

# **The Impediments of Policy Coordination on E-Waste in ASEAN**

**Dr. Armin Ibitz**

Wenzao Ursuline College of Languages, Kaohsiung, Taiwan

E-Mail: armin\_ibitz@mail.wtuc.edu.tw

## **Abstract:**

In its 40 years history ASEAN has seen its ups and downs. As of now, ASEAN represents one of the most dynamic economic regions. Cooperation across the region has intensified and membership expanded. However, economic progress was accompanied by massive environmental deterioration. Although environmental protection has already been integrated in ASEAN declarations and agreements in the late 1970s and the concept of sustainable development has entered ASEAN political rhetoric more recently, environmental records across the ASEAN region are poor. Unlike other conglomerations of states – such as the EU – ASEAN could not meet the expectations and failed to develop into a regional environmental pace setter. Among the many environmental issues in the region, the rapid growth of waste from electronic and electrical equipment (e-waste) has increasingly drawn international attention. While on the one hand ASEAN is a large producer of electrical and electronic equipment, on the other hand the region is heavily affected by the improper dismantling, recycling and disposal of e-waste. ASEAN failed to come up with a common response whereas individual member states pushed ahead with own legislation in an attempt to address the issue. This study sets out to assess the determining factors that disabled ASEAN to agree on a common policy response in the case of e-waste. Based on the assumption that states act according to the expected gains, the study applies a game theoretical approach to analyze the developments. Furthermore, the work seeks to draw conclusions from the case for future environmental policy formation in the region.

## **Keywords:**

ASEAN, policy coordination, electronic waste, electric and electronic equipment, waste of electric and electronic equipment

## Introduction

The signing of the Bangkok Declaration in 1967 formally established the Association of Southeast Asian Nations (ASEAN). Driven by the fear of an expansion of communism in the region, the six founding members<sup>1</sup> agreed to launch intensify cooperation among members in the economic and social realm. However, since security remained *the* binding common denominator integration proceeded only very slowly. With the break-down of communism in the early 1990s the organization faced a substantial crisis. As a consequence, ASEAN started to reorient itself and transformed from a community of countries with shared security concerns towards a community of shared economic interests. The region has turned into one of the most dynamic economic areas in the world. However, economic progress was accompanied by massive deterioration of the environmental base and the whole region suffers from severe environmental degradation. Although environmental protection has already been integrated in regional declarations and agreements in the late 1970s, environmental records across the ASEAN region remain poor. Unlike other conglomerations of states, ASEAN could not meet the expectations and failed to develop into a regional environmental leader.<sup>2</sup> Among the many environmental issues in the region, the rapid growth of waste from electronic and electrical equipment (WEEE) has increasingly drawn international attention. While on the one hand ASEAN is a large producer of electrical and electronic equipment, on the other hand the region is heavily affected by the improper treatment, recycling and disposal of e-waste. While several member states pushed ahead with national regulations and laws to address the issue, ASEAN failed to come up with a common policy response. Waste has become one of the most visible environmental challenges for many Asian countries and the rapid rise of volumes in WEEE is a particular concern. Regional demand for electrical and electronic equipment (EEE) is rising due to economic growth and increased living standards. Across the globe, the share of e-waste is growing more rapidly than other kinds of wastes.<sup>3</sup> Since recycling, dismantling and disposal of WEEE requires appropriate techniques larger waste streams represent a major ecological and health problem for developing countries.<sup>4</sup>

The main purpose of this article is to identify the factors that disable ASEAN from agreeing on a common regulatory framework on e-waste. While many claim that lack of political will is the main reason for failure of policy coordination, this study attempts to go beyond this point and seek to reveal the driving factors for politicians not to proceed with environmental cooperation. Based on the assumption that states act according to the expected gains, the study applies a game theoretical approach to analyze the developments. Furthermore, the work seeks to draw conclusions from the case for future environmental policy formation in the region. Assessing ASEAN's drive for environmental cooperation seems a meaningful task, since the region – as a future economic powerhouse – will be confronted with numerous regional ecological challenges.

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<sup>1</sup> Malaysia, the Philippines, Indonesia, Singapore and Thailand.

<sup>2</sup> e.g. the EU.

<sup>3</sup> Widmer, Rolf, Heidi Oswald-Krapf, Deepali Sinha-Khetriwal, Max Schnellmann, and Heinz Böni. 2005. "Global perspectives on e-waste." *Environmental Impact Assessment Review* 25: 436–58.

<sup>4</sup> Osibanjo O., and I.C. Nnorom. 2007. "The challenge of electronic waste (e-waste) management in developing countries." *Waste Management and Research* 25, no. 6: 489-501.

