

# Chapter 4

## Comparison of Management System between Selected ASEAN and OECD Countries: Similarity and Difference

August 2017

**This chapter should be cited as**

ERIA (2017), 'Comparison of Management System between Selected ASEAN and OECD Countries: Similarity and Difference', in Motokura, M., J. Lee, I. Kutani, H. Phoumin (eds.), *Improving Emission Regulation for Coal-fired Power Plants in ASEAN*. ERIA Research Project Report 2016-02, Jakarta: ERIA, pp.35-40.

## Chapter 4

# Comparison of Management Systems between Selected ASEAN and OECD Countries: Similarities and Differences

This chapter selects several survey items to compare the situation in the selected OECD countries and selected ASEAN countries.

### 1. General

#### (1) Legislation

As with the selected OECD countries, the selected ASEAN countries have enacted environment-related acts and regulation standards for air pollutants. In many countries, the regulation values are sorted for each sector, regulating power generation as a sub-sector.

In the selected OECD countries, the local governments are generally authorized to enact stricter emission standards than national ones. In the selected ASEAN countries, Cambodia, Indonesia, Myanmar, and Thailand grant such authority to their local governments. In Thailand, however, no local government has actually set its own emission standards to date.

In Japan and the Republic of Korea among the OECD countries, coal-fired power plants (CPP) and local governments have concluded agreements to set stricter emission standards than the national ones. Among the ASEAN countries, Cambodia and Lao PDR are following suit. In both countries, the coal-fired power plants started operation less than 10 years ago. However, Cambodia and Lao PDR seem to be rare cases that follow Japan's experience to allow a CPP and local government to conclude an agreement to set stricter emission standards than the national ones.

#### (2) Regulated pollutants

All the countries have set national emission standards for the typical air pollutants emitted from the CPPs, namely SO<sub>x</sub>, NO<sub>x</sub>, and PM.

#### (3) Authority to suspend operation

Where the CPPs violate the emission standards in the selected OECD countries, the local

governments generally have the authority to suspend operation. In the selected ASEAN countries, on the other hand, the central government has the authority to suspend operations in Malaysia, Myanmar, and Thailand, while both the central and local governments have the authority in Indonesia and Lao PDR, and the local government has it in Cambodia.

#### (4) Relation to local community

When a new CPP is constructed, many countries require holding an advance meeting with the local community. Once the CPP starts operation, however, it is presumed that few countries request for a periodical meeting with the local community. In the selected OECD countries, once the CPP starts operation, it is not legally required to hold a periodical meeting with the local community. In the selected ASEAN countries, it was confirmed in Thailand that the CPP holds periodical meetings with the local community every 3 months. In Lao PDR, the CPP has to hold periodical meetings with the local community according to the agreement with the local government.

#### (5) Summary

When comparing the selected OECD and ASEAN countries, there are a few differences in the general sections of the legislation, despite the existence of some cases where the central or local government has authority.

## **2. Management systems**

#### (1) Monitoring

In the selected OECD countries, monitoring is conducted by the central government, local government, or the CPP. This is also the case with the selected ASEAN countries. Monitoring is conducted by the local government in Cambodia and Lao PDR. In Indonesia, the local government conducts it irregularly. In Malaysia, it is conducted by the central government. In Myanmar, it is conducted by both the central government and local government. In Thailand, the CPP conducts the monitoring and submits the results to the central government.

#### (2) Reporting to authority

In the selected OECD countries, the situation differs from one country to another. In the case of New South Wales in Australia, it is not obligated to report emission data. Accordingly, it is not obligatory to keep the emission data. Instead, the CPP must publish the air pollution status. In Germany, a CPP operator must periodically report the monitoring results. In Japan, the central or

local government may require the CPP operator to report the status of air pollutant emissions. In the United States, the CPP operator must report the continuous monitoring status. The situation varies among the selected ASEAN countries as well. In Cambodia and Lao PDR, the CPP must submit the emission data every month based on the agreement with the local government. In Indonesia, the CPP must submit the emission data to the central and local governments based on the law. The frequency of submission is every 3 months when continuous emission monitoring systems (CEMS) are used, and every 6 months when manually measuring. Malaysia has a CEMS. In Myanmar, the CPP must submit the emission data to the central government at least every 6 months based on the law. In Thailand, the CPP must submit data twice a year.

