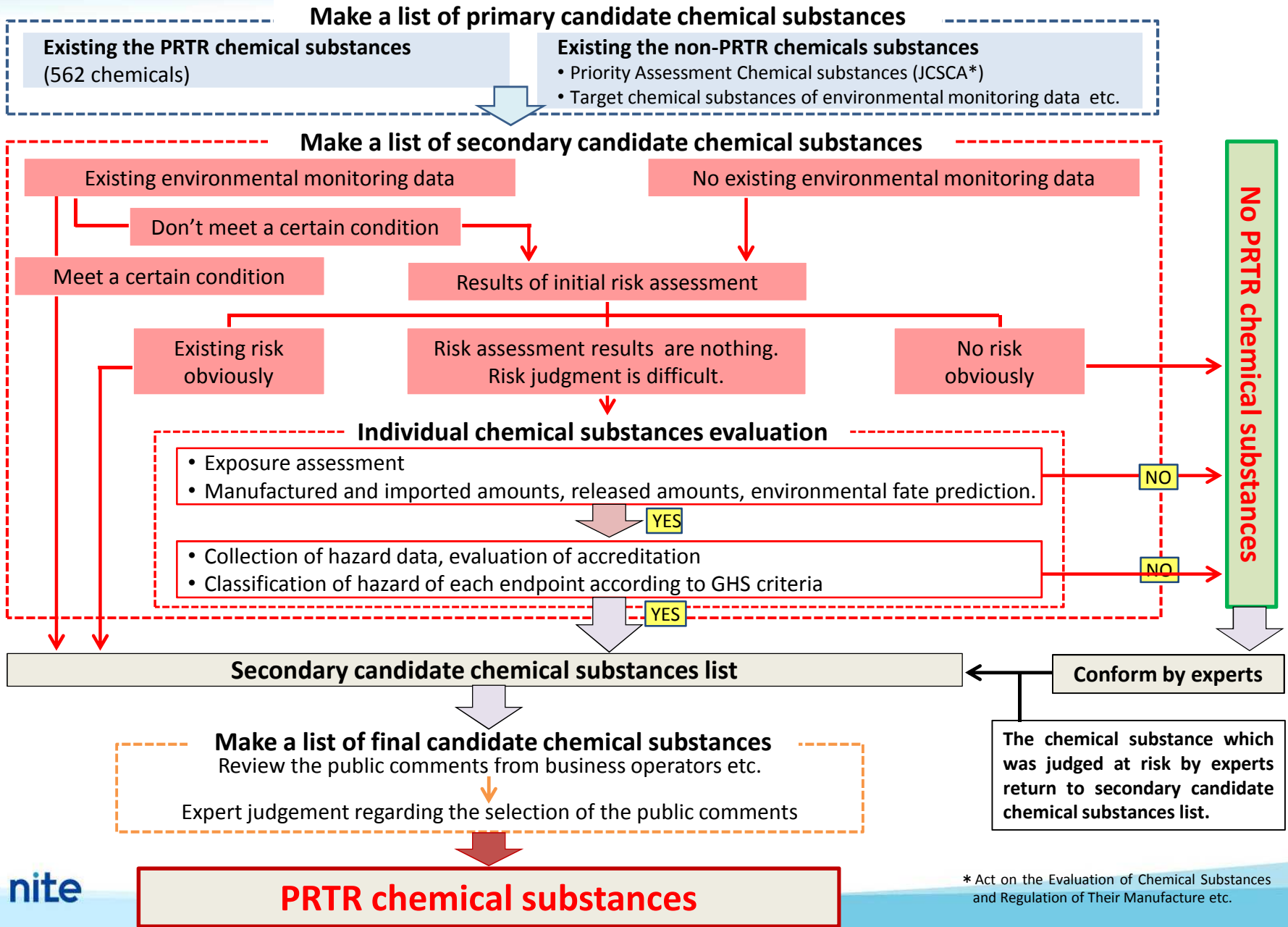
* Hazards : human health hazards, hazards to habitation and growth of animals and plants, ozone layer depletion

In particular, **15 Specific Class I Designated Chemical Substances (*)**, in which carcinogenicity and germ cell mutagenicity are observed, are designated

* Requirements for products and annual handling amounts are different from other substances

Asbestos, ethylene oxide, cadmium and its compounds, hexavalent chromium compounds, chloroethylene (vinyl chloride), dioxins, lead compounds, nickel compounds, Arsenic and its inorganic compounds, 1,3-butadiene, 2-bromopropane, beryllium and its compounds, benzylidene trichloride, benzene and formaldehyde

The selection process of the PRTR chemical substances



Notification Requirements (1)

Business operators who meet the all conditions 1 through 3 are subject to notification

Condition 1: Target business operators (as operation sites) 24 business categories

Examples: Metal mining, crude petroleum and natural gas production, manufacturing, electric utilities, gas utilities, sewage works, petroleum whole sale, fuel retail suppliers, automotive maintenance services, general disposal businesses, medical industry, Medical industry , ...