## Regional Integration and Policy Coordination

Since the expansion and integration of the European Union (EU), regionalism and regional integration has increasingly drawn the attention of international scholars. Across the globe, countries are forming regional cooperation with the aim to gain mutual benefits. However, regional integration is only feasible when individual states are able to overcome distrust and remove (or substantially ease) obstacles of forming cooperation. Although regional integration of the EU provides a good example of inter-state cooperation, we could (and still can) witness that the road to integration is bumpy and requires time and a substantial amount of political will. Given that political will is shaped by the involved actors' perception of the situation and the expected gains from cooperation, we can assume that cooperation is more likely in cases where problem identification of the negotiating parties are identical and win-win-situations occur. Mutual gains ease the path for international cooperation.

### Collective Action Problems

Under a game-theoretical point of view, cooperation among states is described by the collective action problem. The promotion of regional integration can be affected by two kinds of problems: collaboration and coordination games. Collaboration games describe the situation when actors are attracted to defect from an existing agreement due to short-term benefits. As a consequence, policy makers may opt for decisions that lead to situations which are not-pareto efficient.<sup>5</sup> Unless the dominant strategies can not be broken up actors will defect from cooperation and the agreement will fail. Coordination games describe the situation when actors face difficulties to reach an agreement in the beginning. Here, the main concern is the coordination of the varying interests of all involved actors. While actors share an identical set of goals, specific differences prevent them from reaching an agreement. For applying repeated games, the distribution of gains needs to be taken into consideration. The collective action problem can be overcome by two responses. First, the existence of an international institution that serves as a mediator between the interests of countries and takes over major coordination functions. The central body must provide a platform for resolving disputes and stimulate negotiations. The institution is in charge of information gathering, engaged in informal consultation about preferences and policies of states and thus functions as a mediator between the bargaining parties.<sup>6</sup> Second, the existence of a leader is helpful removing obstacles for policy coordination. In the fear of consequences, a strong leader may prevent free-riding. The leader may be from within the group (focal point) or an extra-regional actor with strong regional acceptance and influence.

Cooperation among countries is rarely based on altruistic grounds but on expected benefits according to their national interests. State interests are shaped by ideas, values and norms that develop with socialization and learning processes. Since cooperation evolves with the expectation to satisfy state interests, a basic condition for an agreement is the prospect of benefits that could not be gained in the case of no-agreement. Although cooperation means a loss of sovereignty it may also provide benefits. A major benefit is the reduction of transaction costs (such as for information and negotiating). Competitive and cooperative elements are both integrative parts of the negotiation process and in order to create mutually beneficial agreements, the involved parties must understand each others preferences and priorities. Misrepresentation of the parties' value tradeoffs often leads to inefficient outcome. Environmental norms are formed by scientific and social knowledge, changing values or the participation of NGOs. In addition, the evolution of international environmental laws,

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<sup>5</sup> For more on collective action and the environment please refer to: Ostrom, Elinor. 1990. *Governing the Commons - The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

<sup>6</sup> Snidal, Duncan. 1985. "Coordination versus Prisoners' Dilemma: Implications for International Cooperation and Regimes." *The American Political Science Review* 79, no. 4 (Dec.): 923-42.

participation in international organizations or external ecological crisis may spur changes of environmental norms.<sup>7</sup> The overall pace and intensity of regional integration and policy coordination is determined by the capabilities of resolving disputes, overcoming obstacles of cooperation and balancing distributive gains among the members. From an economic perspective, external developments may have stronger impacts for closely integrated economies than for relatively isolated ones. However, this is not necessarily the case in the environmental realm as many environmental challenges are transboundary in their nature, regardless the level of international interaction.

With the rise of the ecological challenges the potential gains of cooperation also rise. The higher the expected gains an actor expects from cooperation, the more likely the member state will opt for joint action. The perception of the achievable benefits thus plays a significant role in the formation of agreements. Regional environmental cooperation is most likely to emerge when all parties perceive the issue as an immanent threat that causes economic losses or hinders further development. It is more likely to emerge when it is negotiated through an existing institution since this cuts transaction costs. Regional environmental cooperation is less likely when an agreement runs counter national interests or contradicts existing sets of policies.<sup>8</sup>

## The Evolution of ASEAN

### Extending the Scope: From Security to Economic Cooperation

Originally, ASEAN developed out of pure security concerns during the time of the Cold War. The fall of communism left ASEAN with a serious identity problem. However, ASEAN re-orientated from a security oriented community towards one with economic focus. In 1992, the ASEAN Free Trade Area agreement (AFTA) was signed 1992 by the six founding members. Although the average tariffs among ASEAN member states fell from over 12 percent (1993) to about 4 percent (2000), intra-ASEAN trade increased only slightly, from 21 percent in 1993 to 26.8 percent in 2008. However, ASEAN countries only gradually reduced their import duties and new member states (CLMV) were given longer time frames to reduce their tariffs. As a result, ASEAN was facing criticism that questioned its ability to create coherence in its policies among the member states. And the 1997 Asian financial crisis proved the weakness of the organization. After failure to respond adequately in 1997, ASEAN leaders adopted the ASEAN Vision 2020, targeted at bonding the region more tight together “...in partnership, in dynamic development and in a community of caring societies.”<sup>9</sup> The new attempt includes measures to proceed with regional integration, liberalization of trade in goods and services, and the elimination of restrictions on the movement of capital and investments. Besides its economic focus, the Vision 2020 also pledges for “...a clean and green ASEAN with fully established mechanisms for sustainable development to ensure the protection of the region’s environment.”<sup>10</sup> The ASEAN Vision 2020 was followed by the Hanoi Plan of Action (HPA; 1999-2004) which mainly aimed at intensifying the free trade area.<sup>11</sup> Under the HPA, the six founding members agreed to promote intraregional trade by

