บทความวิจัย

กฎระเบียบและการบริหารจัดการขยะอิเล็กทรอนิกส์กลุ่มประเทศกำลังพัฒนาทางเศรษฐกิจ: วิเคราะห์มาตรการทางกฎหมายในประเทศไทย*

E-Waste Management Practices and Regulations in Developing Country: An Analysis of Legal Measures in Thailand

วิศิษศักดิ์ เนืองนอง[1]

43/6 หมู่ 11 ตำบลพลับพลา อำเภอเมือง จังหวัดจันทบุรี 22000.

E-mail: not_tyman@hotmail.com

Visitsak Nueangnong[2]

43/6 Moo 11, Phlapphla Subdistrict, Mueang District, Chanthaburi Province 22000. E-mail: not_tyman@hotmail.com

บทคัดย่อ

ไทยเป็นประเทศที่กำลังพัฒนา ถึงแม้ไม่ได้เป็นสมาชิกขององค์การเพื่อความร่วมมือทางเศรษฐกิจและการพัฒนาของประเทศกลุ่มยุโรป (OECD) แต่ไทยก็เป็นสมาชิกของอนุสัญญาบาเซล (Basel Convention) ซึ่งกลุ่มประเทศสมาชิกเหล่านี้ได้ออกกฎระเบียบภายใต้ข้อบังคับของอนุสัญญาดังกล่าว ดังนั้น ไทยจึงต้องเผชิญกับปัญหาขยะ

---

* บทความนี้เป็นส่วนหนึ่งของวิจัยเรื่อง “E-Waste Management Practices and Regulations in Third World Coyntrues: A Comparative Analysis of Legal Measures in India and Thailand” Doctor of Philosophy in Law Dr. Babasaheb Ambedkar Marathwada University, Aurangabad, INDIA, 2559.

[1] ดร.วิศิษศักดิ์ เนืองนอง อาจารย์ประจำคณะนิติศาสตร์ มหาลัยราชภัฏรำไพพรรณี

[2] Dr.Visitsak Nueangnong Lecturer in Law, Faculty of Law, Rambhai Barni Rajabhat University

อิเล็กทรอนิกส์ (E-Waste) ไม่ว่าจะเป็นปัญหาภายในประเทศและปัญหาในการนำเข้าขยะอิเล็กทรอนิกส์จากต่างประเทศ เพราะความล้าหลังและความซับซ้อนของกฎหมายที่ใช้ควบคุม ซึ่งมีความยุ่งยากอย่างยิ่งในการจัดการและควบคุมปัญหาเหล่านี้ ดังนั้น ไทยจึงต้องให้ความ สำคัญในการสร้างมาตรการและการออกกฎหมายสำหรับการจัดการและควบคุมขยะอิเล็กทรอนิกส์อย่างมีประสิทธิภาพ

เมื่อประเทศไทยไม่มีกฎหมายขยะอิเล็กทรอนิกส์บังคับใช้โดยเฉพาะ แต่รัฐบาลได้นำกฎหมายหลายฉบับมาประยุกต์ใช้ในการจัดการขยะอิเล็กทรอนิกส์ ซึ่งกฎข้อบังคับดังกล่าวนี้ ไม่ได้ช่วยในการจัดการและการรับมือกับปัญหาการนำเข้าและส่งออกขยะอิเล็กทรอนิกส์

ดังนั้น ผู้วิจัยเห็นว่า ประเทศไทยควรตรากฎหมายขยะอิเล็กทรอนิกส์โดยเฉพาะและเพิ่มการจัดการและควบคุมการขนส่งและการนำเข้าไว้ในกฎหมายด้วย ซึ่งจะสามารถช่วยควบคุมและจัดการขยะอิเล็กทรอนิกส์ได้อย่างมีประสิทธิภาพมากขึ้น เพื่อเป็นการบริหารจัดการขยะอิเล็กทรอนิกส์ให้เหมาะสมและสอดคล้องต่อสถานการณ์ปัจจุบัน

คำสำคัญ: การบริการจัดการขยะอิเล็กทรอนิกส์, ประเทศที่กำลังพัฒนาทางเศรษฐกิจ, มาตรการทางกฎหมาย

ABSTRACT

Thailand is a developing country, which is not a member of the OECD (Organization for Economic Co-operation and Development), but Thailand is a member of the Basel Convention, which must act by following the rule of the Basel Convention. Therefore, Thailand is confronted with the e-waste problem, whether the inner country problem or the import problem from abroad. Because of the backwardness and the difficulty of the legislation which is really difficult to manage and control these problem of

electronic waste. So, Thailand must emphasize in making the measure and legislation for e-waste management and control, efficiently.

