Regulating Electronic Waste in Thailand
Government Consultation Workshop

August 27 – 28, 2024

The Berkeley Hotel Pratunam, 559 Ratchaprarop Rd. Makkasan, Ratchathewi, Bangkok 10400, Thailand

Organized by: International Telecommunication Union

WORKSHOP REPORT

1. Background

This is a public sector consultation workshop on the national regulation of e-waste, designed for ministries and departments of the Government of Thailand. It forms the first in a series of public and private sector consultations, made possible through a project implemented by the International Telecommunication Union (ITU), with financial support from the Government of Australia.

In Thailand, recent consultations and mapping exercises point out that that 90% of e-waste is improperly managed, according to the Pollution Control Department (PCD). Most of the remaining 10% of e-waste is collected by producers, whilst 80% of what is generated has the potential for recycling. Exacerbating the challenges of locally generated e-waste, Thailand has been facing significant challenges due to rising quantities of imported e-waste in the region. A new law on the disposal of waste e-waste is being drafted to ensure that responsibility of private stakeholders is extended to the end-of-life of electronics.

In this regard, the National Broadcasting and Telecommunications Commission (NBTC) and the PCD are receiving technical assistance through the ITU project to develop a technical proposal with sounds recommendations for a legal regime, administrative arrangements and financing mechanism for the governance of e-waste management under extended producer responsibility (EPR) in Thailand.

In view of the cross-cutting nature of e-waste and circular economy, it is important that all relevant government stakeholders are consulted on the implementation steps for a legally transparent and appropriately financed system for the environmentally sound management of e-waste in Thailand.

This consultation workshop will offer the opportunity to gather technical inputs from government stakeholders on the legal, administrative, and financial modalities of the management of e-waste in Thailand.

Key stakeholders are invited by formal invitation by PCD to participate in this workshop.

1.1 Workshop Objectives

- Review the current state of the regulatory environment for e-waste management, including complementary legal frameworks and existing procedures.
- Explore linkages and alignment among ongoing initiatives and stakeholders, consolidating key stakeholder commitments to strengthen e-waste management with a clear role of electronics producers.
- Strengthen the national coordination mechanism to guide multi-stakeholder efforts in creating recommendations for a legal regime, administrative arrangements, and financing mechanism for e-waste management.
- Agree on a process for identifying areas for action in national e-waste management, with necessary policy tools and principles. Identify key challenges and barriers to implementing sustainably financed e-waste management regulation and recommend actions to overcome these.
- Provide initial inputs towards a technical proposal report to support the Government of Thailand in its policymaking, addressing the growing amounts of e-waste and the complexities of implementing producer responsibility for this waste stream.

2. Participants

Over 35 participants from the following departments attended Day 1 & Day 2 of the workshop.

- Ministry of Natural Resources and Environment
  - Pollution Control Department
  - Department of Climate Change and Environment
  - Office of Natural Resources and Environment Policy and Planning
- Ministry of Industry
  - Department of Primary Industries and Mines
  - Department of Industrial Works
  - Thai Industrial Standards Institute
  - Electrical and Electronics Institute
- Ministry of Public Health
  - Department of Health
- Ministry of Interior
  - Department of Local Administration
- Ministry of Higher Education, Science, Research and Innovation
  - National Metal and Materials Technology Center
- National Broadcasting and Telecommunications Commission
- Greenhouse Gas Management Organization
- Office of the Consumer Protection Board

3. Workshop Agenda and Report

3.1 Opening Session

27 August 2024, 08:45 – 10:00
Moderator: Ms. Noémie Pralat, E-waste Policy Consultant, Environment and Emergency Telecommunications Division, BDT, ITU.
Speakers: ● Dr. Atsuko Okuda, Regional Director, ITU Regional Office for Asia and the Pacific ● Dr. Phanit Ratasuk, Director of Waste and Hazardous Substances Management Division, Pollution Control Department, Government of Thailand. ● Ms. Theetanun Rattanasanyanuphap, Executive Director, Telecommunications Policy and Resources Management Bureau, National Broadcasting and Telecommunications Commission, Government of Thailand. ● Mr. John Francis, Counsellor for Development, Australian Embassy to Thailand.