*Medical industry is included in the notification for FY2011 and beyond

Business categories subject to government estimation

- Business categories in which makes it difficult to keep track of release amounts at fixed locations
Examples: construction, transportation, and building services (such as termite control businesses)
- Business categories in which the handling amount of each business is typically on a small-scale
Examples: agriculture, forestry, golf courses, health/sanitation

Condition 2: Business operators with scale of 21 regular employees or more

*Total number of employees for a business operator; not on a factory basis or on a branch basis.

Notification Requirements (2)

Condition 3: Business operators with annual handling amount of **1 t or more** of Class I Designated Substances

- The handling amounts for the tracked fiscal year are subject to notification requirements (manufactured amounts + used amounts)
- **0.5 t or more** for Specific Class I Designated Chemical Substances
- Reporting values are not the amounts handled, but the amounts released to the environment and amounts transferred in waste

At the time of the enactment of the Law concerning PRTR

- According to the results of the pilot project conducted prior to the enactment of the Law concerning PRTR, in the majority of substances, 80% or more of the handling amounts and released amounts can be accounted for by specifying business operators with an annual handling amount of 1 t or more.
- Exemption levels should be specified more cautiously for carcinogenic substances, which in particular have potential for serious hazards.
→ Carcinogenic substances account for 98% or more of the handling amounts and 90% or more of the released amounts of business operators with an annual handling amount of 0.5 t or more, therefore, the annual handling threshold was set as 0.5 t or more.
- Business operators with **facilities that meet special requirements**
 - If the handling amounts are less than the required amounts, notification is required
Sewage disposal facilities, general and industrial waste disposal facilities, facilities specified in the Law Concerning Special Measures against Dioxins Building, structures and other facilities specified in the Mine Safety Act

Amounts Released and Transferred

- **Amounts released :** amounts released to the environment due to business activities
 - i. Atmosphere
 - ii. Public water bodies : river, lake, sea
 - iii. Soil (excluding iv)
 - iv. Landfill at the operation site

- **Amounts transferred :** amounts transferred from the operation site to off-site for the treatment of waste generated as a result of business activities

- i. Transferred to sewage
- ii. Transferred to off-site : Transferred to industrial waste contractors

*1: Reporting values are not the amounts handled

*2: Amounts transported off-site as products are not considered to be the amounts transferred

*3: Even it is waste at the operation site of concern, if it is transferred to other operator as renewable resource by receiving values, it should not be treated as a transferred amount

Calculation Methods for Amounts Released and Transferred

(1) Mass balance method

The released/transferred quantity is calculated by subtracting the quantity discharged as products and other released/transferred quantities, which are calculated using actual measurement and emission factors, from the annual quantity of the substance concerned

(2) Direct measurement method

The concentration of the substance of concern in exhaust gas, effluent or waste at major outlets of the business operation site is measured, then the value is multiplied by the quantity of exhaust gas, effluent, or waste.

(3) Method using emission factors

The released/transferred quantity is calculated by multiplying the annual handling quantity of the substance of concern by the emission factor, that is, the ratio of the quantity handled to the quantity released, which was calculated based on a model experiment carried out before

(4) Calculating with physical properties values

The concentration of the substance of concern in exhaust gas or effluent is determined based on the saturated vapor pressure, water solubility or the like, and is multiplied by the quantity of exhaust gas or effluent.

***From the PRTR Calculation Manual for Released Amount etc.**

Disclosure of PRTR Data

Published on the Webpage

- ✓ Data of each year can be obtained from webpages of the METI, MOE, or NITE.
- ✓ All items other than personal information (contact person's info.) are subject to publication.

◆ Disclosure of Database

- The Releases and Transfers by Chemical Substance
- The Releases and Transfers by Prefecture
- The Releases and Transfers by Number of Employees
- The Estimated Releases Outside Notification
- The Estimated Releases from Transport Sources
(The estimated releases by Automobiles, Motorcycles, Special Automobiles, Shipping, Railway Cars, and Aircraft)

◆ Individual business data

PRTR information reported by each business is disclosed (all reports)

- | | | |
|--------------------------|------------------------------|-----------------------------------|
| • Report to Local Gov. | • No. of substances reported | • Release into the air |
| • Business name | • No. of employees | • Release to public water bodies |
| • Business place name | • Industry | • Release to land (on-site) |
| • Business place address | • Substance names | • Landfill disposal on-site |
| | | • Transfer to sewage |
| | | • Transfer to off-site (in waste) |