Thailand does not have the specific legislated law for e-waste directly but Thai government has brought the various Acts to adapt for e-waste management. However, it is not stimulated for management and handling about problem of e-waste import and export.

Therefore, the researcher found that Thailand should legislate a specific law for e-waste. It should also add the e-waste management and control for the transportation and import/export into the specific law. It can help to control and manage e-waste more efficiency. It is the e-waste management law for conforming and qualifying to present situation.

Keywords: Electronic Waste Management, Developing Country, Legal Measures

Introduction

Waste is the environmental problem that is close to most people because every human being is a manufacturer of waste and will be affected by the problem of spam. As Americans said that the "Not in My Back Yard" made to find ways to manage and dispose garbage. The wastes which pose significant environmental problems are the waste from the production process, especially in the industrial sector. There are more waste types and diverse that cannot be eliminated easily but some types of hazardous waste, which could be a way to manage and eliminate a special variant of waste disposal in general. Making the costs of handling and disposal of waste is high which the manufacturer may see that if the movement of waste left

behind by those which are not managed or disposed properly, causing impacts on the ecosystem and environmental problems.

Electrical equipment manufacturing and various electronic compon ents is one of the fast growing industries in the country, which is technology advanced in North America, Europe and some Asian countries such as Japan and Australia. Growth and the production of parts, accessories, electrical and electronic equipment is not only a consequence of advances and innovations in technology but also as a result of the opening and expansion of technology growing rapidly to establish communication facilities to contact the education system, including the replacement of the existing systems and the development of equipment and spare parts in the circuit technologies.

Meanwhile, application of electronics and electrical components increased dramatically noticeable. Manufacturing of equipment and electronics have a role in the daily life of people, especially in countries which are developing advanced technologies in the European Union. When the demand rises then there is more industrial development and manufacturing of electrical equipments and more electronic devices and components. The electronic will later be replaced by a new generation of electronic devices which has become electronic waste. It is known as “WEEE (Waste Electrical and Electronic Equipment)”.

Basel Convention on the Control of Transboundary Movements of Hazardous and Their Disposal

Basel Convention is an international agreement that evolved from Cairo Guidelines and Principles for the Environmentally Sound Management of Hazardous Waste, which United Nations Environment Program or UNEP prepared on 1987, to set guidelines on the export of hazardous wastes, and the responsibility of the state. The export of hazardous waste informs and obtains the consent of the receiving state, or the state of the way, which pass before the export of waste. Basel Convention, which opened for signature in March 1989, the government signed a total of 116 states. Basel Convention came into force on 5 may 1992, after the state is member full of 20 states. In March 2009, The Basel Convention has 172 state members, including countries in the EU.[3]

Basel Convention aims to control the transboundary movement of hazardous waste and other wastes, as set out in the Annex to the Convention, to reduce the movement of waste from industrialized countries are left or eliminated in the state of the recipient of waste, mainly developing countries. The principle that waste should be disposed of in the state, which was the source of much waste as possible, and if there is a movement of the crossing is possible without harming human health and the environment. As well as to the conditions specified in the Convention. Particularly, it must be approved by the state recipient.

---

[3] "Basel convention on the Control of Transboundary Movements of Hazardous and Their Disposal, http//:www.basel.inst/ratify/convention," (accessed January 20, 2008).

Basel Convention has set up 6 main purposes[4] are as follows;

1) To reduce the transport of hazardous wastes and other wastes across the country to a minimum by the action must take into account the environment.

2) For the removal of hazardous wastes and other wastes at source, Particularly the removal.

3) To reduce the volume and toxicity of hazardous waste to the greatest reduction.

4) To ensure that control the transport of hazardous waste to be very strict and take measures to prevent the illegal transport of hazardous waste.

5) To prohibit the transportation of hazardous waste by ship to countries that have legal potential and administrative technology which is not sufficient to eliminate the environment concerns.