Archive requirements also vary among the selected OECD and ASEAN countries. Australia and Thailand for example, have no archive requirements. Even in the countries with archive requirements, the archiving period varies from 6 months to 3 years.

### (3) Inspection

The situation differs among the selected OECD countries. In NSW, Australia, mandatory audits may be required as a condition of a licence if the Environment Protection Authority (EPA) reasonably suspects violation of emission standards. In Germany, the law requires mandatory environmental inspections to be done at least every 1 to 3 years. In Japan, the national or local government may conduct official inspections. In the United States, the EPA's policy is self-policing.

Among the selected ASEAN countries, the central government inspects with telemeters in Cambodia. In Indonesia and Lao PDR, inspections are conducted by the central and local governments. In Malaysia, Myanmar, and Thailand, inspections are conducted by the central government.

No independent inspector is legally requested in either the selected OECD or ASEAN countries.

### (4) Public announcement

Air pollutants are emitted from industrial boilers and vehicles as well as CPPs. Accordingly, the regional air pollution status consists of a combination of different emission sources of air pollutants. The selected OECD countries regulate the regional air pollution status as well as emissions of air pollutants from the CPP. This is also the case with the selected ASEAN countries.

In regulating the air pollutants, it is important for the local community to always know the air pollution status. In the selected OECD countries, the central or local government generally publishes the air pollution status through websites or on screen monitors. The situation differs among the

selected ASEAN countries. In Cambodia, the central government publishes the air pollution status through its website, while in Malaysia the status is published on a screen monitor. In Lao PDR, the local government publishes the regional air pollution status. In Myanmar, the CPPs publish the air pollution status inside the plants. In Thailand, the air pollution status is published in the annual report submitted by the CPP's operator. In Indonesia, the central government is developing a data collecting and publishing system.

#### (5) Summary

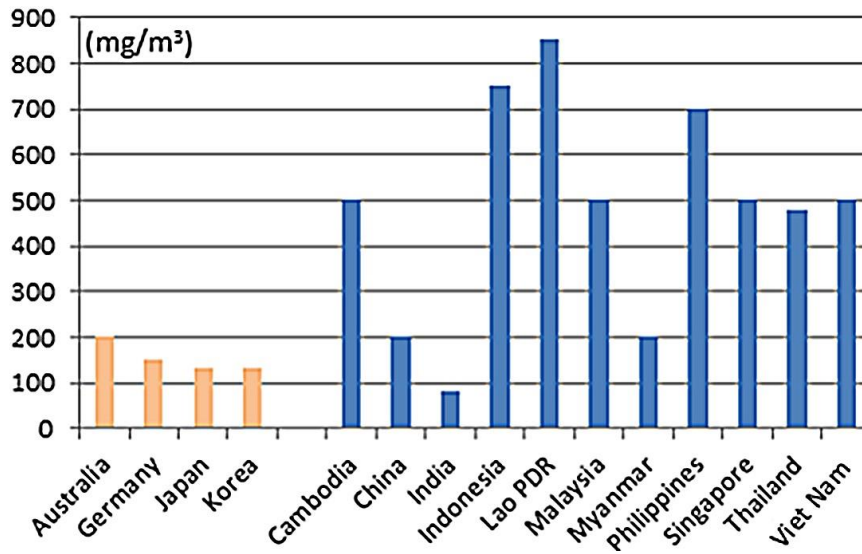
The management system status differs among the selected OECD and ASEAN countries.

### **3. Emission standard for CPPs**

Figures 3 to 5 compare the national emission standards for CPPs for SO<sub>x</sub>, NO<sub>x</sub>, and PM. It is necessary to note that the data are not actual emission values. Where the standards differ depending on the operation start year of the plant, a newly constructed CPP was adopted. Where they differ depending on the plant scale, the large-scale case was adopted. Where they differ depending on the period, the daily basis (or 24 hours) was adopted. SO<sub>x</sub> and NO<sub>x</sub> have different units from one country to another. In the countries where ppm is used, accordingly, it is converted into mg/m<sup>3</sup>, regarding them as SO<sub>2</sub> and NO<sub>2</sub>, respectively.