On behalf of ITU, Ms. Noémie Pralat welcomed all the participants to the Regulating Electronic Waste in Thailand Government Consultation Workshop and invited the distinguished speakers to deliver their opening remarks.

Dr. Atsuko Okuda, Regional Director, ITU Regional Office for Asia and the Pacific, began by highlighting the ITU's pivotal role in advancing ICT infrastructure and promoting sustainable digital transformation. She underscored the importance of e-waste management as a critical component of ITU's broader efforts to foster a green digital economy. Dr. Okuda also acknowledged the support of the Australian Government and the valuable collaboration with the PCD and the NBTC.

Dr. Phanit Ratasuk, Director of Waste and Hazardous Substances Management Division, PCD stressed the urgency of addressing the escalating e-waste problem in Thailand. She introduced the E-waste Act, which emphasizes the extended producer responsibility (EPR) model as a key strategy. The department expressed its goal to develop a transparent and sustainable e-waste management system through the insights and discussions generated by this workshop.

Ms. Theetanun Rattanasanyanuphap, Executive Director, Telecommunications Policy and Resources Management Bureau, NBTC discussed the telecommunications sector's significant role in supporting a clean digital transformation. They highlighted ongoing efforts in renewable energy, waste management, and cross-departmental collaborations. However, they also raised concerns about the burden of waste management on small operators and emphasized the need for shared solutions to mitigate these challenges.

Mr. John Francis, Counsellor for Development, Australian Embassy to Thailand representing the Australian Government, recognized e-waste as a critical and growing issue. He expressed Australia's pride in supporting the workshop and the broader efforts to improve e-waste management in Thailand. He emphasized the need for "fit-for-purpose" policies, tailored to effectively address the specific challenges of e-waste management in different contexts. He also highlighted importance of having policies that are not only legally sound but also practical, enforceable, and adaptable to evolving technological and environmental landscapes.

3.2 Introductory Session

27 August 2024, 09:30 – 10:30
Moderator: Ms. Noémie Pralat, E-waste Policy Consultant, Environment and Emergency Telecommunications Division, BDT, ITU.
Speakers: ● Mr.Sameer Sharma, Senior Advisor, ITU Regional Office for Asia and the Pacific ● Ms. Wanich Sawayo, Director of Hazardous Waste Subdivision, PCD

The presentation delivered by **Mr. Sameer Sharma, Senior Advisor at the ITU Regional Office for Asia and the Pacific,** focused on the ITU's strategic initiatives aimed at establishing a circular economy for electrical and electronic equipment (EEE) in Thailand. The presentation outlined the growing importance of sustainable e-waste management as a critical component of Thailand's digital transformation and its alignment with global sustainable development goals (SDGs).

Ms. Wanich Savayo, the Director of the Hazardous Waste Section, PCD presented the **current situation** of e-waste management in Thailand. Every year around 400 000 tonnes of e-waste were generated accounting for a large share of the 600 000 tonnes of household hazardous waste (HHW) in the country. But, 90% was sold to backyard recycling in the Northeast posing environmental and health threats.

PCD is now in the process of drafting a legal framework to introduce EPR for e-waste management. The **Draft E-waste Act** has undergone multiple rounds of public consultation, with feedback from various stakeholders, including the industrial and private sectors. The Act will target priority products such as television sets, refrigerators, air conditioners, personal computers, and mobile phones. It can also cover new products such as solar panels (PV) and electric vehicles (EV) and spent batteries.