6) To provide assistance to developing countries and coun tries with economies is transition to be able to maintain its management about hazardous waste on the environment.

The Basel Convention is a framework and guidelines for the main action. The import and export of hazardous waste must obtain the consent and approval of the country, as well as to determine the ability of removal.

---

[4] UNEP, "Environmentally Sound Management of Used & End-of-life Mobile Phones," Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal Sixth Session, Geneva, 3-7 September 2007.

Although, the Basel Convention to cover the transport of hazardous waste to other countries cannot act freely, and conveniently as before, but it does not prohibit trade or transmission of transboundary hazardous waste. Only requiring the submission of transboundary hazardous waste must be approved or Prior Informed Consent (PIC) from the destination country and the state. The export of waste has to check to be certain, that the destination country is capable of handing waste without harming the environment or Environmentally Sound Management (ESM). For this reason, the movement of hazardous waste from the industrialized countries to the developing countries remains a major problem, which cannot be solved effectively. Especially, when there is a lot of hazardous waste being exported to other countries by claiming that the waste is brought into use or Recyclable or Recoverable Wastes.

The Organisation for Economic Co-operation and Development

The Organisation for Economic Co - operation and Development (OECD) celebrated its 50thanniversary, but its roots go back to the rubble of Europe after World War II. Determined to avoid the mistakes of their predecessors in the wake of World War I, European leaders realized that the best way to ensure lasting peace was to encourage co-operation and reconstruction, rather than punish the defeated.

The Organisation for European Economic Cooperation (OEEC) was established in 1948 to run the US-financed Marshall Plan for reconstruction of a continent ravaged by war. By making individual governments recognise the interdependence of their economies, it paved the way for a new era of

cooperation that was to change the face of Europe. Encouraged by its success and the prospect of carrying its work forward on a global stage, Canada and the US joined OEEC members in signing the new OECD Convention on 14 December 1960. The Organisation for Economic Co-operation and Development (OECD) was officially born on 30 September 1961, when the Convention entered into force.[5]

Other countries joined in, starting with Japan in 1964. Today, 36 OECD member countries worldwide regularly turn to one another to identify problems, discuss and analyse them, and promote policies to solve them. The track record is striking. The US has seen its national wealth almost triple in the five decades since the OECD was created, calculated in terms of gross domestic product per head of population. Other OECD countries have seen similar, and in some cases even more spectacular, progress.

So, there are countries that a few decades ago were still only minor players on the world stage. Brazil, India and the People's Republic of China have emerged as new economic giants. The three of them, with Indonesia and South Africa, are Key Partners of the Organisation and contribute to its work in a sustained and comprehensive manner. Together with them, the OECD brings around its table 39 countries that account for 80% of world trade and investment, giving it a pivotal role in addressing the challenges facing the world economy.

---

[5] "Organisation of Economic Cooperation and Development Established in 1961," http:// www.oecd.org. (accessed January 21, 2009).

Directive on WEEE

Waste from Electrical and Electronics Equipments: WEEE is the European Union, which caused the great interest in the field of development. Regulations governing management electrical and electronics equipment is based primarily to the producer is responsibility. The recovery of waste from electrical and electronics equipment: WEEE. The regulations concerning WEEE, there are two versions, which are Directive 2009/95/EC and Directive 2009/96/EC.

There are purposes of the regulation on waste from electrical and electronic equipments in the European Union, as follows.

1) To solve the rapid increase of the waste from electrical and electronics equipments.

2) To encourage more recycling of waste from electrical and electronics equipments. This reduces the amount of waste that must be disposed of by landfill and incineration in the end.

3) Requires manufacturers to be responsible for their products when consumers want to leave, or at the end of life are to be recycled or disposed of. This will create incentives for manufacturers to design products that are more eco-friendly.