SO<sub>x</sub> is higher in the selected ASEAN countries than in the selected OECD countries. NO<sub>x</sub> is lower in the selected OECD countries except for Australia. For PM, the regulation values in the selected ASEAN countries are approximately the same as those in Australia and Japan, except for Cambodia.

**Figure 3: Comparison of emission standards in selected countries (SOx)**

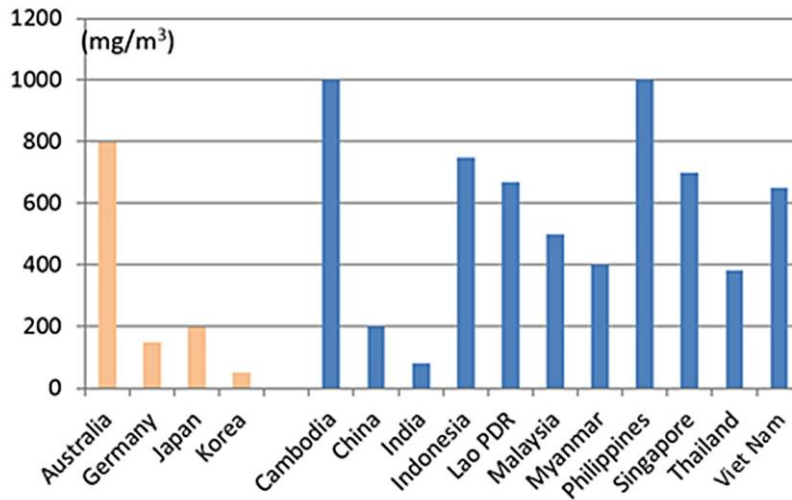


mg/m<sup>3</sup> = milligrams per cubic metre, SOx = sulphur oxides.

Note: Japan: Example of Agreement of specific CPP. China: Regulation in key region.

Source: Authors.

**Figure 4: Comparison of emission standards in selected countries (NOx)**

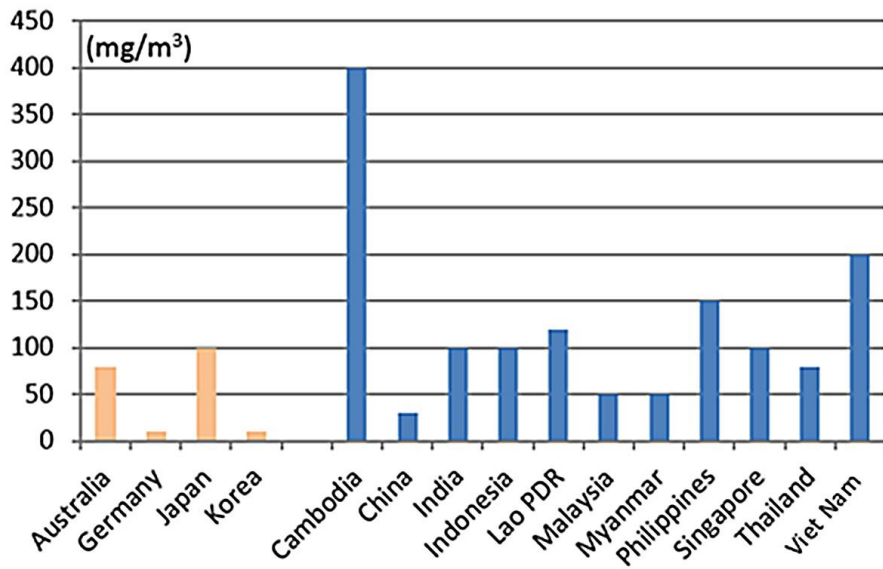


mg/m<sup>3</sup> = milligrams per cubic metre, NOx = nitrogen oxides.

Note: China: Regulation in key region.

Source: Authors.

Figure 5: Comparison of emission standards in selected countries (PM)



mg/m<sup>3</sup> = milligrams per cubic metre, PM = particulate matter.

Note: China: Regulation in key region.

Source: Authors.