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<sup>7</sup> Elliott, Lorraine. 2003. “ASEAN and environmental cooperation: norms, interests and identity.” *The Pacific Review* 16, no. 1 (March): 29-52.

<sup>8</sup> Yoshimatsu, Hidetaka. 2006. “Collective Action Problems and Regional Integration in ASEAN.” *Contemporary Southeast Asia* 28, no. 1: 115-40.

<sup>9</sup> ASEAN. “ASEAN Vision 2020”, <http://www.asean.org/1814.htm> (accessed October 20, 2011).

<sup>10</sup> Ministry of the Environment and Water Resources, Singapore, <http://app.mewr.gov.sg/web/Contents/Contents.aspx?ContId=857> (accessed Sep. 20, 2011).

<sup>11</sup> Koh, Kheng-Lian, and Nicholas A. Robinson. 2002. “Strengthening Sustainable Development in Regional Intergovernmental Governance: Lessons from the ASEAN Way.” *Singapore Journal of International and Comparative Law*. Pace Law Faculty Publications. Paper 371: 640-82.

lowering their import tariffs. The HPA also included a series of measures with the aim to protect the environment and promote sustainable development in ASEAN by focusing on enhanced regional coordination. Under the HPA, regional centres were established and strengthened, and networks for issue areas formed.

The *Bali Concord II* (2003) set a new course for ASEAN regional integration in several respects.<sup>12</sup> ASEAN reiterated its intention to strengthen the institutional mechanisms and to form an ASEAN Community based on three pillars: the ASEAN Security Community (ASC), the ASEAN Socio-Cultural Community (ASCC) and the ASEAN Economic Community (AEC). Under the Concord the overall role and functions of the Secretariat have been strengthened and other new bodies were established, such as the ASEAN Development Fund and the ASEAN Business Advisory Council (ABAC).

Regarding environmental protection the three pillars open new possibilities to foster environmental protection efforts. First, the formation of a Security Community (ASC) mainly aims to strengthen cooperation on political and security issues. However, large-scale transboundary ecological threats could also be discussed in the ASC. Second, with the creation of AEC the region aims to form a single market and transform into a single production base. In the case of the EU we were able to witness that economic integration was accompanied by a tightening of the environmental framework, stemming from the fear of obstacles in the flow of goods due to varying environmental regulations. The formation of the AEC will bring benefits to business actors in the form of lower transaction costs. However, the formation of a single market requires the harmonization of standards and regulations within ASEAN. This may also bring impetus for the environmental field. Third, the establishment of the ASCC provides an opportunity to strengthen cooperation among the fields of population growth, unemployment, environmental degradation, transboundary pollution and disaster management in general.

### **From the ASEAN Economic Community to the ASEAN Charter**

Competition from other emerging economies in Asia (particularly India and China) is gearing up and ASEAN leaders thus attempt to accelerate the integration of the ASEAN region. With the Vientiane Action Program (VAP; 2004-2010) ASEAN reiterated its commitment to further liberalize trade in goods and services. The VAP included strategies, programmes and measures to promote sustainability and environmental management in the region. In 2004, ASEAN agree to liberalise tariffs in eleven key industry sectors (including electronics) by 2007.<sup>13</sup> While the six more developed countries were to remove the CEPT for eleven sectors by January 1<sup>st</sup>, 2007, the less developed countries (CLMV) were given more time to reduce their trade tariffs.

The signing of the ASEAN Charter in 2007 at the 13<sup>th</sup> ASEAN Summit marked an important landmark for the evolution of ASEAN. The Charter, which went into force in December 2008, not only provides a basic framework that governs relations among the ASEAN members but also transforms ASEAN into a more rule-based organization with legal character.<sup>14</sup> The missing legal identity has been blamed as one of the reasons why ASEAN reacted slowly not only in reaching agreements but also failed to implement them at the national levels. For deeper integration a substantial strengthening of institutional structures, decision making processes and a solid enforcement system is a necessity. In order to equip ASEAN with an improved and more flexible decision making mechanism, the Eminent

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<sup>12</sup> ASEAN, "Towards an ASEAN Community," [http://www.aseansec.org/pdf/PIS\\_bali.pdf](http://www.aseansec.org/pdf/PIS_bali.pdf) (accessed September 29, 2011).

