Latest Trends in Chemical Substances Management in Thailand

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Outline of presentation

- Overview of Situation.
- Key national policies related to chemical management.
- Key legislation related to chemical management.
- Recently/newly adopted regulations.
- New scheme – PRTR.
- Ongoing activities and future direction.

Overview of Situation

- Thailand imports various chemicals for direct use and for production of further value-added products.

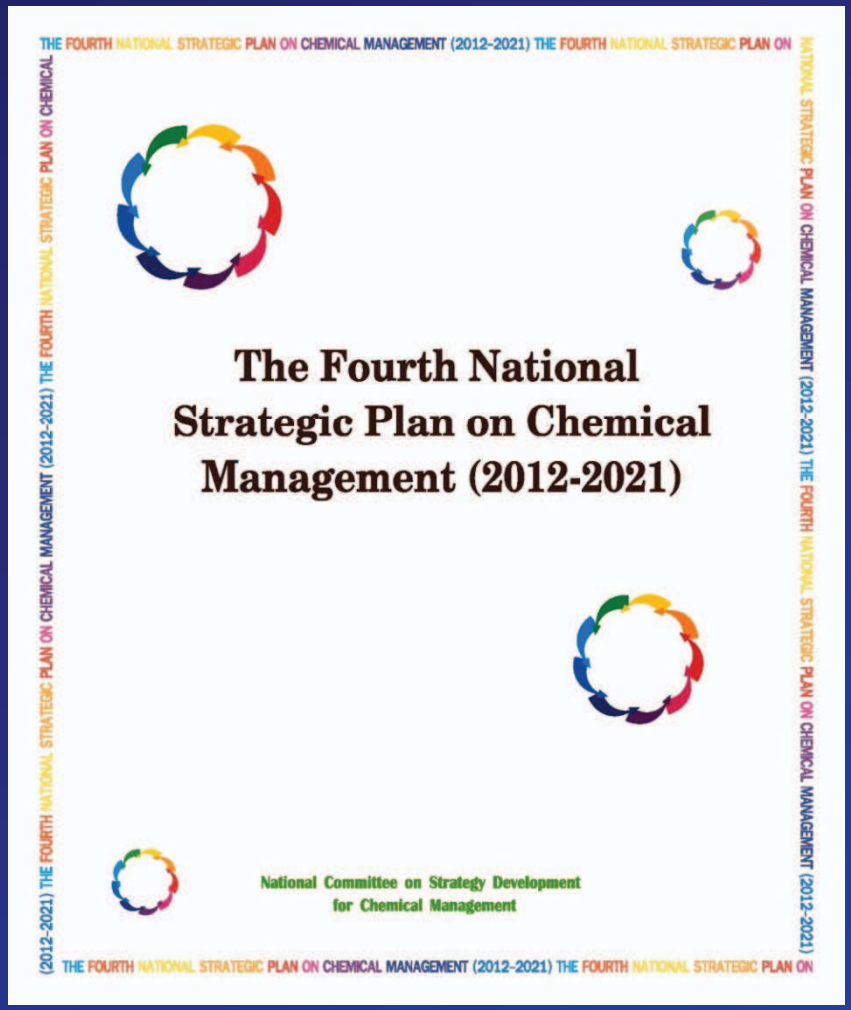
  e.g., petroleum products, industrial chemicals, fertilizers, pesticides and consumer chemicals.

- There is an increasing trend of chemical use.
- Problems: environmental pollution, public health and chemical poisoning, occupational health, chemical accidents, hazardous waste treatment and disposal.

Key National Policies Related to Chemical Management

- 4th National Strategic Plan on Chemical Management (2012 - 2021)

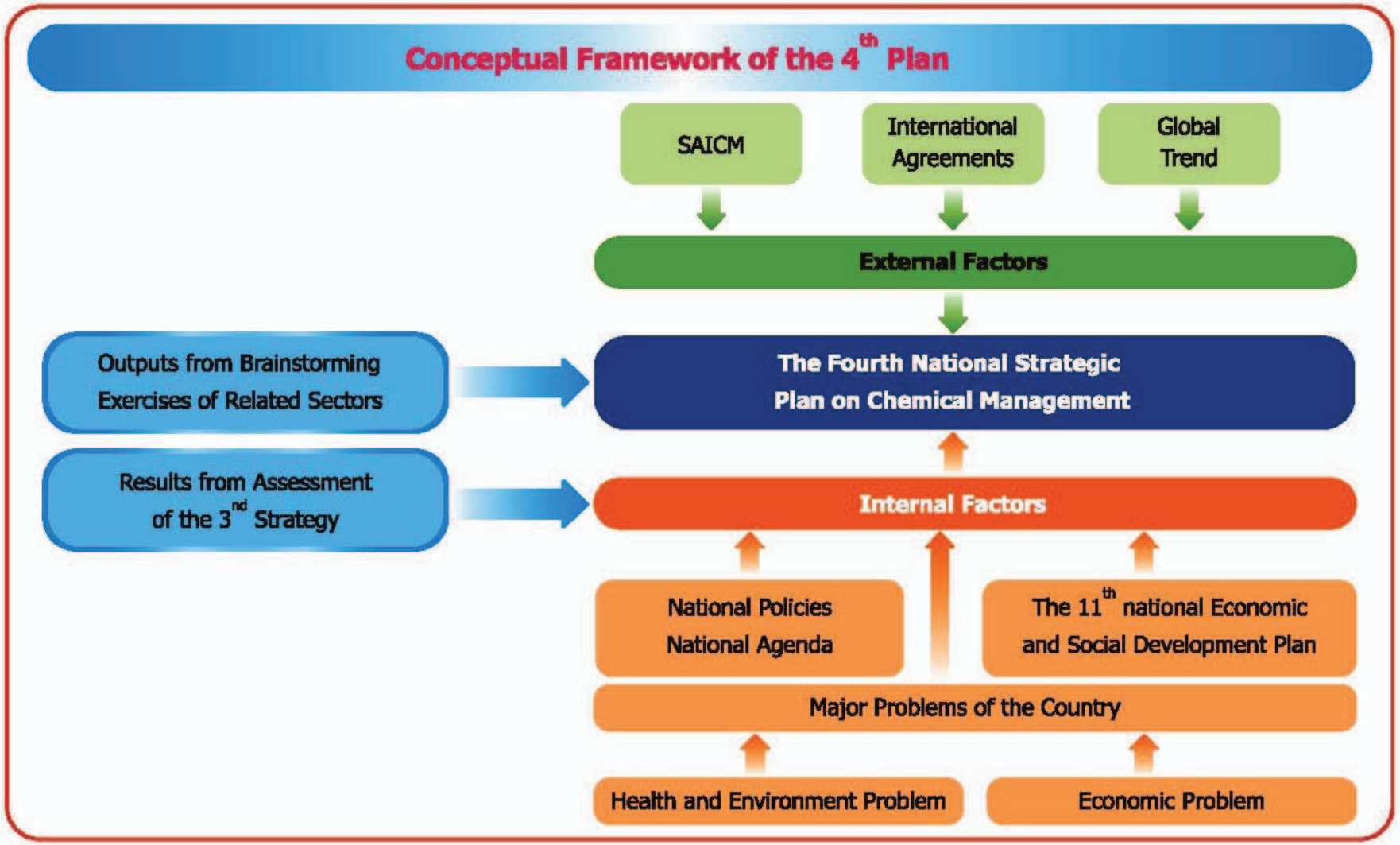
4th National Strategic Plan on Chemical Management (2012- 2021)