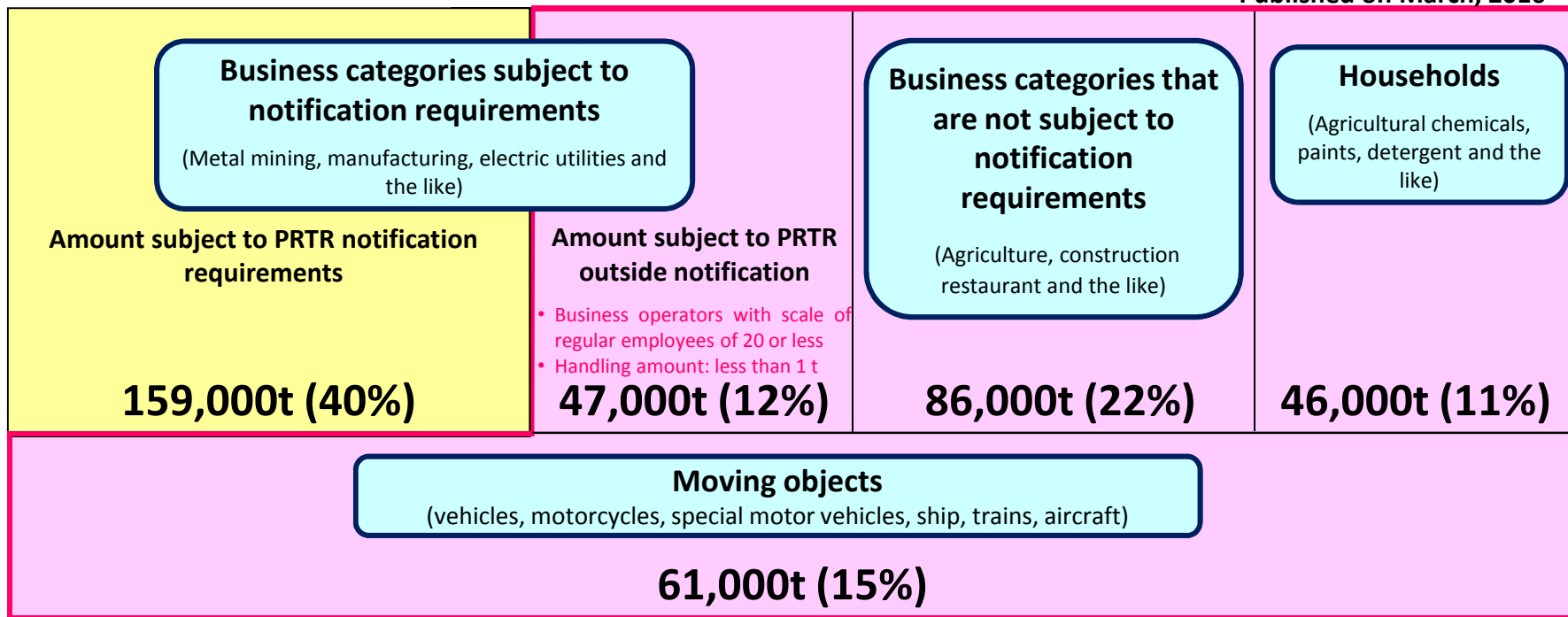
Published Data for Notifications in FY2014