<sup>13</sup> ASEAN, "Southeast Asia edges closer to economic integration amid general rebound," <http://www.asean.org/afp/91.htm> (accessed October 20, 2011).

<sup>14</sup> Lin, Chun Hung. 2010. "ASEAN Charter: Deeper Regional Integration under International Law?" *Chinese Journal of International Law*: 821–37.

Persons Group suggested integrating a formal dispute mechanism to resolve political and economic issues in the new ASEAN. Furthermore, it called for replacing the decision making process on consensus with majority voting and the installation of monitoring mechanisms to ensure compliance from member states. In addition, the group also called for sanctions against members which do not comply with ASEAN-principles; however, ASEAN members rejected the proposal. With the signing of the ASEAN Charter regional leaders are attempting to emulate an EU-like community, however without the rigid supranational central body and also without a community law. But all in all, the charter marks an improvement in the environment for policy coordination by providing a constitution that governs the relations between the member states and allowing leaders to meet more frequently.

While the signing of the Charter was followed by a series of economic agreements, ASEAN still lacks a central body that ensures compliance with the agreements.<sup>15</sup> ASEAN has signalled its commitment to strengthen institutional mechanisms but the organization still possesses a very loose structure. Still, ASEAN members are very reluctant to cede power to an independent central supranational body. Competition between ASEAN member countries and their narrow focus on national interests hinder deeper cooperation and policy coordination in ASEAN. As a consequence of the reluctance to cede power ASEAN was adopting the practice of flexible consensus finding mechanisms. Progress is hindered by vetoes and as a consequence, ASEAN moved to a more flexible approach by introducing two formulas: “ASEAN minus X” and “2 plus ASEAN”. While the “ASEAN minus X” formula allows specific member states to join ASEAN agreements at a later point of time, the “2 plus ASEAN” formula explicitly allows ASEAN states to form new sub-regional agreements within the ASEAN framework. However, since there is neither an institutional body controlling the sub-regional groups nor a limit in the number of agreements, such advances may well undermine the overall strength of the regime.<sup>16</sup>

### **ASEAN’s Decision Making Processes**

From the beginning of ASEAN, decision making can be described as informal elite-based diplomacy based on consultation and consensus. As decision makers did not want to see their newly independent nations put again under the control of an external power, member states only agreed to cooperate as long as decision making respects each member states’ sovereignty. Any form of coercion among member states is impossible. The association strictly followed the principle of non-interference in other member states’ domestic affairs. ASEAN’s decision making sticks to the principles of non-interference in other member states’ domestic affairs. While these principles may have been useful to avoid internal conflict it also slowed down progress in regional integration. Scholars have repeatedly pointed to the principle of non-interference as a major obstacle for deeper integration and collective action.<sup>17</sup>

Decision making in ASEAN takes place in two main levels: The inter-state and the domestic level. Major agenda setting and decision making regarding ASEAN takes place by informal diplomacy through government channels, where the Summit of the ASEAN heads of state and government is the highest decision making body. In the meetings about specific issues participants represent the positions of the individual states. Official decisions are made at this level. Only when an environmental challenge such as e-waste can find it to the highest level of decision making, it has a chance to be dealt with by ASEAN. However, addressing

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<sup>15</sup> Recent ASEAN agreements: “2009 ASEAN Trade in Goods Agreement”, the “2008 Manila Declaration on Intensifying ASEAN Minerals Cooperation” and the “2009 ASEAN Comprehensive Investment Agreement”.

<sup>16</sup> Chiou, Yi-hung. 2010. “Unravelling the Logic of ASEAN’s Decision-Making: Theoretical Analysis and Case Examination.” *Asian Politics & Policy* 2, no. 3 (July/Sep.): 371–93.

<sup>17</sup> Haacke, Jürgen. 2003. “ASEAN’s Diplomatic and Security Culture: A Constructivist Assessment.” *International Relations of the Asia-Pacific* 3, no. 1: 57–87; Tay, Simon S. C., Jesus P. Estanislao, and Hadi Soesastro. 2001. *Reinventing ASEAN*. Singapore: ISEAS, Seng Lee Press.

trans-national ecological challenges connects international policy with domestic policy, since implementation and enforcement is a domestic issue. The second level consists of political decision making processes within each member country. Actors in this level include the political parties, interest groups and NGO-actors. On several occasions business associations were invited for consultations and hearings. Although some countries across the region already own a vivid NGO-sector, access to policy makers seem to be the limiting factor. Unlike in the EU, ASEAN non-governmental actors typically have limited access to decision making processes. Although ASEAN encourages the participation of Civil Society Organisations in its regional programmes there has been slow progress of integrating non-state actors in the environment related area. As a consequence, ASEAN governance is mainly determined by government officials and hierarchically structured from top to down.