4) So that consumers can return waste from electrical and electronics equipments to the manufacturer without any charge. For Directive 2002/96/EC, directive on waste electrical and electronic equipment, often referred to as the directive on WEEE 2003, which was adopted on 27 January 2003. The purpose is to prevent the waste from electrical and electronics equipments, and encourage the reuse, recycle and recovery by holding

one's principles responsibility of the manufacturer or producer responsibility which received the duty on member states to take action on WEEE.[6]

Definition and classification of electronic waste

The definition of e-waste in Directive on WEEE that European Union (EU) defined in Article (b) that; "E-waste" means the electrical or electronic equipment that it cannot work. However, within the meaning of Article (a) of Directive 75/442/ EEC, which include all components, such as the secondary component or something which is usable that is the parts of product, at that time and it cannot be used anymore.[7]

However, The Basel Convention on the Control of Transboundary Movements of Hazardous and Their Disposal has identified as a hazardous waste with this type of electronic waste or technology waste or WEEE is also included. "Waste" under the provisions of the convention.[8]

So, the determination of the Basel Convention on Hazardous Waste Annex, it can be adapted for use as electronic waste from the list because it has set a certain type of objects that look into the category of electronic waste in Annex 3. Because of such an electronic appliance and component have a composition that to be an object contaminated with hazardous

---

[6] Itthiphol Srisawalak, "*An Analysis regularity of WEEE and RoHs in the way of law,*" (Bangkok: Thailand, 2004).

[7] EU Directive on WEEE 75/442/ EEC on waste of 15 July 1975.

[8] Basel Convention Action Network 2005.

waste. Such a technology waste transportation must comply with the terms of obligations under the Basel Convention also.

Electronic waste management and disposal

In fact, it can be said that a policy framework for environmental management in the last thirty years. To see the changing of the framework, the "Environmental Standard" into the framework of the "Minimizing the Amount of Waste Sent for Disposal"[9], such a framework, which are commonly accepted principles and universal is the preparation of environmental standards and after the modifications to bring the key principles of waste management policy is "The Hierarchy of Avoidance Recycling Disposal". Grading or the class as a guide to make the country with the largest electrical and electronics, for example, Germany has thought to deal with all types of waste, including technology and electronic waste, it has the same principle.

In A.D. 1980, many European countries have changed drastically in the policy of the management of hazardous waste that has to use cycle which is called "Closed Substance Cycle"[10], such as Minimizing Waste Production and Maximizing Recovery of Waste, which is in terms of public policy changes, such as a change in the context of environmental policy of

---

[9] P. Georgiadis and M. Besiou, "Sustainability in Electrical and Electronic Equipment Closed-loop Supply Chains: A System Dynamics Approach," *Journal of Cleaner Production* 16, (2008): 1665-1678.

[10] EEA (European Environment Agency), "Waste Without Borders in the EU?: Transboundary Shipments of Waste" https://www.eea.europa.eu/ (accessed January 21, 2009).

"An End of Pipe Approach" to the policy of integration or "An Integrated Approach"

In other words, regulations, beginning with the foundation of the concept of the product responsibility, which was developed from the waste avoidance and waste management law,[11] starting from mineral oil industry, which require the used oil collected from consumers which does not cost any money. The implementation of such a system should be in such a way which should not harm the environment and take such action which is aimed at reducing the amount of waste water and groundwater as a result of waste oil.

In EU Directive on WEEE, which is a product classification and examples, so those involved have led to the stored procedure and management. Waste from electrical and electronics equipment: WEEE, which European commission of a surrounding department, which is responsible for the environment. It has made the rules about waste from electrical and electronics equipment with orientation and additional details to reduce waste from recycled packaging, which affect the environment[12] and to coordinate measures on the packaging and waste from the packaging of each

---

[11] Thanansak Bovornnanthakul, *Drafting laws operate under the Basel Convention: Report the summary for Executive*, The management of solid waste and hazardous substances, Pollution Control Department, Ministry of Natural Resources & Environment, (2005), 35.

[12] K. K. Basiye, "Extended Producer Responsibility for the management of Waste from Mobile Phone," (Master of Science in Environmental Sciences, Policy & Management, Lund University, 2008), 80.

country in the European Union by a regulation, the key is to determine the level of recovery and recycle. To establish a system to return, collect and recovery

E-waste generation in Thailand

Recently, data from the Department of Industrial Works has reported that in B.E. 2556 (A.D. 2013), that has the rise of e-waste in the country, which is higher than 20,000,000 machines and is expected to increase 10 percent per year. The mobile phone has a volume of up to 9,200,000 machines of which is considered by many to be top spot. The next in rank is playback device or audio 3,300,000 machines, television 2,500,000 machines, computer 2,000,000 machines, printer of fax 1,500,000 machines, camera or video 700,000 machines, air conditioner 600,000 machines. The plant is currently in the process of sorting and crushing small pieces of electronic equipment, there are fewer and disproportionate amount of discarded electronic products, appliances and electronics is increasing rapidly.