Total number of notifications received : 35,573

1. Released amounts : 399,000t

- Notified by business operator
- Estimated by government

Published on March, 2016

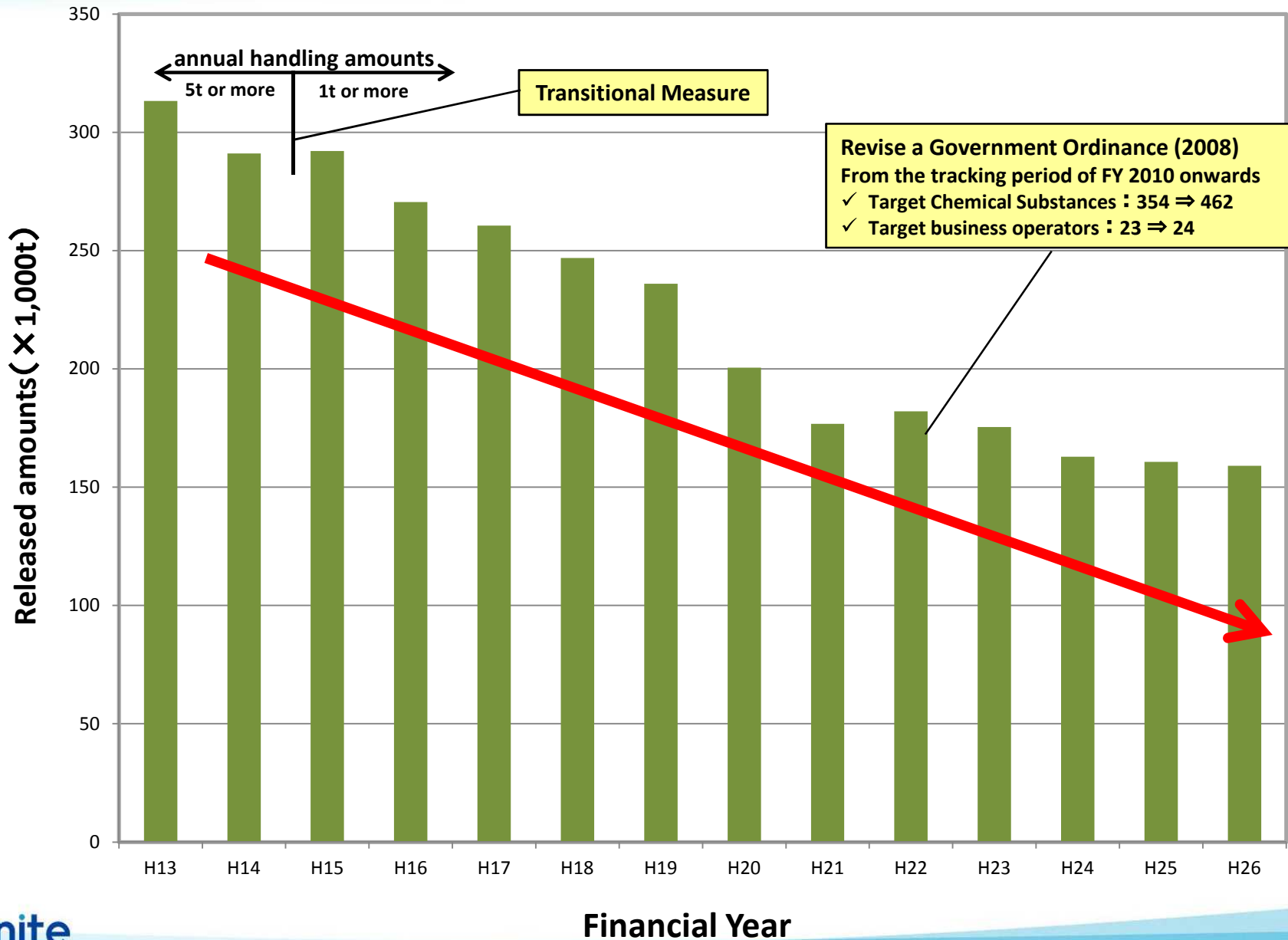


Amounts subject to notification requirements : amounts not subject to notification requirements = 40% : 60%

2. Transferred amounts: subject to PRTR notification requirements : 224,000t

* Transferred amounts are not estimated

Change in released amounts



3. Use of PRTR data

- PRTR map

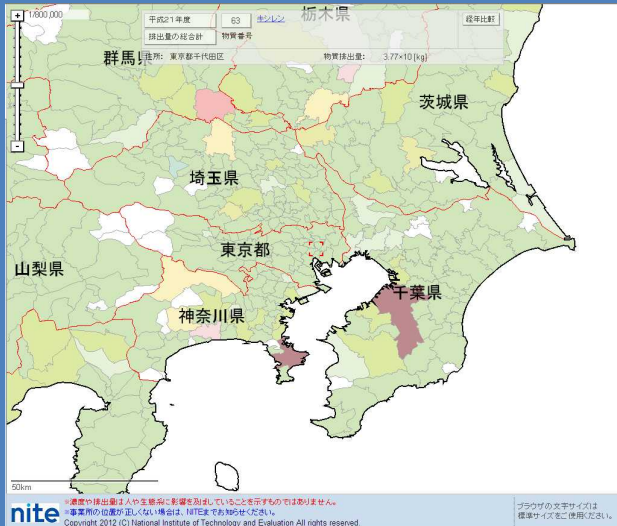
- Confirmation of information

PRTR Map

<http://www.prtrmap.nite.go.jp/prtr/top.do> (Japanese website)

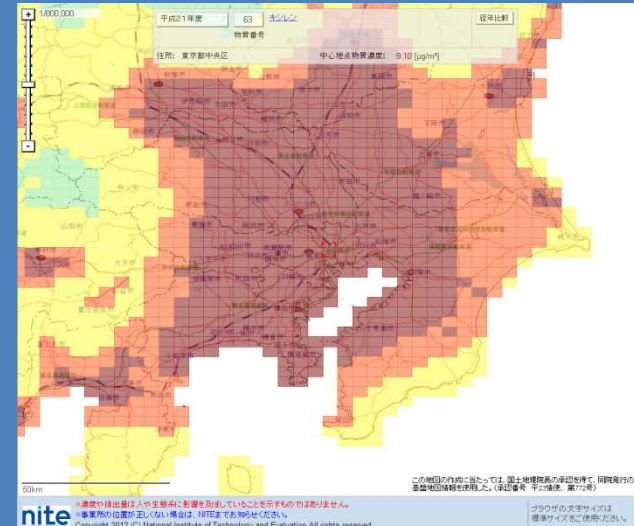
PRTR map provided by NITE

Released amount map



- ◆ PRTR data are displayed on the map on a municipality basis.
(Total released amount, released amount to the atmosphere, released amount to the water are shown)