### **ASEAN and Environmental Governance**

Like other issue areas, environmental governance follows the common principles of the ASEAN community. Member countries have the final decision making power in environmental policy making. Thus, the organization's structure favours environmental cooperation by implementing soft laws that leaves compliance at the national levels. While they are highly ambitious in their wording, they lack effective implementation and enforcement mechanisms (See table 1). In the knowledge that a member state faces no serious consequence for non-compliance, incentives for implementation and enforcement is low.<sup>18</sup> The principle of non-interference and the lack of sanctions for non-compliance allow member states to continue with their malpractices without fearing consequences.<sup>19</sup>

**Table 1: ASEAN has implemented numerous declarations, resolutions and agreements aimed at fostering regional environmental cooperation.**

<b>ASEAN Agreements and Declarations on the Environment</b>	
Source: ASEAN <sup>20</sup>	
- ASEAN Declaration on the 13th session of the Conference of the Parties to the UNFCCC and the 3rd session of the CMP to the Kyoto Protocol (2007)	
- Singapore Declaration on Climate Change, Energy and the Environment (2007)	
- ASEAN Declaration on Environmental Sustainability (2007)	
- Cebu Resolution on Sustainable Development (2006)	
- Agreement on the Establishment of ASEAN Centre for Biodiversity (2005)	
- ASEAN Declaration on Heritage Parks (2003)	
- Yangon Resolution on Sustainable Development	
- Jakarta Declaration on Environment and Development (18 September 1997)	
- Bandar Seri Begawan Resolution on Environment and Development (1994)	
- Singapore Resolution on Environment and Development (1992)	
- The Kuala Lumpur Accord on Environment and Development (1990)	
- Jakarta Resolution on Sustainable Development (1987)	
- Agreement on the Conservation of Nature and Natural Resources (1985)	
- Bangkok Declaration on the ASEAN Environment (1984)	
- ASEAN Declaration on Heritage Parks and Reserves (1984)	

<sup>18</sup> Aggarwal, Vinod K., and Jonathan T. Chow. 2010. "The Perils of Consensus: How ASEAN's Meta-regime Undermines Economic and Environmental Cooperation." *Review of International Political Economy* 17, no. 2: 262-90.

<sup>19</sup> Koh and Robinson, "Strengthening Sustainable Development."

<sup>20</sup> ASEAN, <http://environment.asean.org/index.php?page=agreements> (accessed Aug. 3, 2011).

Environmental issues first appeared at the political agenda of ASEAN during the late 1970s. ASEAN Environmental regionalism has evolved slowly and in three major phases.<sup>21</sup> In the first phase ASEAN introduced the first subregional environment program (ASEP I) which mainly emphasized on securing the availability of natural resources for economic development.<sup>22</sup> Over time, environmental ambitions evolved and we can witness a growing commitment to accept common environmental norms and principles. During the second phase (late 1980s until late 1990s) focus shifted more on transnational threats. Environmental awareness among many countries has grown.

In 1993, the ASEAN Senior Officials on the Environment (ASOEN) agreed to develop the ASEAN Strategic Plan of Action on the Environment. The new Action Plan should shift focus towards sustainable development strategies and greater emphasis was laid on the creation of networks that should contribute to the policy making process. The third phase is characterized by the formation of formal relations within the community. ASEAN established a system of environmental goals and objectives. In the case haze, ASEAN members have – for the first time – demonstrated their region-wide commitment to cooperate on a large-scale transboundary environmental issue (See box 1). However, the failure of the anti-haze agreement reflects ASEAN's decision making problems. The principle of non-interference and safeguarding member states' sovereignty is continued at the cost of the environment.<sup>23</sup>

#### **Box 1: The ASEAN Anti-Haze Regime**

A specific problem for the South East Asian region is haze. In 1991, widespread forest fires in Indonesia covered large areas of the region under a thick haze and the size, scope and transboundary nature of the issue called for a response at the regional level. In 1992, ASEAN formed the *ASEAN Experts Plan Panel to Deal with Haze Problem* to gather information about the origins of the haze and to lay out an adequate policy response. Thick haze covered the region again in 1994 and 1995 and rapid political response was required. The *ASEAN Cooperation Plan on Transboundary Pollution* (1995) included measures addressing transboundary atmospheric pollution, transboundary ship-borne pollution, and transboundary movement of hazardous wastes. The burning of biomass during certain periods was banned, and information sharing fostered. While the *ASEAN Coordinating Centre for Transboundary Haze Pollution Control* was set in charge to facilitate cooperation among the parties and gather data, it was not equipped with enforcement authorities and as a result, the agreement proved to be unable stop the haze problem. Since the issue remained unsolved, a new plan had to be worked out. And in 2002, ASEAN leaders adopted the *ASEAN Agreement on Transboundary Haze Pollution*. Although this time the agreement was provided with a legally binding character for the six founding members, however members could not agree to include concrete sanctions or measures for non-compliance.<sup>24</sup>

## **The Challenge of E-Waste in ASEAN**

Quantities of waste are linked to levels of overall economic development, consumer preferences and the consumption of resources. Over the past decades, solid waste has become one of the most visible issues of countries in the Asian region, as economic development advanced. In the developed countries, e-waste already accounts for 1-3 percent of the total solid waste and waste from electrical and electronic equipment (WEEE/e-waste) accounts for one fastest growing waste streams, due to shortening life-cycles and rising living standards.