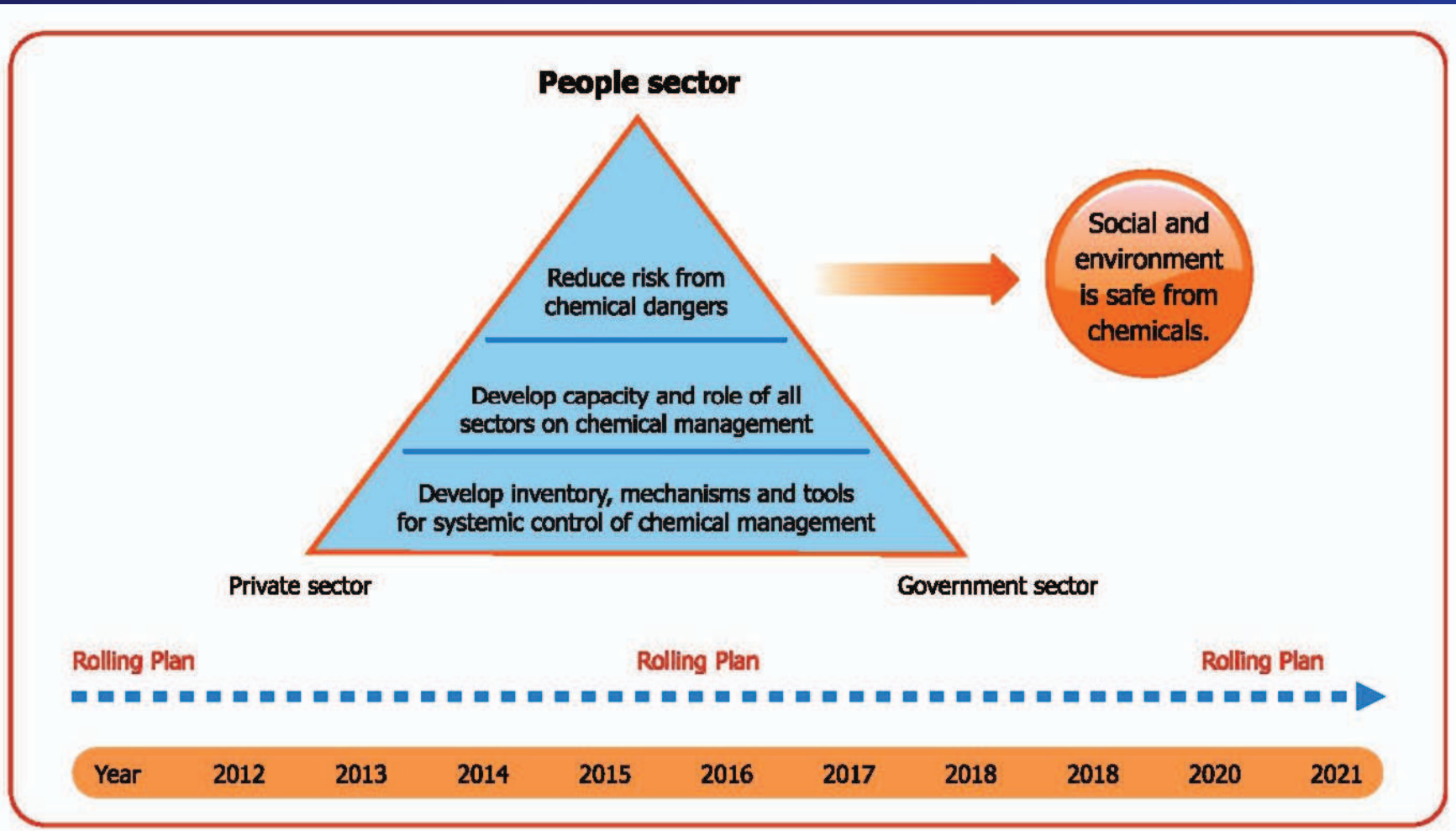
Goal

"Within 2021 social and environment is safe by effective management of chemicals in accordance with national development and participation from all sectors."

4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 1)



4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 2)



Concepts and Principles of the 4th Plan

4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 3)

Objectives

1. To develop systematic management of chemicals to cover their entire life cycle and to be in line with national and international development
2. To promote coordination of all sectors on national chemical management
3. To minimize impact of chemicals on health and environment

Targets

1. Thailand has mechanisms and chemical management system that can protect health and provide safety to people and environment.
2. All sectors have capacity to protect and control impact of chemicals on health and environment.
3. Strong networks on national chemical management established in the country.

4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 4)

Strategies

Strategy 1 Develop chemical database, mechanisms and tools for fully integrated system of chemical management

Strategy 2 Develop capacity and role of all sectors on chemical management

Strategy 3 Reduce risk of chemical dangers

4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 5)

Strategy No. 1

Develop chemical database, mechanisms and tools for fully integrated system of chemical management

Sub-strategy 1 Develop central chemical database system

Sub-strategy 2 Develop mechanisms and tools to support fully integrated system of chemical management

Sub-strategy 3 Create mechanisms to drive for effective chemical management

4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 6)

Strategy No. 2

Develop capacity and role of all sectors on chemical management

Sub-strategy 1 Develop knowledge and capacity building of resources on chemical management

Sub-strategy 2 Develop capacity to effectively prepare and response to international conventions and agreements

Sub-strategy 3 Promote role and participation of all sectors on chemical management

4th National Strategic Plan on Chemical Management (2012- 2021) (cont. - 7)

Strategy No. 3

Reduce risk of chemical dangers

Sub-strategy 1 Prevent chemical dangers (in agricultural, industrial, public health & consumer and transport sector)

Sub-strategy 2 Monitor impact of chemicals on health and environment

Sub-strategy 3 Strengthen capacity on emergency response, treatment and remediation

Key Legislation Related to Chemical Management

- Hazardous Substances Act (1992,2008)

Hazardous Substances Act (1992, 2008)

- Categorizes hazardous substances into 4 types.
- Controls hazardous chemicals in all activities including production, import, export and having in possession.
- 7 responsible agencies according to their intended uses.
- Specifies criteria and procedures.

Regulated Scope - Definition of hazardous chemicals

1) an explosive
2) an inflammable substance
3) an oxidizing agent and a peroxide substance
4) a toxic substance
5) an infectious substance
6) a radioactive substance
7) a mutagen
8) a corrosive substance
9) an irritating substance
10) other substances, whether chemical or else, which may be harmful to person, animal, plant, property or environment.

Types of Hazardous Substances

- **Type 1 - must be notifies and comply with the specified criteria and procedures.**

  ⇒ Manufacturers and importers are required to notify the product information to the authorities. Business operators must comply with the specified criteria and procedures, such as, labeling, rules and conditions for manufacturing and storage.