Concentration map

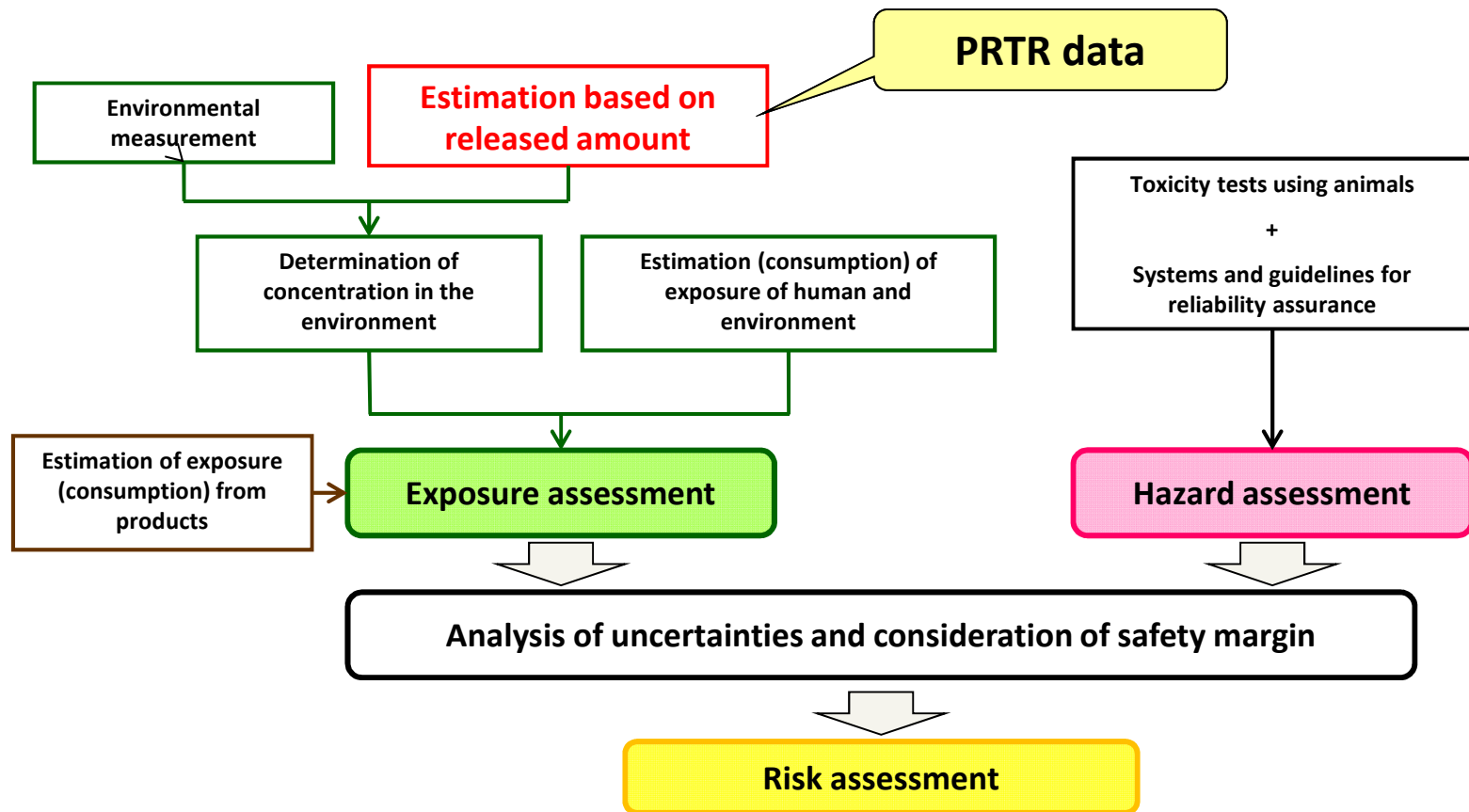


- ◆ Based on the reported data of environmental release and the estimated release amount which were not reported under PRTR system, the concentrations in the atmosphere were estimated by an atmosphere model. The model takes weather data and physical properties into account. The results are shown on a 5km×5km or 1km×1km grid map.
Numerical simulation model : **Atmospheric Dispersion Model for Exposure and Risk Assessment (AIST-ADMER)**

The comparison of the release amount map and concentration map, and comparison of the released amounts or concentration values between different years can be carried out while displaying the two maps side-by-side and synchronizing them.

