



Ministry of the Environment
Government of Japan

IGES
Institute for Global
Environmental Strategies

WEPA

Water Environment Partnership in Asia

WEPA International Workshop on Industrial Wastewater Management

10 February 2023

Siem Reap, Cambodia (+ online)

WEPA International Workshop on Industrial Wastewater Management

Agenda

- **Opening remarks and framing presentation:** questionnaire survey report, [Kazuyuki Yagi, WEPA Secretariat](#)
- **Keynote lecture:** Living in Harmony with Water: “Sustainable Man and Biosphere Systems”, [Prof. Motoyuki Suzuki, WEPA Advisor](#)
- **Case study report 1:** From end-of-pipe solutions to circular economy approach to industrial wastewater management in Asia - Case studies in seafood processing and textile industry, [Dr. Ngoc-Bao Pham, WEPA Secretariat](#)
- **Case study report 2:** Waste water management in a beverage industry in Cambodia, [Mr. Vathanak Sung and Mrs. Heng Helen, the HEINEKEN Company, Cambodia Brewery Limited](#)
- **Case study report 3:** The implementation of TMDL and Industrial Wastewater Management in Indonesia, [Prof. Tjandra Setiadi, Indonesia](#)
- **Interactive discussion**

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Water Environment Partnership in Asia

Questionnaire Survey Report



10 February 2023

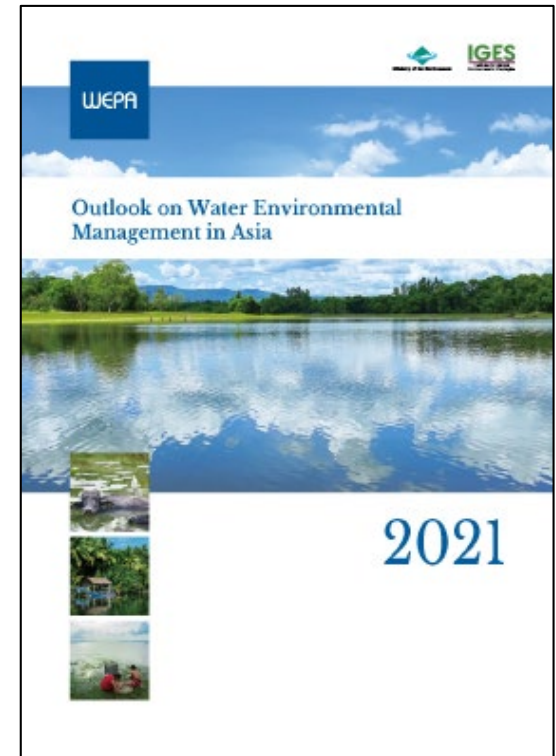
WEPA secretariat



Institute for Global Environmental Strategies (IGES)

■ WEPA Outlook on Water Environmental Management in Asia 2021

- The updates on water environment governance in each WEPA Partner Country before 2020 are covered;
- Moreover, we plan to disseminate further information on the country updates by uploading on the WEPA website.
- The WEPA secretariat is grateful to the focal persons and the collaborators of the following WEPA partner countries for their contributions and constructive input, as well as their support in the preparation of this publication.
- We also extend our appreciation to the WEPA Advisory Board for their guidance and invaluable input.



WEPA FY2022 Questionnaire Survey

- Focusing on “Compliance with Regulations in Industrial Wastewater Management”, a questionnaire was sent to each FP in November;
- The results of the survey are compiled by the secretariat, along with information from past surveys and information included in the WEPA Outlook 2021;
- Also, the secretariat requested update reports from partner countries at the 18th WEPA Annual Meeting as shared in the questionnaire;
- The above information will be compiled and disseminated on the WEPA website.

WEPA FY2022 Questionnaire Survey on Water Environment Governance

Please provide the information of the STATE OF WATER QUALITY AND ITS MANAGEMENT in your country. In the past eighteen years, WEPA has been taking various actions to improve the water environment governance. Since the start of the 4th phase of WEPA activities, we have been conducted a series of survey to monitor the impacts of such activities to the water environment policies so that WEPA can adjust its program as needed and provide better services to the region.

In this FY2022 Questionnaire Survey, we will focus on COMPLIANCE WITH REGULATIONS IN INDUSTRIAL WASTEWATER MANAGEMENT in WEPA partner countries in order to share updated information among the countries, in line with the WEPA Basic Policy in its 4th Phase. The WEPA Secretariat will compile and analyze results of the survey, together with the results of previous questionnaire surveys (including the information in the WEPA Outlook 2021). The Questionnaire is designed to ask only the latest changes of water environment governance that update already collected information (such as that in the WEPA Outlook 2021) as much as possible, in order to minimize the work load of WEPA Focal Points.