Types of Hazardous Substances

- **Type 2 - must be registered and notified to the authority and must also comply with the specified criteria and procedures.**

⇒ Notification to the authority on the action taken for production, import, export or having in possession in compliance with notification of DIW.

⇒ Notification of quantity of production, import, export and having in possession to the authority in accordance with MOI's ministerial notification on criteria for the notification of fact by producer, importer, exporter and possessor of hazardous substances which fall within the responsibility of the DIW.

Types of Hazardous Substances

- **Type 3 - must be registered, licensed, and notified to the authority.**

  ⇒ Submit application of a license to produce, import or to possess such a hazardous substance.

  ⇒ Notification of quantity of production, import, export and having in possession to the authority with the MOI's ministerial notification on criteria for the notification of facts by producer, importer, exporter and possessor of hazardous substances which fall within the responsibility of the DIW.

- **Type 4 - the production, import, export, or having in possession is prohibited.**

Chemicals and responsible agencies

- Industrial chemicals → **Department of Industrial Works (DIW).**
- Pesticides and agricultural chemicals → **Department of Agriculture (DOA).**
- Household, healthcare and consumer chemicals → **Food and Drug Administration (FDA).**
- Other chemicals
  - → **Office of Atomic Energy for Peace**
  - → **Dept of Livestock Development, Dept of Fisheries, and Dept of Energy Business.**

Registration – Types 2 & 3

- Information needed to be submitted with the Application form for registration:
  - MSDS, GHS requirements.
  - Specification of the hazardous substance
  - Document or photograph evidencing characteristic of containers or tanks
  - Document or photograph evidencing methods used to secure the containers (if any)
  - A specimen of the hazardous substance for analysis of its specification, or the
  - Analysis result issued by an analytical laboratory, which is approved by DIW, or a document proven of the specification.

Registration – Types 2 & 3 (cont.)

- A sample may be submitted as a substitute for the documents in (3) and (4), nonetheless the specimen, the analysis result or the document in (5) shall be as prescribed by the competent official.
- Exemption Scenarios
  - A hazardous substance has been registered.
  - A hazardous substance is permitted to be produced or imported under other laws.
  - There is distinct and reliable information about the hazardous substance in question.

Permit/License - Type 3

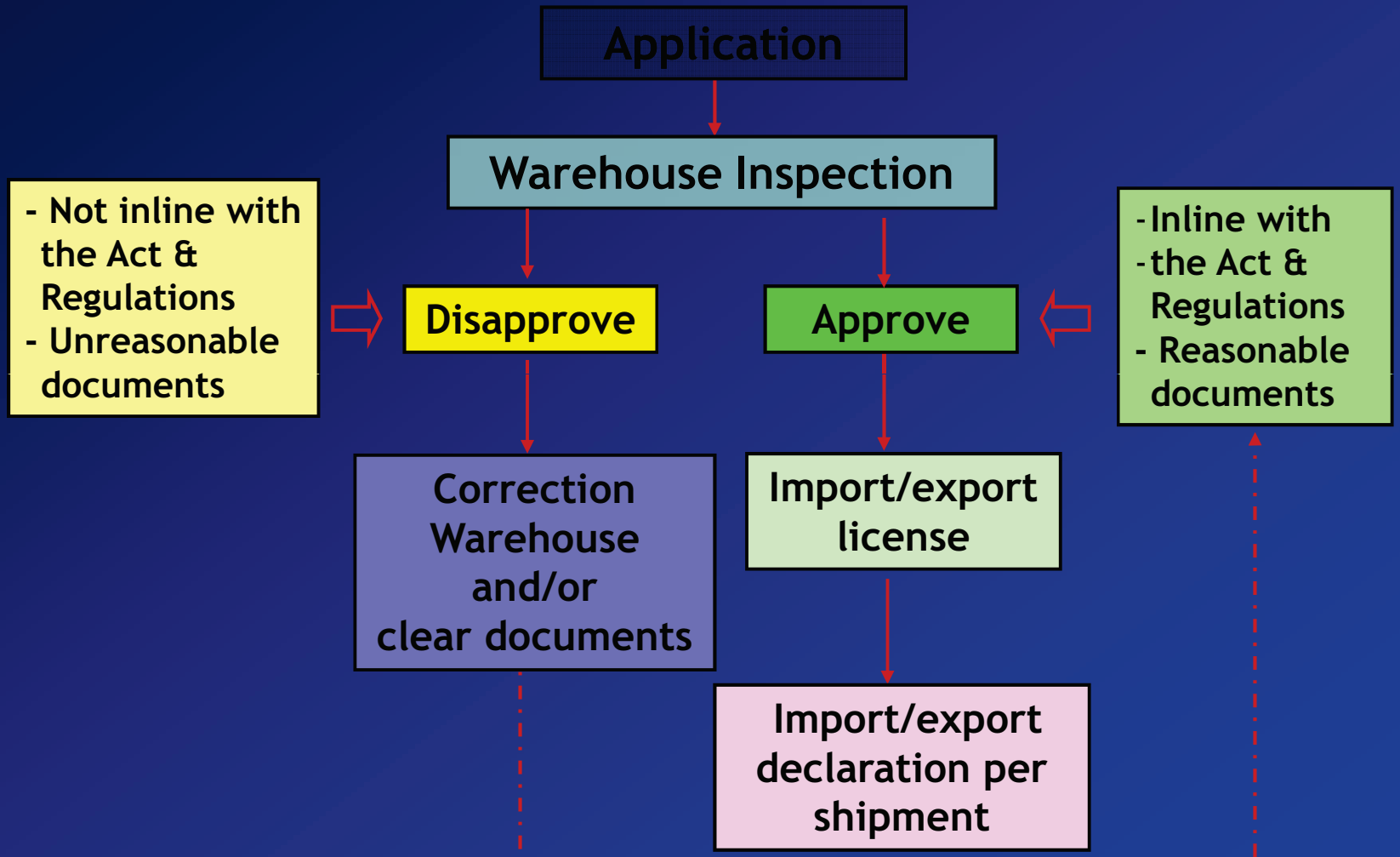
- 5 separate application forms for producer, importer, exporter and having in possession, and storage.
- Exemption

  $\Rightarrow$ if the person has already been granted a permit for production, import or export of hazardous substance, a permit for the possession of the particular hazardous substance could be exempted.

Permit/License - Type 3 (cont.-1)

- Information to be submitted, e.g.,
  - Importer - name, address and commercial license.
  - Chemical identification - trade name, formula name, quantity to import/export, country of origin, producer company and means of transportation.
  - Material Safety Data Sheet (in the case of industrial chemicals) or the results of efficacy trial, residue trial, quality analysis, toxicological data assessment (in the case of pesticides).
  - Warehouse - address, location, protective and preventive measures on warehouse structure and occupational health and safety.