In addition, it also found that e-waste smuggling from overseas into the United States, not less. By sending e-waste to these communities so that people used to separate and remove the metal parts to be sold. The remaining fragments of e-waste will be destroyed by incineration or landfill. The burning and destruction of electronic waste by unhygienic, as this would

cause problems for the environment, community and health. Including the security of the occupation of those directly involved.[13]

For the information of the Ministry of Public Health has identified that in the next three years, the country is experiencing an enormous amount of electronic waste. As a result of these appliances and electronic devices is evolving rapidly and last for long. Most e-waste contains toxic heavy metals that are much, including lead, mercury, cadmium, arsenic, sulfur and many other chemicals. The monitor of the computer, typically lend as high as six percent composition. Therefore, changes in technology, computer, electrical and electronic equipment which is a major cause must be recycled or recyclable materials, the use of new minerals.

Thailand has only 6 laws and some notification under these laws, which are involved in e-waste, both directly and indirectly, such as Hazardous Substance Act, B.E. 2535 (A.D.1992), as amended until No. 3 act, B.E. 2551 (A.D.2008), Factory Act, B.E. 2535 (A.D.1992), The Enhancement and Conservation of National Environmental Quality Act, B.E. 2535 (A.D.1992), Export and Import of Goods Act, B.E. 2522 (A.D.1979), Customs Act, B.E. 2469 (A.D.1926) amended in Customs Act, B.E. 2534 (A.D.1991), and Act on Navigation in Thai Waters, B.E. 2456 (A.D.1913) amended in Act on Navigation in Thai Waters, B.E. 2535 (A.D.1992) and etc. Thailand has not developed legislation dealing with e-waste, both in management and to control the

[13] Electronic waste is the waste that comes with technology, "Energy Saving," http://www.energysavingmedia.com/news/page.php?a=110&n=54&cno=4871> (accessed October 21, 2013).

issue of electronic waste too much, which shows the disinterest and inattention to the problem of e-waste, which is happening in the country as well. Mostly, Thailand does not have specific law of e-waste. So, Thailand must use another law or some notification, which has the definitions and regulations that are comparable to or use of force against electronic waste. Thailand is a member of the Basel Convention. Therefore, using of the laws or regulations on the management and control of electronic waste that must be in accordance with the Basel Convention. The fact, Thailand does not have specific law and definition for electronic waste directly. Although the existing laws will be able to apply for electronic waste, but cannot be enforced effectively because of the vagueness and trouble of the laws, which is legal loophole and problem of Thai law, nowadays.

The issue of the meaning of definition of electronic waste

The Basel Convention on hazardous waste items that are defined in Appendix IV of the Convention and the list of such types of electronic waste are included, but the countries still have not been clearly defined categories of electronic waste. Thus, in the list given by the Convention is still not comprehensive and if some countries do not have legislation in relation to electronic waste directly, which results in the transmission of e-waste items without the need to comply with the Basel Convention. Some entrepreneurs turned to how to collect and smuggle out by leaving them underdeveloped countries, because they do not meet the criteria or conditions set forth in the Convention.

Problems related to the scope of law enforcement

Problems related to the scope of law enforcement that arise due to the Basel Convention is applicable to the member countries, and even in an amendment (Basel Ban Amendment), which prohibits countries of the OECD sent a hazardous waste under the Basel Convention to underdeveloped countries. Requirements under such legislation, which caused a legal loophole in the law by non-OECD countries together, which are able to deliver hazardous waste in a manner that is e-waste to countries outside the network itself. Also, on the side of the manufacturers and importers would affect law enforcement because manufacturers are not producing, but to avoid the use of import replacement, etc., in order to avoid compliance on the law in case, which defines the liability of the manufacturer.