Risk Assessment and PRTR Data

Risk assessment is carried out by comparing the exposure that has been estimated based on the “exposure assessment” and No Observed Adverse Effect Level (NOAEL; highest dose at which no adverse effect has been found), which is determined based on the hazard assessment, and further by taking the uncertainties in assessment into consideration and allowing a safety margin.



4. Functions of NITE in the PRTR System

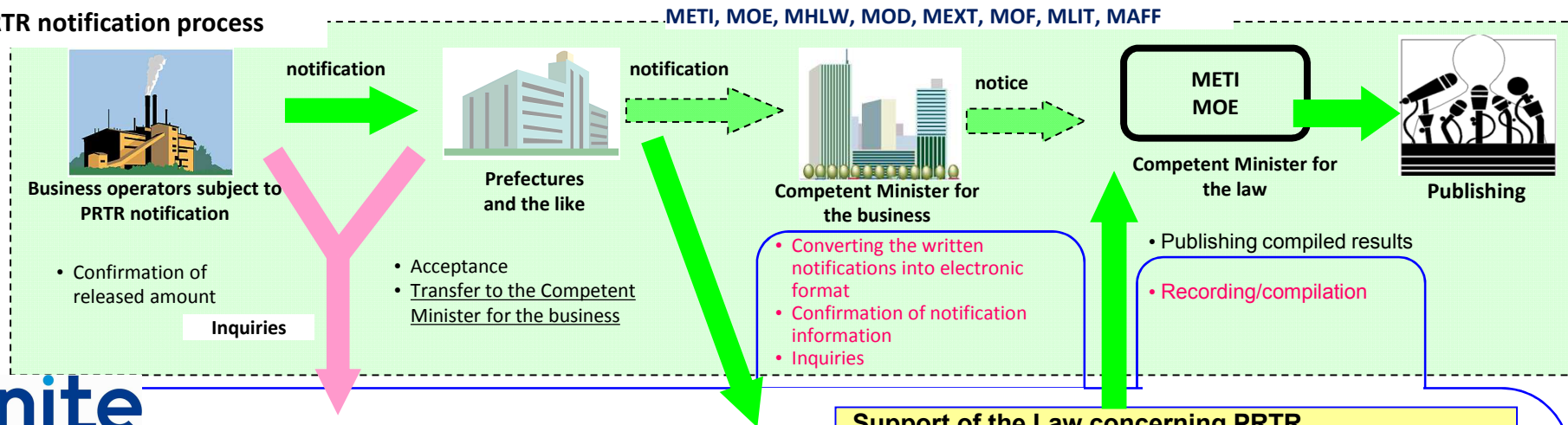
- Formal confirmation
- Risk Assessment and PRTR Data

Functions of NITE in the PRTR System

Functions of NITE

NITE is engaged in activities as shown below as an only organization in Japan which is in charge of a series of processes from compilation of notifications to the publishing under the PRTR system so as to facilitate the enforcement of the Law concerning PRTR

PRTR notification process



nite

Activities related to PRTR notification

* Maintenance and management of the computer for notification, record and compilation

- Development and modification of the PRTR notification system
- Maintenance and management of the system

* Confirmation of the details of notified data, converting them into an electronic format

- Upon request of the Competent Minister of the business, accepting notification forms, confirmation of the detailed information, converting the data into an electronic format, inquiries on notified data are implemented.

* Record keeping and compilation of notified data

* Preparation of the draft for the materials to be published



Support of the Law concerning PRTR

* Responding to inquiries

Technical support such as notification requirements, released amount calculation, and the like
Support related to the use of PRTR notification system