The act envisions a **producer responsibility organization** (PRO) model with an opt-out option for individual producer responsibility (IPR) where a responsible producer submits its own compliance plan to the PCD. The PROs (and IPR plans) must meet the collection and recycling targets. Consumers will have the obligations to properly sort and discard designated products while local government organizations (LGOs) have to organize facilities and/or collection services for separate collection. LGOs have to forward collected e-waste to the PROs in exchange to the financial support. There is currently no obligation on distributors in the draft.

3.3 Case studies on E-waste

27 August 2024, 11:00 – 12:00
Moderator: Ms. Noémie Pralat, E-waste Policy Consultant, Environment and Emergency Telecommunications Division, BDT, ITU.
Speakers: ● Dr. Panate Manomaivibool, Consultant, ITU.

Dr. Panate Manomaivibool, Assistant Professor International College, Burapha University, and ITU Consultant reviewed international experiences of the implementation of EPR on the management of e-waste. He suggested that there is **no one best way** to implement EPR. Different types of physical, financial and informative responsibilities can be extended to fit the local context of the target industries and existing waste management systems.

For example, in Japan and South Korea with strong presence of major domestic manufacturers, the EPR programs showed a stronger focus on **physical management**, which in turn, provided stronger feedback and better understanding of the cost structure and recycling technologies.

Most other EPR programs rely more on **financial mechanisms**. PRO models offer flexibility over a governmental fund in financial management. EPR fees can be charged based on a market share

or a return share. In addition, multiple PROs can be created to meet different needs of the industries.

It has also showed that competition can drive down the compliance cost but this should not be achieved at the expense of effectiveness. Effective regulations and enforcement require coordination between related agencies and cooperation from stakeholders.

3.4 Case Study on E-waste Regulatory Framework in Singapore

27 August 2024, 13:00 – 14:30
Speaker: ● Tng Mei Ling, Deputy Director/Chief Engineer, Waste Management Division, National Environment Agency, Singapore.

TNG Mei Ling provided an overview on the Extended Producer Responsibility (EPR) scheme for E-waste management in Singapore. During the discussion, she emphasized the importance of **stakeholder engagement**, highlighting that effective management of e-waste cannot be imposed through top-down approaches. Instead, extensive industry consultations and focus groups were conducted, ensuring that key players such as manufacturers, retailers, and recyclers had the opportunity to contribute. This inclusive approach not only facilitated a better understanding of industry challenges but also promoted ownership of the policy framework, minimizing resistance and ensuring smoother implementation.

She also touched on the **legislative framework**, underscoring the critical role of the Resource Sustainability Act (RSA) in providing the legal backbone for the Extended Producer Responsibility

(EPR) scheme. She highlighted the single Producer Responsibility Organization (PRO) model that is currently in operation in Singapore.

Furthermore, she mentioned the significance of **voluntary partnerships**, which operate alongside the RSA. These partnerships, particularly for small household appliances and electric toys, complement the mandatory regulations with clearly defined guidelines.

On the topic of **enforcement**, she emphasized that no regulatory framework can be successful without effective enforcement mechanisms. She highlighted the importance of monitoring, inspections, and penalties to ensure compliance with the RSA, creating a deterrent effect that encourages stakeholders to fulfill their obligations. Robust enforcement, she pointed out, ensures a level playing field and maintains the integrity of the e-waste management system.

She also detailed the **role of the EPR regulator**, stating that it goes beyond mere oversight. The regulator's responsibilities include maintaining stakeholder support, ensuring fair competition through a fee structure based on market share, conducting regular audits, and managing public communications. These tasks are vital in upholding transparency and trust in the system, while also ensuring the scheme's long-term sustainability.

Additionally, she discussed the **inclusion of the informal sector**, recognizing its role as an important collection avenue for the PRO. By integrating the informal sector into the formal system, the framework increases e-waste collection rates and reduces environmental risks associated with informal recycling practices.

She highlighted the importance of **feedback mechanisms**, explaining that the system is now in its third year and is continuously refined based on feedback from stakeholders and enforcement activities. This iterative process enables the framework to adapt to evolving challenges and ensures it remains relevant and effective.