<sup>21</sup> Elliott, Lorraine. 2011. "ASEAN and environmental governance: rethinking networked regionalism in Southeast Asia." *Procedia Social and Behavioral Sciences* 14 – Special Issue.

<sup>22</sup> ASEAN Ministerial Meeting on the Environment, 1981

<sup>23</sup> Aggarwal and Chow, "The perils of consensus."

<sup>24</sup> Nguitragool, Paruedee. 2011. "Negotiating the Haze Treaty." *Asian Survey* 51, No. 2 (March/April): 356-78.



Volumes of e-waste grow three times faster than volumes of average solid waste. In the EU, every citizen produces an average 14 to 15 kg of e-waste annually. But also many Asian countries in Asia experience a rapid rise in the volume of e-waste. Thailand has reported a rise in the volume of e-waste by an annual 12 percent. The volume of obsolete PCs in developing countries is estimated to surpass those of the developed countries by 2016-2018. By 2030, some 400-700 million PCs will become obsolete in the developing countries.<sup>25</sup> Besides the issue of disposal of domestically consumed e-waste there is great concern about the transboundary movement of wastes and secondary resources.<sup>26</sup> Large amounts of e-waste and second hand EEE are being shipped from the developed nations to the developing countries (mainly to Africa and Asia) but also within the developing nations. Regarding Asia, Hong Kong, China, Singapore and Malaysia are the main recipients of e-waste from the EU. Since electronic scrap and second hand EEE contain valuable components and materials they have been used as source of secondary raw materials. From a ton of e-waste up to 200 kg of copper are retrievable. Many countries in Asia are importing second hand appliances for the purpose of reuse or to retrieve cheap secondary raw materials. Large amounts of discarded EEE and second-hand EEE are shipped across the globe for the purpose of recycling, reuse or disposal. Some estimated 50-80 percent of the collected domestic e-waste of the United States is not recycled domestically but exported to developing nations.<sup>27</sup> The shipment within the ASEAN region can be explained by the differences of various socioeconomic conditions in importing and exporting countries. However, inappropriate handling of e-waste causes severe harm to the environment and to human health since many electronic products contain hazardous substances, such as lead or cadmium.

### **The Basel Convention**

During the 1970s and 1980s many industrialized countries exported their hazardous waste to developing nations for final disposal. It took two decades to recognize the malpractices and to agree on a response. The *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal* (Basel Convention) which came into force in 1992 has 178 signatory parties.<sup>28</sup> The convention controls international movements of hazardous substance. The Convention includes lists of hazardous and non-hazardous wastes, including several types of e-waste, such as batteries, cables which contain lead, CRT glass etc. In order to ban illegal shipments, the Basel Convention requires notification of the importing country about the export of hazardous waste prior the shipment.

The Convention has limited the shipment of hazardous waste for disposal substantially, however, now, there is great concern about the shipment of EEE for the purpose of reuse and recycling. Goods that are exported for the purpose of reuse do not require pre-shipment notification of any form or pre-shipment approval. And due to that loophole the Basel Convention is limited in its ability to restrict the trade of old EEE, shipped as second hand appliances.

### **Existing Legislation on E-Waste in ASEAN**

Since retrieving valuable substances from e-waste has become a profitable business for a large informal sector, trade flow of discarded EEE and second hand EEE intensified across the globe. Although the largest sources of discarded EEE are still OECD countries, non-

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<sup>25</sup> Yu J, Williams, M. Ju, and Y. Yang. 2010. "Forecasting Global Generation of obsolete Personal Computers." *Environmental Science and Technology* 44, no. 9 (May): 3232-7.

<sup>26</sup> Greenpeace. 2008. Toxic Tech: Not in Our Backyard; Uncovering Hidden Flows of E-waste. Amsterdam, The Netherlands: Greenpeace International.

<sup>27</sup> Puckett J, Smith T. 2002. Exporting harm: the high-tech trashing of Asia. The Basel Action Network. Seattle: Silicon Valley Toxics Coalition.

<sup>28</sup> The Basel Convention, <http://www.basel.int/>.

OECD countries are increasingly active in trade of used EEE. And particularly Asia has become a hotspot for shipments of WEEE and second hand EEE. Large amounts of second hand appliances are shipped to Hong Kong and Singapore, mainly for the purpose of reexport.<sup>29</sup> But also many other ASEAN countries are actively importing various kinds of wastes, including used EEE and WEEE.<sup>30</sup> As the region lacks a common policy on the issue, we can find a patchwork of regulations across the ASEAN member states. The following section provides a brief overview of existing legislation regarding WEEE and trade of WEEE in major several ASEAN countries.