Permit/License - Type 3 (cont.-2)



Procedure for permit/license application

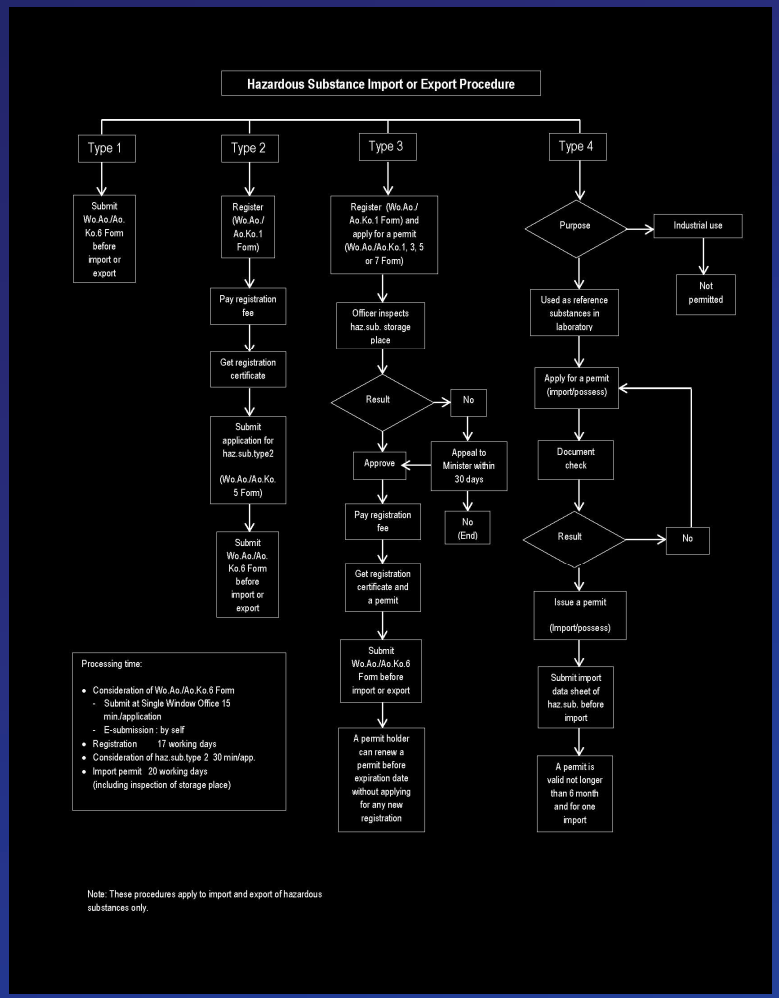
Import/Export Declaration

- Each shipment of hazardous substance has to submit import/export declaration to DIW before their custom clearance according to the Notification of MOI, B.E. 2547 (2004).
- An importer or an exporter shall declare:
  - Chemical identification: name, chemical formula and proportion, trade name, common name or abbrev. (if any)
  - Quantity (of the chemical imported or the container), characteristic of containers
  - Location of storage facility
  - Transportation means
  - Customs port, anticipated arrival date to or departure date from the port
  - Invoice
  - Bill of loading
  - Specific document for the restricted control chemicals

Import/Export Declaration (cont.)

- 100% Composition Disclosure
  - Required by the DIW for evaluation.
  - Thai Customs would also inspect the declaration, against the information on the SDS.
- 2 choices to submit the import/export declaration:
  - Single window of DIW. It takes 15 minutes to complete all processes by one stop service.
  - Submit the application online via the DIW website.

Hazardous Substance Import or Export Procedure



(Please refer to separate handout)

Operational Personnel

- Notification of MOI on Designation of a specialized person responsible for safety of hazardous substance storage under Authorization of Department of Industrial Works at the Hazardous Substance Business Facility, B.E. 2551 (2008).
- Notification of DIW on Criteria and Method for Notifying and Registration of Specialized Person Responsible for Safety Storage of Hazardous Substance under Authorization of Department of Industrial Works and Reporting of Safety Storage of Hazardous Substance B.E. 2551 (2008).
- Notification of DIW on The Examination for a Registration of Specialized Person Responsible for Safety Storage of Hazardous Substances B.E. 2553 (2010).

Operational Personnel (cont.)

- **A specialized person needs to be assigned to ensure that hazardous substances are operated appropriately. Certain criteria and methodology needs to be adopted for the designation procedure**
- **Regulated scope**
  - Producer, importer, exporter of hazardous substance Type 1, 2 or 3 in total amount from 1,000 metric ton/year.
  - Processor of hazardous substance whose storage area of hazardous substance is from 300 m2;
  - Producer, importer, exporter or processor of hazardous substance that is flammable substance or oxidizing agent a
- **Exemption for**
  - A hazardous substance producer, importer, exporter or processor who keeps hazardous substance in tank, silo, portable/bulk container cryogenic liquefied gas or refrigerated liquefied gas

Inclusion of Chemicals in the Hazardous Substances Act

- National policy.
- Technical and scientific evidence.
- In response to international agreements.

In Response to International Agreements, e.g.,

- CFC, HCFC, Halons and MeBr are controlled in response to the Montreal Protocol.
- Chemical wastes are controlled in response to the Basel Convention.
- Chemical weapons are controlled in accordance with prohibition of production, storage, use and destruction of chemical weapons.

In Response to International Agreements (cont.)

- Control of POPs chemicals under the Stockholm Convention
  - 16 intentional POPs, including all initial POPs and new POPs pesticides have banned.
  - 5 new industrial POPs (namely, c-PentaBDEs, c-OctaBDEs, PFOS, Pentachlorobenzene, and Hexabromocyclododecane)

    ⇒ currently under the national process for listing under the Hazardous Substances Act.
- Control of chemicals under the Rotterdam Convention

Procedure for addition of chemicals in the Hazardous Substance Act (1992)

Hazardous Substances Committee

- Consists of members from inter-governmental agencies.
- Departments: e.g., Internal Trade, Medical Services, Public Works, Police Department, Agriculture, Agricultural Extension, Food and Drug Administration, Office of Atomic Energy for Peace, Office of Industrial Standards Institute, MONRE.
- Ministry of Industry as a chairman and Department of Industrial Works as secretary.
- Scholars and NGOs.

Recently/Newly Adopted Regulations

- New lists of hazardous substances
- GHS Implementation

List of Hazardous Substances (2013)

- Notification of Ministry of Industry Re: List of Hazardous Substances, B.E. 2556 (2013)
- 6 Annexes, consisting of 1,585 chemicals, regulated under different authorities:
  - **Annex 1** Dept of Agriculture: 698 items
  - **Annex 2** Dept of Fishery: 21 items
  - **Annex 3** Dept of Livestock Development: 36 items
  - **Annex 4** Food and Drug Administration: 258 items
  - **Annex 5** Dept of Industrial Works: 570 items
  - **Annex 6** Dept of Energy Business: 2 items

List of Hazardous Substances No. 2 (2015)

- Notification of Ministry of Industry Re: List of Hazardous Substances No. 2, B.E. 2558 (2015)
- Revising the lists of chemicals in Annex 5 under the responsibility of DIW.
  - **List 5.1 Chemicals -- adding or correcting specified conditions for 9 items**
  - **List 5.4 Other chemicals -- lower the control level of white oil/refined petroleum oil from Type 3 to Type 1.**
  - **List 5.5 Chemical weapons -- correcting specified conditions for 1 item.**

List of Hazardous Substances No. 2 (2015) (cont.)