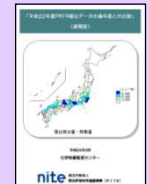
* Organizing inquiries

Creation of Q&A

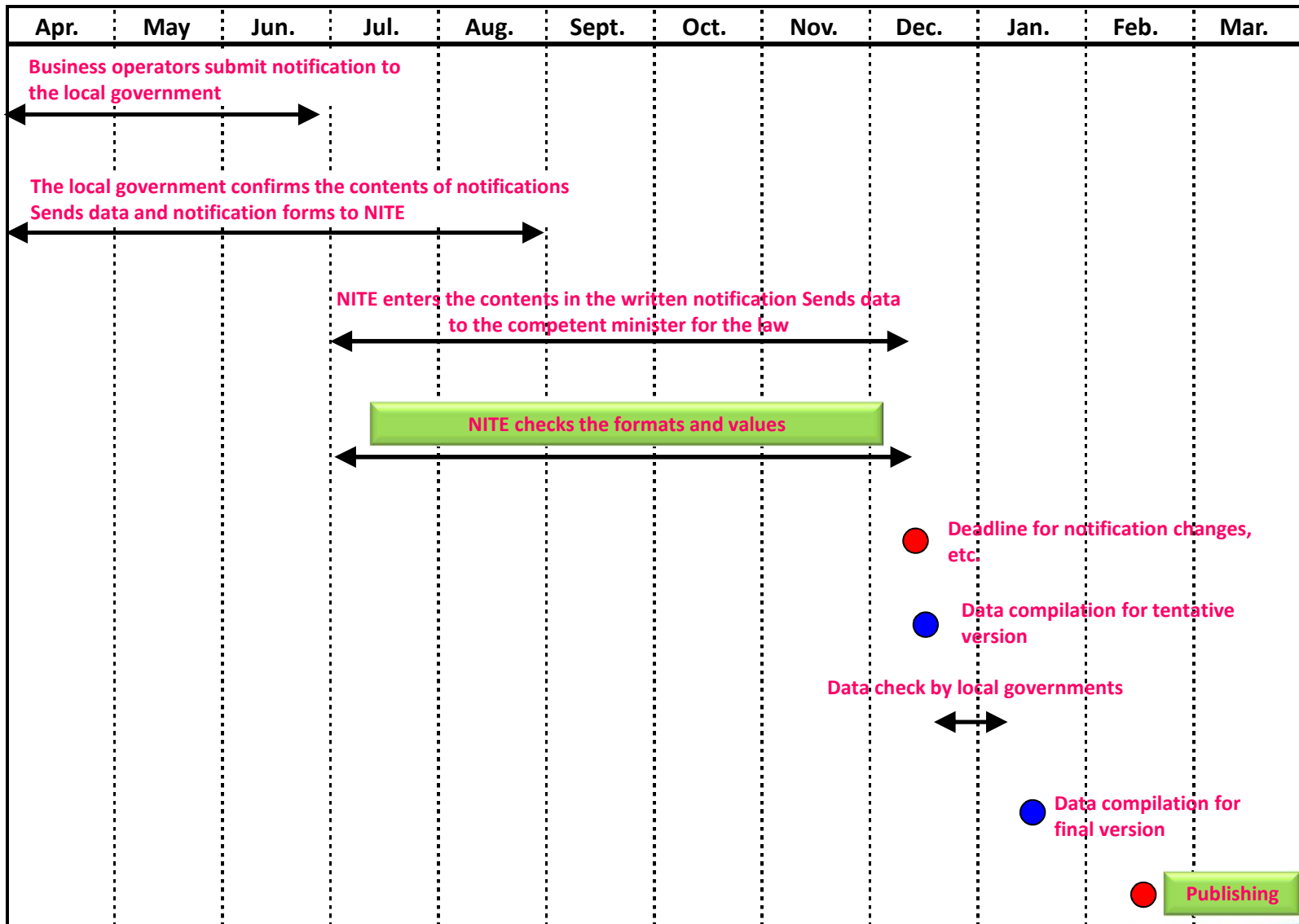


Gathering and analyzing information related to the Law concerning PRTR

- PRTR data analysis
- PRTR map creation (Concentration map and released amount map)
- Report on the comparison of data for past years
- Interim report



Annual Schedule for PRTR Process



Confirmation of Notification Forms by NITE

(1) Formal confirmation

Checking the format and style of notification forms

Check if a notification form is acceptable

Minor problems: Ex Officio correction

Example: typographical errors

Unsolved problems: Asking the business operator

Examples:

- Required fields are not filled
- substance number is not consistent with substance name
- Illegible letters and numbers
- Unclear decimal point

Accepting notification forms

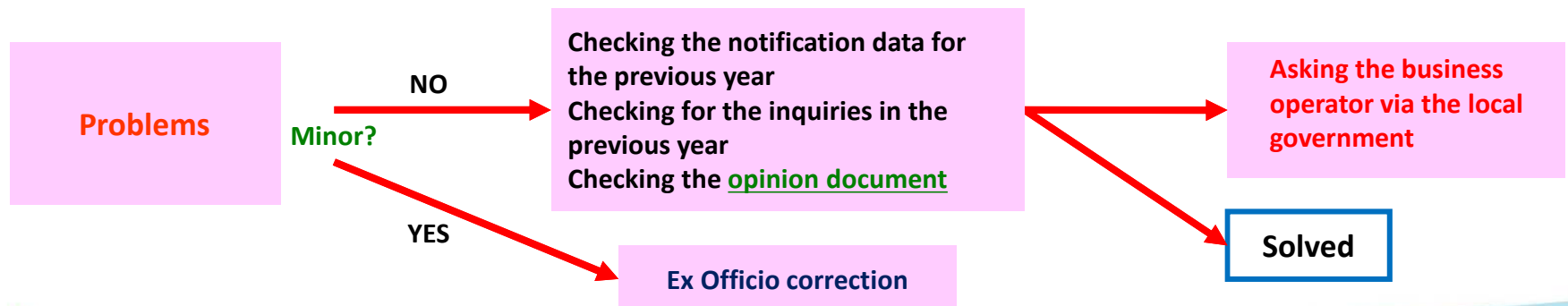
(2) Confirmation on the detailed information