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For all responses, please feel free to refer to the WEPA Outlook 2021 (http://www.wepa-db.net/en/publication/2021_outlook/index.html) or WEPA Database (<http://www.wepa-db.net/database.html>). If there are reference documents available, please kindly submit them together with your responses to the questionnaire by email to the WEPA secretariat at wepa-secretariat@iges.or.jp (If English versions are unavailable, you are most welcome to submit the documents in the original language).

Thank you very much in advance for your cooperation.

21 November 2022
WEPA Secretariat

WEPA FY2022 Questionnaire Survey Results

Q2.1 Please rate the significance of each **type of industry** as a pollution source in your country

	average	Cambodia	China	Indonesia	Japan	Lao_PDR	Malaysia	Myanmar	Nepal	Philippines	Republic of Korea	Sri Lanka	Thailand	Viet Nam
Food, beverages, tobacco	3.9	4	3		5	3	4	4	3	5	4	4		
Textile, apparels, leather	3.7	3	3		3	3	4	5	3	4	4	5		
Wood, wood products	2.8	1	1		3	3	3	4	3	3	4	3		
Paper, paper products, printing	3.3	3	1		3	3	5	5	2	4	4			
Chemicals, chemical products	3.6	2	3		5	1	4	5	2	4	5	5		
Pharmaceuticals, medicinal chemical products	3.3	1	3		5	1	3	4	3	5	3	5		
Rubber and plastics products	3.0	1	3		3	1	5	4	3	4	2	4		
Metal manufacturing	3.2	1	3		5	1	3	5	1	4	4	5		
Electrical equipment	2.5	1	2		3	1	2	4	1	3	5	3		
Machinery and equipment	2.6	1	3		3	1	2	3	1	3	5	4		
Motor vehicles, other transport equipment	2.5	1	2		3	1	2	3	3	4	2	4		
Livestock industries	3.6	3	4		4	2	4	4	4	5	2	4		
Mining and quarrying	3.8	3	3		3	4	5	5	4	5	2	4		
Petroleum refining	3.2	1	2		4	1	3	5	1	5	5	5		

5	Very high
4	High
3	Moderate
2	Low
1	Very low

WEPA FY2022 Questionnaire Survey Results

Q3. Please confirm **the state of industrial effluent standard** for your country shown in Table 1.7 of the WEPA Outlook 2021, **any changes?**

- Changes in structure of standards [Cambodia]
- Ministry has published a gazette to limit effluent standard before its disposal to water bodies along with specified test procedure [Nepal]
- A new General Effluent Standards for selected parameters is now being implemented [Philippines]
- Gazette notification prescribing the standards for discharge of industrial effluents has been released [Sri Lanka]

WEPA FY2022 Questionnaire Survey Results

Q4. Please confirm **the responsibility for effluent monitoring** for your country shown in Table 1.8 of the WEPA Outlook 2021, **any changes?**

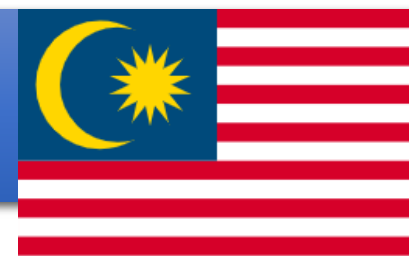
- “Self-Monitoring” system for potential polluters; discharge permit for Industries; Inspection teams creation [Cambodia]
- The owner of the premises shall maintain a record; The discharge monitoring data must be submitted monthly [Malaysia]
- Legal instrument for the monitoring is under process [Nepal]
- Environmental Management Bureau is issuing the Wastewater Discharge Permit [Philippines]
- Central Environmental Authority branch officers have the authority on inspections and sampling for effluent quality of selected industries [Sri Lanka]

WEPA FY2022 Questionnaire Survey Results

Q5. STATUS OF MONITORING/INSPECTING INDUSTRIAL EFFLUENTS

		Cambodia	Lao_PDR	Malaysia	Myanmar	Nepal	Republic of Korea	Sri Lanka
Q5.1. Do you regularly inspect the industrial effluent?		Yes	No	Yes	Yes	No	Yes	Yes
Q5.2. If Yes in Q5.1, do you inspect all types of industries or select particular types or sizes of industries for inspection?		Textile, printing, chemical industry, beverage and food processing industries		inspect all types of industries	inspect all types of industries		inspect all types of industries	inspect all types of industries
Q5.3. Please provide number of inspections to you made	Year	2021		2020	2020/2021			2022
	Total number of inspections	395		10310	481			48316
	Number (or ratio) of complied entities/plants	NA		9918			Data is not available, because the authority of the inspection was transferred to local government	45231
	Number (or ratio) of NOT complied entities/plants	16		392				3085
	Compliance rate	0.96		0.96				0.94
	Remarks			Data are provided for each major pollution industry				Data are provided for each degree of pollution loads (high, moderate, low)