Finally, she stressed that **stakeholder support** is the linchpin of the scheme's success. Without the backing of producers, government agencies, consumers, and the informal sector, the framework would falter. Ensuring transparent communication and addressing stakeholder concerns are key to building and maintaining this support.

3.5 Breakout Groups: Producer Responsibility Organization (PRO) Models

27 August 2024, 14:30 – 16:00
Facilitators: Dr. Panate Manomaivibool (ITU), Ms. Harshita Mehta (ITU), Mr. Patarapol Tularak (BFS).
The first breakout group discussed different models of PRO implementation. Group 1 looked at the scenario of having one PRO for all types of products, i.e. a national PRO model. Group 2 considered the implications of having multiple, sectoral PROs that do not compete with one another. Group 3 then analyzed the advantages and disadvantages of competition between PROs in the competitive PRO model.

Group 1: **A national PRO**. The group suggested that the strength of this model was **uniformity**. Having all producers join a national PRO can ensure uniformity, create economy of scale and

streamline monitoring and reporting. On the other hand, the **monopoly** may result in inefficiency and the collection and recycling targets should be frequently reviewed and increased. In addition, the PRO must have a mechanism to cater different needs and requirements from different sectors of this diverse industries.

Group 2: **Multiple sectoral PROs**. The group found that **segmentation** should be a way forward if the Act would cover products from different industry sectors, in particular, PV, lighting equipment and EVs. But, having multiple PROs would require more **coordination**. The sectoral PROs must coordinate to avoid causing confusion and complications for producers many of whom offer a broad range of products, consumers, LGOs, and recyclers.

Group 3: **Competing compliance organizations**. The group highlighted the advantages of competition, which can result in better **cost effectiveness and flexibility** for the producers to comply with the new law. On the other hand, the regulator must ensure consistency between different schemes and the services provided to different areas. Standards must be set to ensure quality of services and avoid **disparity in implementation**.

3.6 Day One Wrap-Up

27 August 2024, 16:00 – 16:10
Speaker: ● Mr. Sameer Sharma, Senior Advisor, Regional Office for Asia and the Pacific.

3.7 Day One Recap

28 August 2024, 09:15 – 9:130
Speaker: ● Mr. Sameer Sharma, Senior Advisor, Regional Office for Asia and the Pacific.

3.8 The Future PRO Model for the Management E-Waste in Thailand

28 August 2024, 9:30 – 10:30
Speaker: ● Ms. Wanich Sawayo, Director of Hazardous Waste Subdivision, PCD

Ms. Wanich Savayo, the Director of the Hazardous Waste Section, PCD presented the **future PRO model**, as envisioned in the Draft E-waste Act. The latest version of the Draft Act completely abandoned the concept of a governmental fund for EPR implementation. The National Environmental Fund would only collect fines and financial penalties from non-compliance but not any advanced recycling fees (ARFs).

The provisions are now written in a way that would allow **multiple PROs** to be set-up to avoid monopoly. In addition, producers can submit the compliance plan individually, i.e. IPR. The PROs under this law will have to be registered as a not-for-profit organization and required authorization from the PCD to operate. In addition, there are roles and responsibilities on other stakeholders, in particular, the consumers and LGOs.

3.9 Breakout Groups: Identify Gaps for Capacity Building

28 August 2024, 10:30 – 12:00
Facilitators: Dr. Panate Manomaivibool (ITU), Ms. Harshita Mehta (ITU), Mr. Patarapol Tularak (BFS).
The second breakout group discussed different aspects of EPR implementation and the needs for capacity building in Thailand as part of the preparation for the new law. Group 1 analyzed the flows of e-waste and the future physical management, as prescribed by the Draft Act. Group 2 looked at the financial mechanisms including the calculation of EPR fees, the provisions of future guarantees and the issues of free riders. Group 3 discussed the data requirements, registration, reporting obligations and capacity for monitoring and effective enforcement.