Vietnam, Indonesia and Thailand all prohibit the import of e-waste and used electronics but the governments do not request any pre-shipment requirements or controls on exports of used electronics. Regarding the export of e-waste, Vietnam follows the regulations of the Basel Convention. In 2004, Vietnam prohibited the import of e-waste for the purpose of re-export and in 2005 it tightened the ban on imports of e-waste, regardless of its purpose. However, in the lack of stringent controls import of EEE continued. A major route for trade of second hand EEE is between China and Vietnam. Beijing even promotes the trade in the region with the reduction of value-added tax on exports of second hand EEE. By importing used EEE from industrialized countries, repairing or refurbishing, re-exporting them to developing countries (such as Vietnam) Chinese actors are utilizing the high demand for second hand appliances in the region.<sup>31</sup> In 2006, the government stepped up efforts to tighten the enforcement of the ban. Before the regulations, large amounts of used EEE were imported from Japan and other Asian countries. The government also banned the dismantling of E-waste scrap itself. A growing domestic industry and lower tax for imports of brand new EEE will reduce the demand for used EEE in the long run. In general, Vietnam still lacks high awareness on the ecological risks connected to the treatment of WEEE.

Indonesia follows the regulations of the Basel Convention regarding exports of hazardous waste, e-waste and used EEE. According to the regulations import of any hazardous waste for any purposes (including recycling) is prohibited. Jakarta bans the import of hazardous waste and e-waste that is classified as hazardous.<sup>32</sup> In 1994, Indonesia has enacted national regulations on hazardous waste management. The general awareness of threats from e-waste is relatively low. Since the issue of e-waste receives no big public attention political institution do not face immediate pressure to deal with the problem. The country thus still lacks a clear definition for e-waste and has not provided criteria for regulating e-waste.

The Indonesian electronic industry is not yet fully developed as there are only 80 large and 150 small-medium electronic manufacturers. As a result, Indonesia is largely dependent on imports of EEE. More than half the needed components are imported. Despite a ban on imports, trade is flourishing due to weak enforcement. E-waste is still shipped to Indonesian markets and illegal imports of second hand electronics and e-waste make up to 40 percent of the domestic market. In Indonesia, about half of the overall electrical and electronic goods market in Indonesia is estimated to be smuggled.<sup>33</sup> Due to the lack of a strong domestic

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<sup>29</sup> TBM report, "Analysis of Transboundary Movements of Hazardous Wastes and Other Wastes in Asia." <http://archive.basel.int/convention/cli/wildhaus-meeting/TBM%20Analysis%20in%20Asia.pdf> (accessed October 23, 2011).

<sup>30</sup> Yoshida A., and Terazono A. 2010. "Reuse of secondhand TVs exported from Japan to the Philippines." *Waste Management and Research* 30, no. 6 (June):1063-72.

<sup>31</sup> Shinkuma, Takayoshi, and Nguyen Thi Minh Huong. 2009. "The flow of E-waste material in the Asian region and a reconsideration of international trade policies on E-waste." *Environmental Impacts Assessment* 29, no 1 (January): 25-31.

<sup>32</sup> Interestingly, Indonesia allows the export.

<sup>33</sup> Kojima M., Yoshida A., and Sasaki S. 2009. "Difficulties in applying extended producer responsibility policies in developing countries: case studies in e-waste recycling in China and Thailand." *Journal of Material Cycles and Waste Management* 11: 263-69.

electronic industry, demand for cheap EEE is met by imports or second hand products. Now, the government aims to stimulate the domestic industry by restricting the import of used electronics for direct reuse. Since landfills do not report large levels of WEEE, electrical parts and electronic components are treated by a large informal sector, which generates income at the lowest levels. It furthermore, allows low-income groups to get access to cheap electronic appliances.

In Thailand, WEEE and e-waste is defined by domestic regulations, and e-waste is declared as hazardous material. Bangkok follows the regulations of the Basel treaty for import and export and import and export of e-waste requires governmental approval. Also the import of used EEE for reuse requires the permission of the government. Thai regulations request registration for producers, importers, exporters and sellers of WEEE and used EEE. However, Thailand faces massive problems to enforce the regulations. The country has a strong domestic EEE industry. Thailand has over 800 electrical factories and over 900 electronic factories. While most electric suppliers are domestic SMEs, electronic suppliers are mainly international joint-ventures.<sup>34</sup> As of now, End-of-Life (EoL) products are largely dismantled by the informal sector, despite the establishment of a national collection system which receives subsidies.<sup>35</sup>

As an exporter of EEE, Thailand is concerned about legislation of external trading partners. The EU represents Thailand's second largest export destination. Responding to the EU environmental directives on EEE (EU WEEE and EU RoHS), Thailand introduced a domestic standard on RoHS-conformity. The voluntary labelling scheme was launched in early 2009.