In Thailand, if analysis of the relevant Thai laws is that in deploying a similar problem in the adoption, which is to Hazardous Substance Act as a primary law for controlling the operation of the import, export, navigating through, manufacturing, transportation, and possession by a schedule of registration and permission of using the definition of hazardous substances in Section 4 of the Hazardous Substances Act, B.E.2535 (A.D.1992), which requires hazardous waste in Annex VIII, List A of the Basel Convention is a hazardous substance of type III, which is the responsibility of the Department of Industry and control of the import and export of hazardous waste in the Hazardous Substances Act, B.E.2535 (A.D.1992), which has issued a Notification of the Ministry of Industry and the Department of Industry, which involve two editions, which is the Notification of the Ministry of Industry, subject: the list of hazardous substances B.E.2538 (A.D.1995) and the Amendment

B.E.2546 (A.D.2003), including the list of hazardous substance, fourth edition B.E.2549 (A.D.2006) and the list of hazardous substance, fifth edition B.E.2549 (A.D.2006), which the importer, exporter, manufacturer, or possession must be registered and licensed by the Department of Industry before the operation. And the Notification of Department of Industry, subject: Conditions allow used electrical and electronic equipment is hazardous substance into the kingdom, on 26th September B.E.2546 (A.D.2003).

Moreover, the law has come to the in force with several related companies (Stakeholders), which through empowering staff directly involved, such as the competent authority under section 52-55 to resolve this issue.

The problem with the raw material and products are recycled (second-hand product)

This problem stems from the fact that the country has legislation on electronic waste, such as the European Union, which measures the force required to classify and separate waste by recycling or reuse systems. Implementation of such a high cost, and when it is updated and re-used, it is usually not very popular as they should be, which may be a large size, weight, color, and to ensure that no equipment or parts thereof, which can last for durable or not, as well as value for money in the use of recycled, compared with buying new (Brand new). Meanwhile, the second market for used electrical and electronic equipment in the country is not growing as it should. Some entrepreneurs turned to how to collect and smuggle out, leaving underdeveloped countries, particularly in computer form to be

second hand goods, which is a simple, cheaper, or may be separate pieces to be the raw material in the manufacture and export instead.

The transmission second hand goods in electrical and electronic equipment or components, equipment or spare parts are not requirements of the Basel Convention, the importer or exporter must comply with certain conditions or requirements, stating that "the export of hazardous waste must be approved in writing by the destination country, and the state exporter of hazardous waste is required to ensure, that the country has the capacity to manage hazardous waste without harm to the environment, including requiring the preparation of system documentation, removal of hazardous waste, a process to inform the importer consent prior to export, where hazardous waste from the state party of origin, and notify transposition, notify results of the permit or prohibit transport, monitoring, packaging, and transportation of hazardous waste across borders, control and management of hazardous waste in the country", because second hand goods in electrical and electronic equipment or components, equipment or spare parts cannot be classified as hazardous waste, so that industrialized countries will use the transmission second hand goods in electrical and electronic equipment or components, equipment or spare parts to be sold (dumped) to developing countries, which are used in developing countries are being bought and used, but in a short time only. Then, second hand goods in electrical and electronic equipment or components, equipment or spare parts, will become electronic waste in the country, who received the e-waste, and tends to increase every year.

The problems with end-of-life materials

The scheduled expiration of electronic products (End-of-life of e-waste) is not clearly defined in each country. In particular, developing countries are subject to scheduled expiration of electronic products differ from countries, which have advancements in technology. Therefore, to determine the legal measures to allow operators to charge for any action, which could have problems with the transfer of its electronic out of the country, which is avoidance of law because the legal measures related electronic waste is often packed with legislative measures, which allow operators to be responsible for collecting the electronic products that have expired. The operator shall be responsible for the costs themselves, which is a cost that the operator cannot be pushed to the consumer. Thus, the operator uses the difference in the end as a guide to evade the law.

Postscript

Manufacturing of electrical and electronic equipments and components in the industries grows very fast. When demand increases even more, industry is more developed and produces more electrical and electronic equipments as well. Later, the electrical and electronic equipments will be always replaced by new model of electrical and electronic equipments, which makes it to become electrical and electronic waste, also known as "WEEE or Waste Electrical and Electronic Equipment)" or electronic waste or e-waste.

Generally, there is no definition or meaning about electronic waste or e-waste is obvious. However, the definition based on the directive, which

the EU has set out in Article (b) on electronic waste is mentioned in the above. In the Basel Convention or the Basel Convention on the Control of Transboundary Movements of Hazardous and Their Disposal, which has identified hazardous waste type or WEEE included, because it considers that most electrical and electronic equipments have contaminants, which will become hazardous wastes when they expired. Therefore, the determination of the Basel Convention on hazardous waste, according to the Annex can be adapted for use as electronic waste listed in Annex III, because the electrical or electronic equipments or components are a substance, which contaminated toxic or hazardous waste. Moving the remains of pieces of electronic waste is necessary to comply with the obligations under the Basel Convention.