- Adding new chemicals/items to in Annex 5 under the responsibility of DIW.
  - **List 5.1 Chemicals -- adding 2 items of Type 3 chemicals (diisocyanates)**
  - **List 5.4 Other chemicals -- adding isocyanate mixed isomers or mixture as Type 3, and resin as Type 2 with specified conditions.**
  - **List 5.5 Chemical weapons - adding 3 items as Type 4.**
  - **List 5.6 Groups of chemicals controlled according to their properties - a new list.**

List 5.6 Groups of chemicals controlled according to their properties

- Applied to single substance or mixture that have not been covered previously under the Act.
- Applied to chemicals that have one or more of the following properties:

1) Explosive substance
2) Flammable substance
3) Oxidizing agent and peroxide substance
4) Toxic substance
5) Mutagen
6) Corrosive substance
7) Irritant
8) Carcinogen
9) Toxic substance to reproductive organ
10) Environmentally hazardous substance

List 5.6 Groups of chemicals controlled according to their properties (cont.)

- Requires a producer or importer of more than 1,000 Kg per year to notify the DIW yearly, via an online electronic system.
- The procedure must comply with specified criteria, in accordance with the Notification of DIW (*in process*).
- Simplified notification procedure by exemptions, does not have to follow the notification procedure of Type 1, 2 or 3 hazardous substances.

GHS Implementation

- Notification of Ministry of Industry, Subject: Hazard Classification and Communication System of Hazardous Substances B.E. 2555 (2012)
- Applicable for chemicals under the scope of DIW (regulated industrial chemicals).
- In consistence with the 3rd revision of UN GHS (2009).
- Two-step action, taking effective on
  - March 13, 2013 for single substances
  - March 13, 2017 for mixtures.

GHS Implementation (cont. -1)

- Adopted 28 hazard class:
  - Physical hazard (16),

    Explosives; Flammable gases; Flammable aerosols; Oxidizing gases; Gases under pressure; Flammable liquids; Flammable solids; Self-reactive substances and mixtures; Pyrophoric liquids; Pyrophoric solids; Self-heating substances and mixtures; Substances and mixtures, which in contact with water, emit flammable gases; Oxidizing liquids; Oxidizing solids; Organic peroxides; and Corrosive to metals.

GHS Implementation (cont.-2)

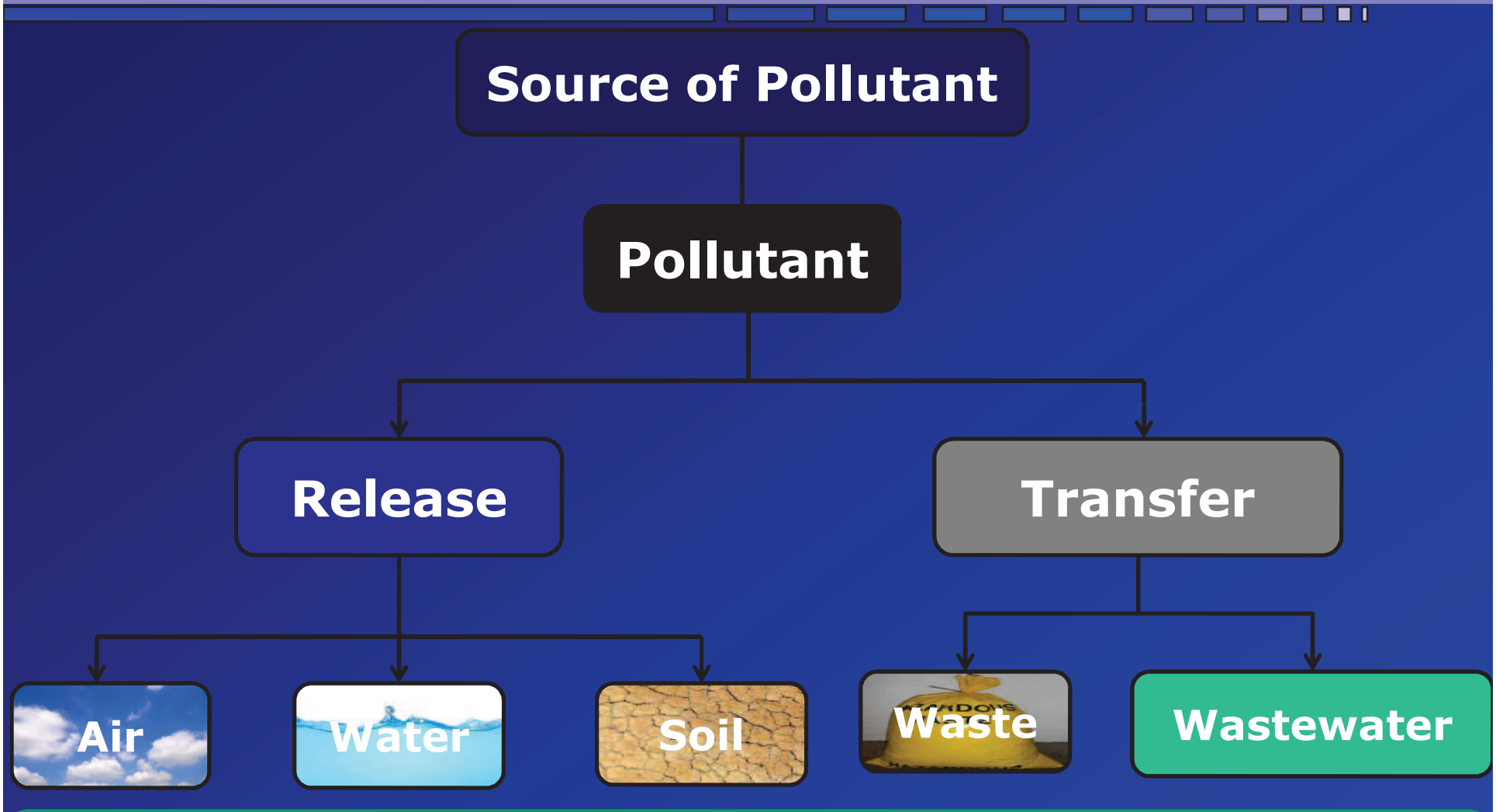
- Adopted 28 hazard class: (cont.)
  - Health hazard (10)

    Explosives; Acute Toxicity; Skin corrosion/irritation; Serious eye damage/eye irritation; Respiratory or skin sensitization; Germ cell mutagenicity; Carcinogenicity; Reproductive toxicity; Specific target organ toxicity-single exposure; Specific target organ toxicity-repeated exposure; and Aspiration hazard.
  - Environmental hazard (2)