Group 1: **Physical management**. The group mapped the current physical flows of e-waste and identified the **existing information sector** as both a driver for recycling and a hotspot for environmental pollution. The future system will have to be inclusive trying to upgrade and integrate this sector into the management otherwise the competition from backyard recycling could undermine the implementation of the law. There is also a need for a capacity building for LGOs in organizing effective separation collection. The group also discussed the possible roles that distributors can play in improving the success of product take-back.

Group 2: **Financial management**. The group was in favor of the **market-share model**, which is used in many countries. The return-share model would require additional sorting requirement at the recyclers and additional cost while the future guarantees have not been fully developed even in advanced countries. However, the group acknowledged that limitation of linking the fees with product design as the new products will have to pay for the management of historical waste. Artificial incentives can be added through eco-modulated fees that reward eco-labeled products and reuse. In addition, there can be the issue of fairness in a changing market where new companies are replacing the old incumbents.

Group 3: **Data management**. The group outlined the available data under the existing laws. However, it was noted that the **existing data were incomplete, somewhat unreliable and fragmented**. Therefore, the future system will need to clearly describe data requirements, data collection and validation methodology, information management system, and reporting obligations. This is an area where there is an urgent need for capacity building

3.10 Breakout Groups: Priority Products

28 August 2024, 13:30 – 15:00
Facilitators: Dr. Panate Manomaivibool (ITU), Ms. Harshita Mehta (ITU), Mr. Patarapol Tularak (BFS).

In the third breakout group, all three groups discussed the same issue. They looked at the selection criteria in the Draft E-Waste Act:
1) Containing hazardous substances that can cause harms to public health and the environment if dismantled improperly;
2) Having high handling costs for parts and residues that need to be treated properly; and,
3) Containing precious metals or rare elements that should be recovered.
Then, they discussed whether other products should be included in addition to the 5 items: television sets, refrigerators, air conditioners, personal computers, and mobile phones.

All groups have confirmed the basis of product selection. **Cooling appliances** should be regulated due to the concerns over ozone depletion and climate change. **Display devices** contain heavy metals and must be handled properly. And, **ICT equipment** contains strategic materials that should be recovered. In addition to the five products, others that were suggested in the prioritization include: fluorescent lamps in order to speed up the obsolescence of the technology, PV, copiers and network devices, which could be organized similar to the B2B requirements in Singapore. The opinion on EVs was different and many thought this category should be managed under a separate framework for end-of-life vehicles (ELVs) that the Department of Land Transportation is working together with the PCD and the DIW.



3.11 Extended Producer Fee Mechanism for E-waste in Thailand

28 August 2024, 15:30 – 15:50

Speaker:
Mr. Patarapol Tularak, Consultant, BlackForest Solutions GmbH

Mr. Tularak presented the workplan and methodology for the study of EPR fee mechanism in Thailand led by BFS. The main activities include: 1) data collection on e-waste management costs such as operation, transportation, compliance and administration (overhead) costs; 2) calculate costs for each type of e-waste by developing a spread sheet file; 3) facilitate producer consultation and capacity-building sessions and 4) organize stakeholder meetings to support project deliverables.

3.6 Project Next Steps

28 August 2024, 15:50 – 16: 00

Speaker:

Dr. Panate Manomaivibool, Consultant, ITU.

The next steps include completing a situational analysis of Thailand's e-waste legal framework by September 2024, conducting private sector consultation workshops and training on e-waste policy by November 2024, and finalizing a technical proposal for EPR-based e-waste regulation by December 2025.

3.6 Closing Remarks

28 August 2024, 16:00 – 16:15

Speaker:

- Mr. ChatChai Kongaut, Division Director of Telecommunications Policy and Resource Management Bureau, Office of the National Broadcasting and Telecommunications Commission
- Mr. Sameer Sharma, Senior Advisor, Regional Office for Asia and the Pacific.