Checking for excess/deficiency or anomalous values in notified substance data based on the substance of concern, class (atmosphere, water body, etc.), numerical figures and business categories.

Problems: Asking the business operator

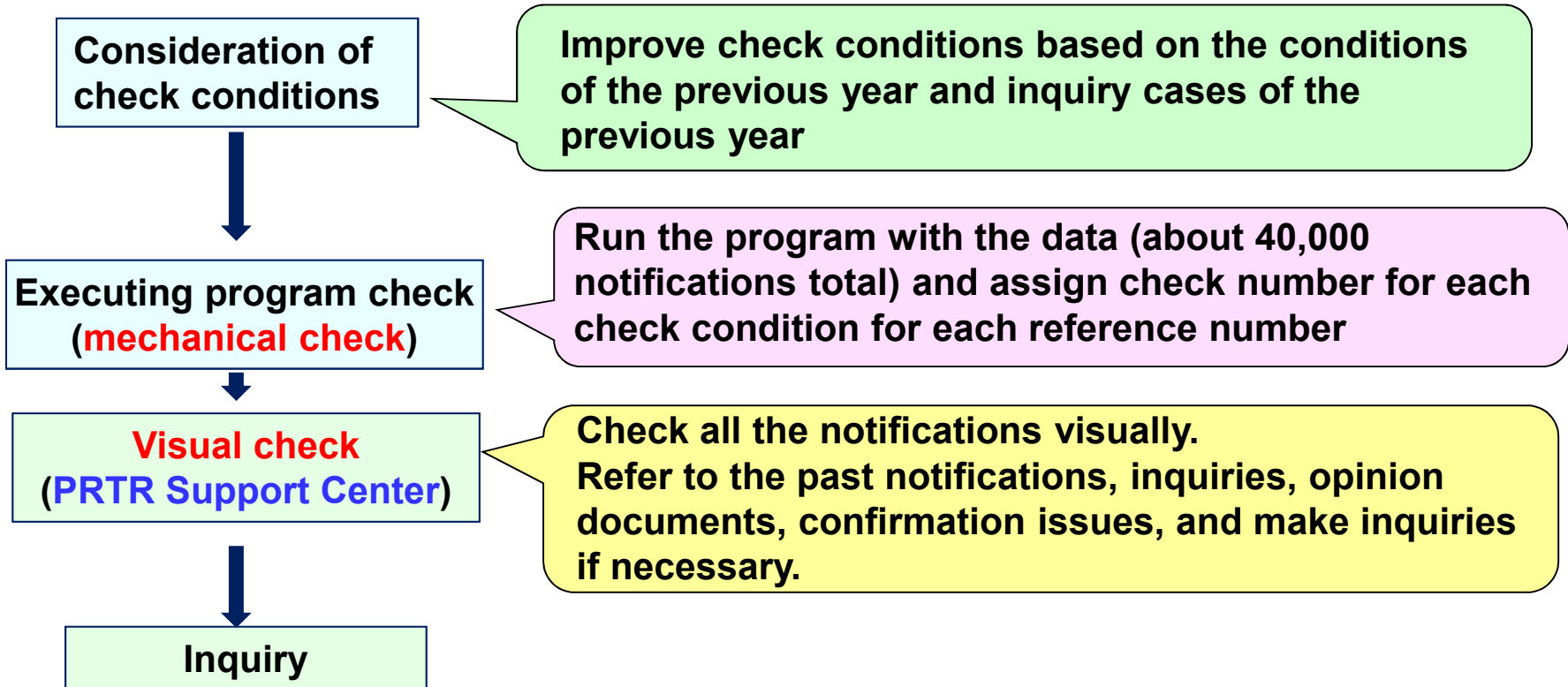
Examples:

- Values have significantly increased or decreased compared to the previous year. (mistakes in calculation, or errors in handling amounts, etc.)
- Substances are completely different from the previous year (mistake in substance selection)
- Is the amount of notified substance too small?
- Is the business category correct?



Procedure for Confirmation on Detailed Information

Process from confirmation on the detailed information of the contents of a notification to inquiry



We check the contents of every notification form