    Hazard to the aquatic environment; and
    Hazard to the ozone layer

New Scheme - PRTR

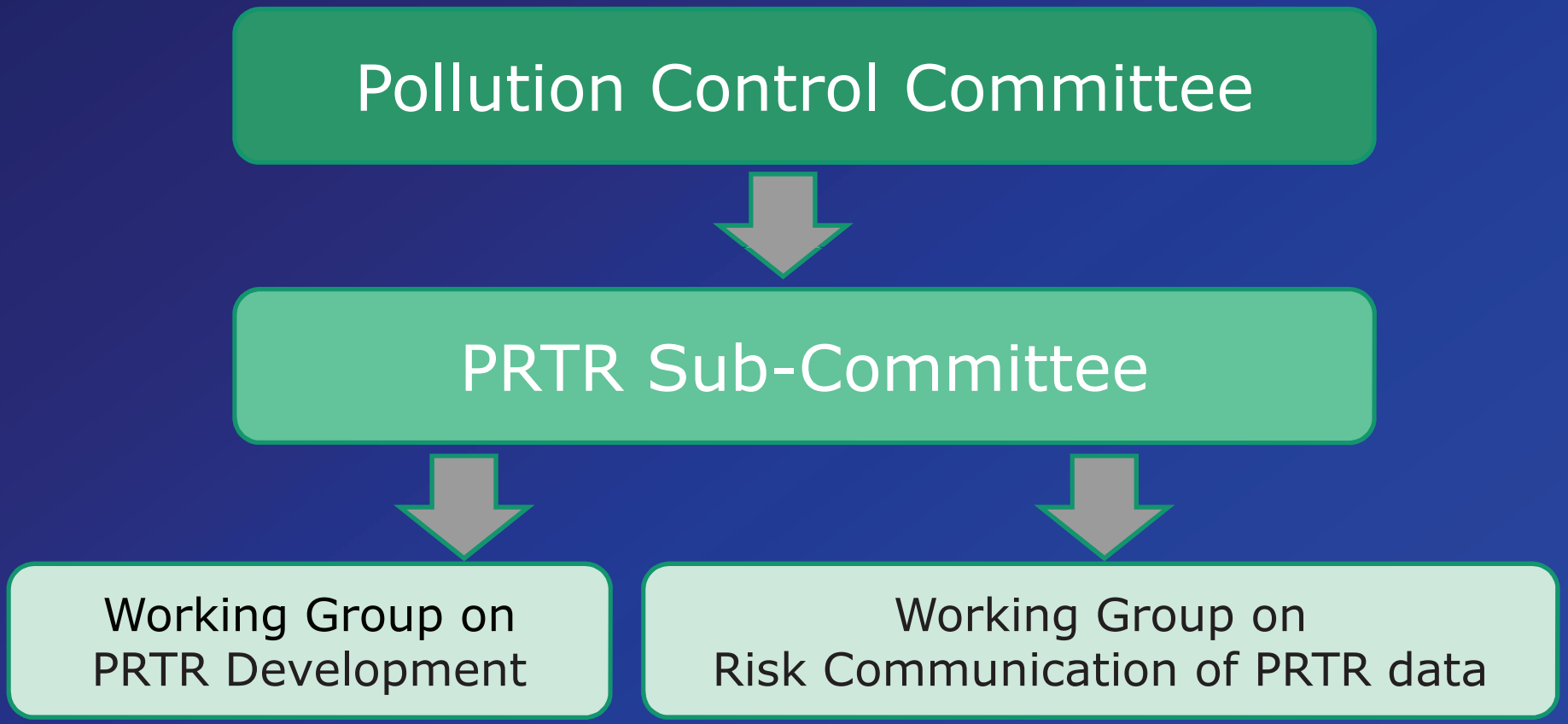
Pollutant Release and Transfer Register



Database system provided public access to information on amounts of pollutants released from different sources to environmental medium and information on off-site transferred of wastewater and waste management.

PRTR in Thailand

Organization Chart for PRTR System in Thailand



PRTR in Thailand (cont.)

Objectives

- Disclose pollution data to public
- Reduce & solve env. pollution from factory
- Fulfill national and international policies/strategic plans on chemical management

e.g.,
  - National Strategic Plan on Chemical Management
  - Plan for the implementation of its obligation under the Stockholm convention on the Persistent Organic Pollutants (POPs) in Thailand
  - Agenda 21, SAICM

- Monitor pollution from various sources as well as set up policies for chem./pollution management

Overview of the JICA-PRTR Project

Project name

The Development of Basic Schemes for PRTR System in Kingdom of Thailand : JICA-PRTR

Counterpart

Time Frame

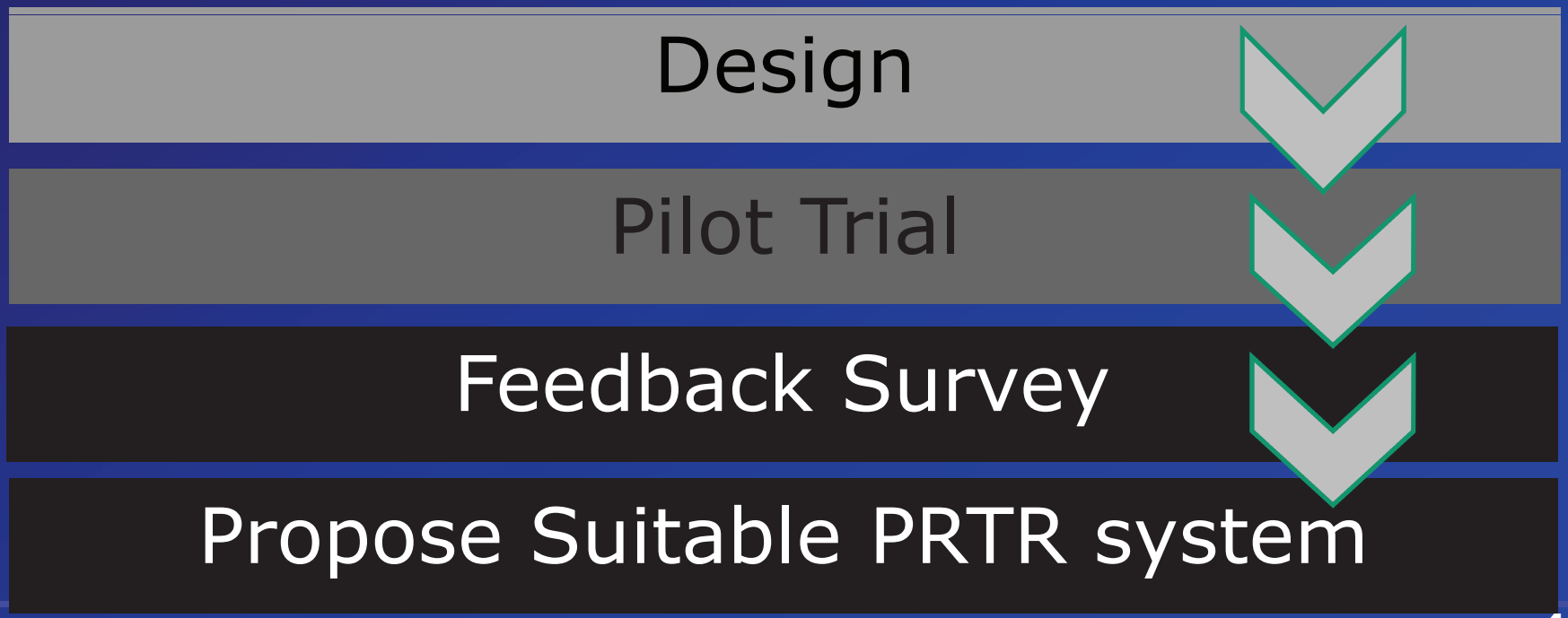
- Original Schedule : 4 Yrs (2010 - 2014)
- Extension : 1 Yr (2015)

Overview of the Project (cont.)