Although electronic waste is classified as hazardous waste, which has to be controlled, maintained, and managed in accordance with the guidelines and principles of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal: BASEL, which has entered into force since B.E.2532 (A.D.1989), for guidelines on the export of hazardous waste, and the responsibilities of the state of export of hazardous waste to inform, and get approval from the state of the recipient, or the state, which is the passage way before the export of waste. However, at present, some countries, does not have specific law that applies to electronic waste directly. Meanwhile, Asian countries have realized the recycling of electronic waste for reuse solutions. Some countries have legislation on this issue very clear, as some countries are being studied to find solutions as appropriate.

As Thailand, which has not been implemented or made legislation on electronic waste in particular can bring domestic laws related to deploying the case of electronic waste in some cases, which is related to the Basel Convention, and can be used to perform to adopt to implement, as appropriate, include the Hazardous Substance Act, B.E.2535 (A.D.1992), the Enhancement and Conservation of National Environmental Quality Act, B.E.2535 (A.D.1992), the Export and Import of Goods Act, B.E.2522 (A.D.1979), the Customs Act, B.E.2469 (A.D.1926) and B.E.2534 (A.D.1991), and so on.

The legal measures available in Thailand can be deployed and controlled to circumvent the law, such as importation electrical and electronic equipments are used, which are not end of life come into the country, and after that leave them go to be end of life, which became electronic waste in that country finally. This case can be prevented by guards from the source, in incorporating the scheduled expiration labels and stick the labels. In order to identify which products are electrical and electronic equipments when they expire.

Thailand, which does not have the specific legislated law for e-waste directly but the government has brought the various Acts to adapt in management e-waste. Even though, those Acts have flexibility and can apply in solution of e-waste very well, such as; the problem of the meaning and definition, the problem of import-export e-waste, the problem of e-waste from the second-hand products, and the problem of the end of life in expiry of electronic products, there is no law is specific for e-waste. It made the difficulty in using and understanding definition of the law clearly. Therefore, Thailand should legislate the specific law for e-waste and bring the rule of

Hazardous Waste of another country to be the guideline for the e-waste law, and should add the management and control of the transportation and import e-waste to regulate in this law, in order to make the law clearly and can bring it for using in control and manage e-waste more efficiency.

Reference

Basel Convention Action Network 2005

Basel convention on the Control of Transboundary Movements of Hazard Ous and Their Disposal http://www.basel.inst/ratify/convention (accessed January 20, 2008).

EEA (European Environment Agency). "Waste With out Borders in the EU?: Transboundary Shipments of Waste," https://www.eea.europa.eu/ (accessed January 21, 2009).

Electronic waste is the waste that comes with technology'. Energy Saving, http://www.energysavingmedia.com/news/page.php?a=10&n=54&cno=4871> (accessed October 21, 2013).

EU Directive on WEEE 75/442/ EEC on waste of 15 July 1975.

Itthiphol Srisawalak. *An Analysis regularity of WEEE and RoHs in the way of law.* Bangkok: Thailand, 2004.

K. K. Basiye. *"Extended Producer Responsibility for the management of Waste from Mobile Phone".* (Master of Science in Environmen tal Sciences, Policy & Management, Lund University, 2008.

"Organisation of Economic Cooperation and Development (OECD) Established in 1961," http://www.oecd.org. (accessed January 20, 2008).

P. Georgiadis and M. Besiou. *Sustainability in Electrical and Electronic Equip ment Closed-loop Supply Chains: A System Dynamics Approach, Journal of Cleaner Production* 16, (2008). 1665-1678.

Thanansak Bovornnanthakul. *Drafting laws operate under the Basel Convention: Report the summary for Executive*. The management of solid waste and hazardous substances, Pollution Control Depart ment. Ministry of Natural Resources & Environment (2005).

UNEP. *"Environmentally Sound Management of Used & End-of-life Mobile Phones."* Open-ended Working Group of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal Sixth Session. Geneva. 3-7 September 2007.