The session concluded with **Mr. ChatChai Kongaut, Division Director of Telecommunications Policy and Resource Management Bureau, Office of the NTBC** summarizing the key discussions of the workshop. He highlighted the importance of continued collaboration between all stakeholders in addressing the pressing challenges of e-waste management in Thailand. He acknowledged the collective efforts of the participating ministries, departments, and other stakeholders, emphasizing that the success of the future regulatory framework relies on these partnerships. He extended his heartfelt thanks to all partners involved in making the workshop a success.

Mr. Sameer Sharma, Senior Advisor from the ITU Regional Office for Asia and the Pacific, followed with a note of appreciation to the PCD and the NBTC for their leadership and commitment to driving Thailand's e-waste management agenda forward. A special thank you was extended to the Government of Australia for their generous financial support, without which this project would not have been possible. He further acknowledged the invaluable contributions from all participants, whose insights and expertise throughout the day provided the foundation for the next steps in developing an effective and sustainable regulatory framework for e-waste in Thailand. He also expressed his gratitude to the ITU team for their hard work in organizing and facilitating the workshop.

ANNEX Consolidated list of participants

S.No	Participant name	Organisation
1	Wanich Savayo	Pollution Control Department
2	Prapaisri Asanarattanajinda	Pollution Control Department
3	Sirinart Pongyart	Pollution Control Department
4	Darunee Patitang	Pollution Control Department
5	Krisana Branaprasert	Pollution Control Department
6	Khorndanai Nithiphornchaiwong	Pollution Control Department
7	Thanawit Polthaisong	Pollution Control Department
8	Sukanya Paungsawang	Pollution Control Department
9	Pharadanai	Pollution Control Department
10	Nattapong Boonchoom	Pollution Control Department
11	Sajja Champathing	Pollution Control Department
12	Chatchai Kongaut	National Broadcasting and Telecommunications Commission
13	Piroonlak Kanchanaudom	National Broadcasting and Telecommunications Commission
14	Witchuta Thaitrakun	National Broadcasting and Telecommunications Commission
15	Yuwadee Ongkosit	National Broadcasting and Telecommunications Commission
16	Tossapol Sumangkaset	National Broadcasting and Telecommunications Commission
17	Wichanupha	National Broadcasting and Telecommunications Commission
18	Sameer Sharma	International Telecommunication Union
19	Noemie Pralat	International Telecommunication Union
20	Harshita Mehta	International Telecommunication Union
21	Panate Manomaivibool	International Telecommunication Union
22	Xinying Xu	International Telecommunication Union
23	Prap Punyalai	Support
24	Patarapol Tularak	BlackForest Solutions
25	Preeya Ounvisat	Department of Climate Change and Environment
26	Pattaraporn Juprasert	Greenhouse Gas Management Organization
27	Mareeyah Salee	Greenhouse Gas Management Organization
28	Sirirat Khamwaree	Department of Industrial Works
29	Rachanida Phitaksa	Department of Primary Industries and Mines
30	Watsamon Wongpornpakdee	Department of Primary Industries and Mines
31	Alisa Duangsri	Electrical and Electronics Institute
32	Surus Tangpaitoon	Electrical and Electronics Institute
33	Passada	Electrical and Electronics Institute
34	Ting Mei Ling	National Environmental Agency Singapore
35	Samerkhae Jongthammanurak	National Metal and Materials Technology Center
36	Kittinan Annanon	National Metal and Materials Technology Center
37	Thanittha Homsuwan	Department of Health
38	Prapassorn Kajorn	Department of Health
39	Kusuma Rakphao	Office of the Consumer Protection Board
40	Charinee Phanwanna	Office of the Consumer Protection Board
41	Peera Boonyathanon	Unspecified
42	Sasitorn	Unspecified
43	Wisawaphong	Unspecified
44	Nichanant Tadkaew	Unspecified