Goal

Model of PRTR system in Thailand

Process



Concept of Target Substances Selection

Toxicity data ∩ Exposure data

1. Chemical/pollutant presence in
-Thai Regulations
- Thai & International Agreements eg. Stockholm, Rotterdam

2.Chemical Database

- US EPA (IRIS , TRI, Screeing Level Table)
- IARC
- Japanese MOE Chemical fact sheet
- IOMC Environmental Health Criteria

1. Amount of chem. use in country
(Avg. of prod. + imp. – exp. In Yr 2007-10)

- 100 t/y for carcinogen chem.
- 1000 t/y for non carcinogen chem.

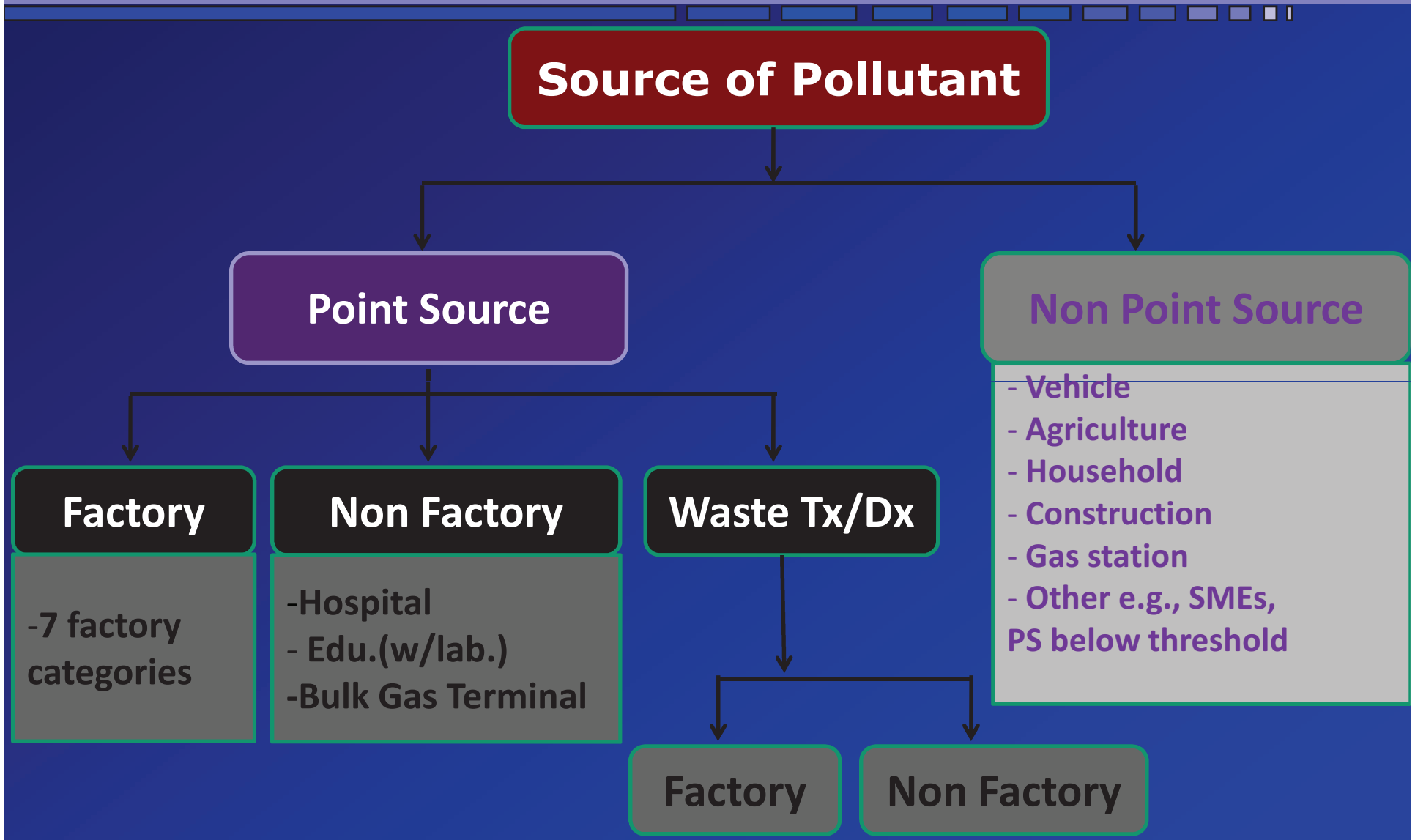
2.Monitoring data

Ref:PCD, DIW, IEAT, JICA Expert team, (2013); Target Substance Selection, JICA-PRTR Project

Summary of Target Substances

Substances	Category	Sum
Chemicals	Pesticides	27
	Metals and their compounds	12
	Organic Compounds	65
Pollutants	Major Pollutants (SOx, Nox)	2
	Unintentional Pollutants (Dioxins & Furans)	1
	Total	**107**

Target Business for Pilot Implementation



Reporting Criteria

Consider a combination of 3 components

Type of Business + Size of Business + Amount of Chemical Handled

Ref: PCD, DIW, IEAT, JICA Expert team, (2012); Proposal for Point Source Definition for PRTR System in Thailand, JICA-PRTR Project

Reporting Criteria - Factory

Type of business	Size of business	Chem. handled
Chemical & Chemical products, Petroleum products	Fac. Type 3	1 ton/y or more
Transport equipment, excluding servicing		
Wood & Wood products, Furniture & Fixture		
Basic metal products, Fabricated products		
Electrical machinery and supplies		
Plastic products		
Rubber products		

Ref: PCD, DIW, IEAT, JICA Expert team, (2012); Proposal for Point Source Definition for PRTR System in Thailand, JICA-PRTR Project

Reporting Criteria – Non Factory

- Referring to MNRE definition, the following size of business would be the thresholds;

Type of Business	Size of Business	Chemical handled
Hospitals	30 beds or more	1 ton/y or more
Schools, Colleges, Universities, or Institutes (with chem. laboratory)	25,000 m2 or more	
Bulk gasoline terminals	All sizes	

Ref: PCD, DIW, IEAT, JICA Expert team, (2012); Proposal for Point Source Definition for PRTR System in Thailand, JICA-PRTR Project

Reporting Criteria
Waste Disposal/Management

Type of business		Size of Business	Chem. handle
Factory	Central waste treatment plant (DIW code 101)	Factory Type 3	None
	Factories related to sorting or landfilling of industrial wastes (DIW code 105)	Factory Type 3	
	Factories engaged in recycling of industrial wastes or used industrial products (DIW code 106)	Factory Type 3 & 50 ton/day or more	
Non-factory	Municipal waste incinerators	50 ton/day or more	
	Infectious waste incinerators	All sizes	

Ref: PCD, DIW, IEAT, JICA Expert team, (2012); Proposal for Point Source Definition for PRTR System in Thailand, JICA-PRTR Project