5. Compliance with regulations for effluent standards



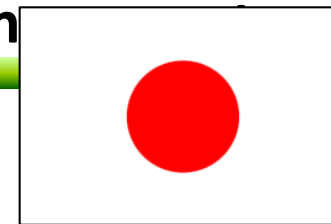
Type of Industry	Total No. of Inspection (physical & desktop)	Percentage of complied premises	Percentage of NOT complied premises
Palm Oil Milling*	2,496	95%	5%
Natural Rubber Processing*	438	94%	6%
Scheduled Waste Disposal & Treatment*	1,604	96%	4%
Manufacturing*	5,772	99.75%	0.25%
TOTAL	10,310	97.8%	2.2%

*Source: 2020 Annual Report, DOE



4.2 Industrial Wastewater Management - December, 2022

Category	No. of Industries	EPL status
A (High)	1000	960 (96.0%)
B (High)	14292	14189 (99.2%)
C (Medium)	11162	11019 (98.7%)
D (Low)	21644	17855 (82.5%)
Total	48098	91.5%



		FY2017	FY2018	FY2019	FY2020
Number of specified establishments		262,187	262,233	261,251	257,806
Average effluent more than 50m³/day		31,441	31,195	30,749	30,551
Notification	Article 5 (Establishment of Specified facilities)	6,477	7,490	7,276	6,051
	Article 7 (Structure changes etc.)	4,115	4,108	4,066	3,700
	Article 8 (Order to change plans)	0	0	0	0
Number of establishments inspected (Article 22.1)		36,194	36,323	34,696	28,405
Inspection during night		484	390	519	438
Order for Improvement (Article 13)		11	16	18	4
Order to suspend operation (Article 13)		2	1	0	1
Order to purify groundwater (Article 14.3)		0	0	0	0
Number of administrative direction (Public Water)	In writing	2,235	2,261	2,130	1,809
	Oral	5,565	5,446	5,308	4,187
	Total	7,800	7,707	7,438	5,996
Contents of administrative direction (Public Water)	Installation or improvement of wastewater treatment facilities	1,960	2,030	1,749	1,440
	Temporary suppression of effluent	17	19	17	17
	Others	6,017	6,341	6,412	5,016
	Total	7,994	8,390	8,178	6,473
Violation of effluent standards (Article 31.1.1)		1	8	1	3
Violation of order for improvement (Article 30)		0	0	0	0
Violation of water pollution control law (others)		0	0	0	0
Measures to be taken in case of an accident		520	524	449	483

Analysis by the WEPA Secretariat:

The status of monitoring/inspecting industrial effluents in WEPA partner countries