Non Point Source categories and target chemicals

Categories	Target Chemicals at the Pilot Implementation	
Agriculture	9	captan, copper and soluble salts,ametryn, butachlor, 2, 4-D dimethyl ammonium, glyphosate-isopropylammonium, paraquat dichloride, propanil, chlorpyrifos
Construction (Paint)	6	acetone, ethyl acetate, isopropyl alcohol, toluene,xylenes, Bis(2-ethylhexyl) phthalate
Hospital (below threshold)	2	Formaldehyde, Ethylene oxide
School (below threshold)	1	ethyl acetate
Bulk gas Terminal (below threshold)	4	1,2,4 – Trimethylbenzene, Benzene, Xylenes (mixed isomers), Toluene
Gas station	4	Benzene, Toluene, Xylenes, Hexane
Mobile Sources (Automobiles, Motorcycles)	9	Benzene, 1,3-Butadiene, Formaldehyde, Acetaldehyde, Toluene, Xylenes, Acetone, SO_x, NO_x
Households	5	NOx, 1,4-Dichlorobenzene, Isopropyl alcohol, naphthalene, acetone

Phase of Pilot Implementation

Phase I	• Awareness raising to all stakeholders /
Phase II	• Training for estimation and reporting to point sources /
Phase III	• Implementation and support to point sources /
Phase IV	• Reporting and data compilation /
Phase V	• Disclosure and risk communication
Phase VI	• Feedback survey

Ref: PCD, DIW, IEAT, JICA Expert team, (2012); PRTR Pilot Project Implementation Plan For Rayong Province, JICA-PRTR Project

website http://prtr.pcd.go.th

Ongoing Activities and Future Direction

Ongoing Activities and Future Direction of New Regulations

- Consideration of additional amendments to the Hazardous Substance Act, e.g.,
  - Adding "Transit" in the scope and definition, as there are only "import" and "export" in the current regulation.
  - Exemption for importing/using Type 4 hazardous substance for R&D purposes.
- Adding the list of new chemicals that will be included under international conventions, e.g., Rotterdam, Stockholm or Minamata conventions.

Ongoing Activities and Future Direction of New Regulations (cont.)

- GHS implementation by the FDA and Dept of Livestock Development.
- Draft Act on Transport of Dangerous Goods by the Ministry of Transport.
- Implementation relevant provisions of
  - Greater Mekong Subregion Cross-Border Transport Agreement
  - ASEAN Framework Agreement on Facilitation of Goods in Transit

Thank you very much

For more information, please contact:

Waste and Hazardous Substance Management Bureau
Pollution Control Department,
Ministry of Natural Resources and Environment
92 Soi Phahon Yothin 7, Phahon Yothin Road
Phayathai, Bangkok 10400 Thailand
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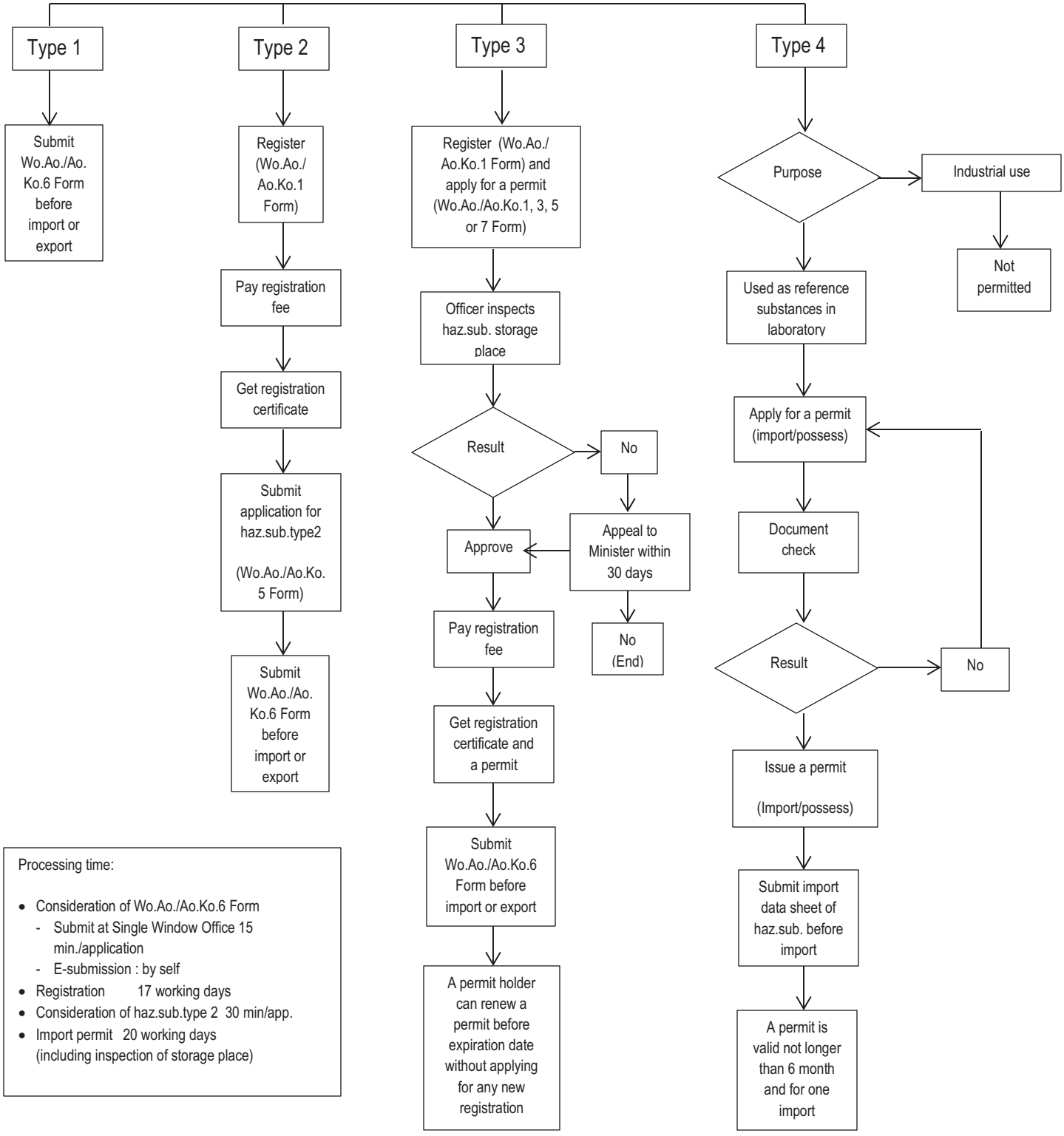
Fax: +66 2298 5393
Website: http://www.pcd.go.th

Hazardous Substance Import or Export Procedure



Processing time:

- Consideration of Wo.Ao./Ao.Ko.6 Form
  - Submit at Single Window Office 15 min./application
  - E-submission : by self
- Registration 17 working days
- Consideration of haz.sub.type 2 30 min/app.
- Import permit 20 working days (including inspection of storage place)

Note: These procedures apply to import and export of hazardous substances only.