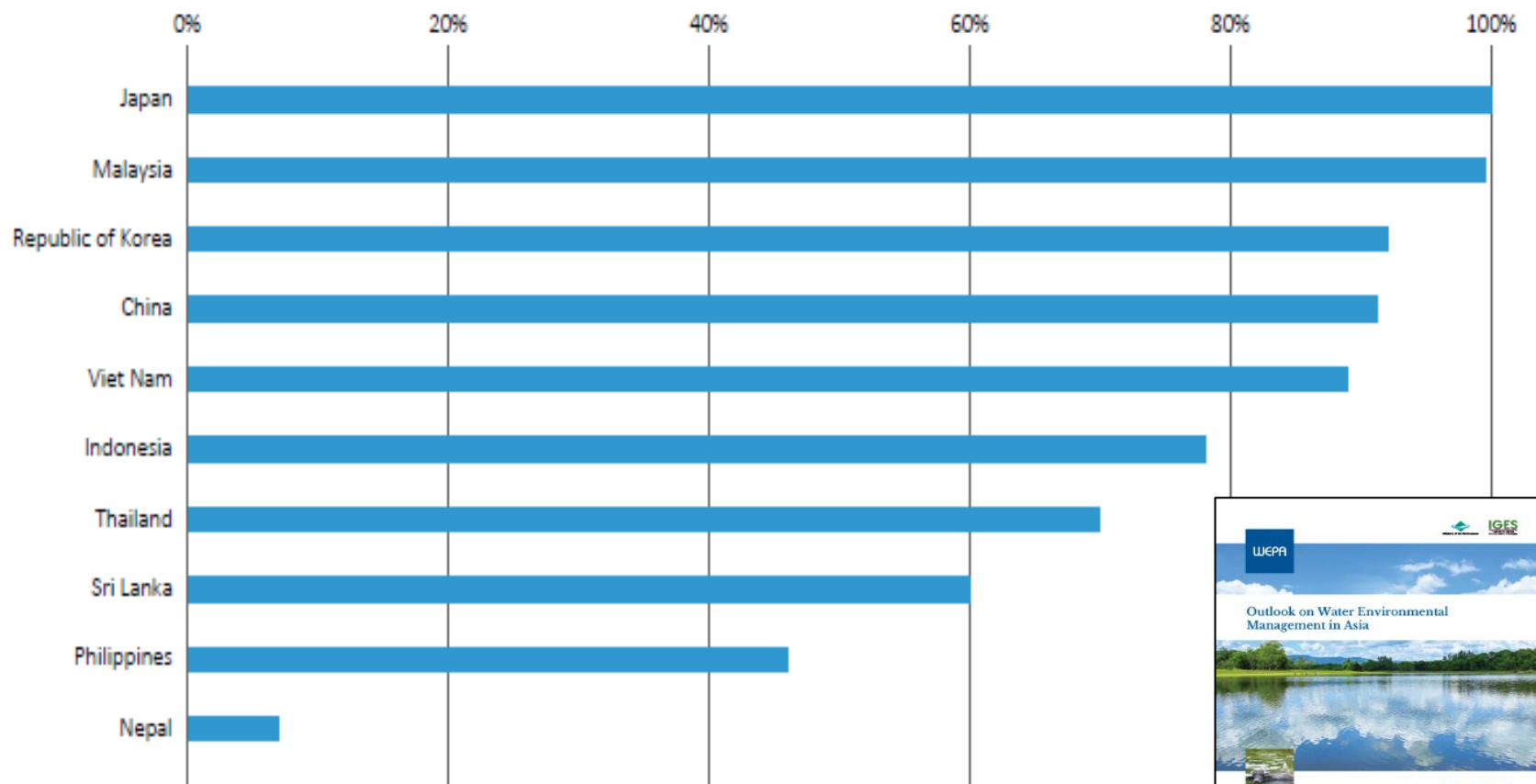
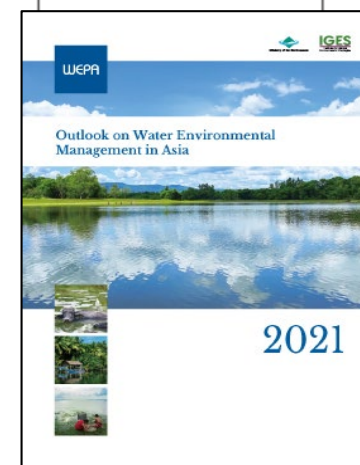


Figure 1.3 Compliance rate of industrial effluent standards in WEPA countries



WEPA FY2022 Questionnaire Survey Results

Q5. STATUS OF MONITORING/INSPECTING INDUSTRIAL EFFLUENTS

		Cambodia	Lao_PDR	Malaysia	Myanmar	Nepal	Republic of Korea	Sri Lanka
Q5.4. Please provide information of measures for non-compliance of effluent quality in your country in 2020 (or latest year): 2021	Technical advice 技術指導	10			396			
	Additional inspections 追加の査察	4						
	Issuing legal notice to fix problem 行政指導	10		3059	85			144
	Monetary penalty (fine) 罰金	6		1314				
	File criminal charges/ court actions 刑事告発／訴訟	0		148				63
	Revoking or moratorium on the license 認可取消し・一時停止	16						

WEPA FY2022 Questionnaire Survey Results

Q7.2. Any suggestions for **further strengthening/enhancing** our WEPA contributions to improve water governance in WEPA partner countries:

- **Training or research** on particular type of wastewater management [Cambodia]
- Research on water quality **interlinked with climate change impacts** [Cambodia]
- Continued support of **domestic wastewater** management systems [Lao PDR]
- **Engagement** of implementation agencies, the lawmakers or the correct designated parties in partner [Malaysia]
- **Capacity building** related to the water governance [Myanmar]
- Assistance to develop **mechanism for monitoring and compliance** practices [Nepal]
- **More specific emerging issues** and discuss those topics in detail to figure out one country's policies and related challenges [Korea]
- **Continue holding this kind of gathering/workshop** for additional knowledge of the other members [Philippines]
- Technical support and knowledge exchange regarding implementation of **polluter pays principle** [Sri Lanka]

WEPA FY2022 Questionnaire Survey Results

Q7.3. Does your country have **an interest** in particular water governance issues, water body, theme, etc. that will be focused in WEPA activities?

- Develop **strategy document** on water quality governance [Cambodia]
- Water pollution load governance, such as application of **TMDL** [Malaysia]
- Wastewater management and treatment through **integrated/centralized system** [Malaysia]
- **Constructed wetlands** as an alternative method in sewage treatment in island and rural area [Malaysia]
- The issue of **industrial waste** degrading the water environment [Nepal]
- **Micropollutants and microplastic** in ambient water [Korea]
- Knowing **success stories** about projects/programs implemented which could be replicated in our country [Philippines]
- **Damage assessments** related to water pollution [Sri Lanka]

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