The countries of Malaysia, the Philippines and Singapore have pre-shipment procedural requirements for imports and exports of used electronics intended for reuse. Malaysia is a signatory of the Basel Convention and follows the import and export procedures of the Basel Convention for wastes that are hazardous. The import of e-waste and the export of e-waste for purposes of final disposal are prohibited. Prior any shipment of used electronics for the purpose of reuse approval from the Department Environment is needed.

Malaysia lacks a domestic recycling scheme which could handle the streams of WEEE adequately. The country suffers from a large divide between the largest sources of WEEE and the licensed e-waste collectors.<sup>36</sup> In 2008, the whole country only had 107 licensed contractors for collecting and processing e-waste. As a consequence, only a small fraction of the e-waste is recycled. However, the amount of WEEE being discarded is estimated to equal 1.165 billion units (or over 21,000 million tonnes) by 2020.<sup>37</sup> The 2008 *Guidelines for Classification of Used Electrical and Electronic Equipment* provide the much needed classification of used EEE. And Malaysia is currently working on a draft for regulating the control and management of e-waste.<sup>38</sup> However, public awareness on the issue of WEEE is generally limited.<sup>39</sup>

The Philippines is a signatory to the Basel Convention. However, as other countries, also the Philippines struggle with rising volumes of e-waste. The country lacks a comprehensive policy framework for e-waste in place and relevant authorities failed to issue

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<sup>34</sup> "Development of E-Waste Inventory in Thailand," Electrical and Electronics Institute Thailand, June 2007

<sup>35</sup> Ibid.

<sup>36</sup> Agamuthu, P., and Dennis Victor. 2011. "Policy trends of extended producer responsibility in Malaysia." *Waste Management and Research* 29, no. 9 (Sep.): 945-53.

<sup>37</sup> The Basel Convention, "The e-waste inventory project in Malaysia," [http://basel.int/techmatters/e\\_wastes/projReport30-07-09.pdf](http://basel.int/techmatters/e_wastes/projReport30-07-09.pdf).

<sup>38</sup> Ibid.

<sup>39</sup> Ibid.

an official definition of e-waste.<sup>40</sup> Obsolete products are stored or reused. The country has a vivid market for used EEE. For the Philippines, the recycling of electronics is a rather new phenomenon, thus only a small fraction of the obsolete electronic items goes to recycling centre or to final disposal at the landfills. In 2001, the Philippines enacted the Ecological Solid Waste Management Act which sets guidelines for solid waste reduction, including targets for avoidance. The act aims to foster recycling, reuse, and recovery before collection, treatment and disposal at environmentally sound facilities. The law classifies types of wastes but fails to provide clear guidelines on handling procedures.<sup>41</sup>

Electrical and electronic equipment accounts for about 40 percent of the country's total imports. The number of clearances regarding the importation of second hand EEE and e-scrap issued by the government is rising over time. In 2007, nearly 100,000 tonnes were imported from Korea and Japan.<sup>42</sup>

Traditionally, the electronics industry of Singapore takes a vital position the country's economic development. Singapore enjoys one of the highest rates on environmental awareness in the region. Already in 1997, the Government enacted the *Hazardous Waste Bill* for controlling the trade of waste. Companies that engage in export or import of any kind of hazardous waste require governmental approval.

Cambodia is a signatory to the Basel Convention. Due to its rapid economic development Cambodia has developed an enormous demand for EEE. The country has a large second hand market but due to the lack of an own domestic EEE industry it is heavily engaged in the import of second hand EEE. So far, Cambodia does not produce any kind of EEE. Cheap second hand products play a dominant role in satisfying the domestic demand. Second hand appliances are imported from China, Finland, France, Hong Kong, Japan, Malaysia, Republic of Korea, Singapore, Thailand and the U.S.A.<sup>43</sup>

In order to meet domestic demand, national regulations allow the import of used EEE. Between 2000 and 2006, Cambodia imported almost a million units of 903,334 TV sets, about 200,000 air-conditioners, about 91,000 refrigerators and about 30,000 washing machines. It thus allows the import of used electronics for reuse and does not require government approval prior to shipments of used electronics for reuse. The government only bans the import of second hand computers while other kinds of WEEE are unregulated. Cambodia does not consider used EEE with the purpose of reuse as a hazardous waste and in 2007 there was no record of a single e-waste recycling facility in the country. As a consequence, WEEE and used EEE are collected, renewed, recycled and dismantled by the informal sector.<sup>44</sup> Cambodia suffers from improper methods of repairing and dismantling of used EEE. Environmental considerations are not taken into account when dealing with WEEE. No specific government institution is clearly set responsible for managing the rising streams of used EEE.

While the *Law on Natural Resources Management and Environmental Protection* addresses the transboundary movement of hazardous waste, the country lacks a legal framework on e-waste and thus has no specific regulations on e-waste.<sup>45</sup>

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<sup>40</sup> Alegre, Alan G., and Patria Gwen M. L. Borcena. "Philippines – Foundation for media Alternatives (FMA)", available under: [http://www.giswatch.org/sites/default/files/gisw2010countryphilippines\\_en.pdf](http://www.giswatch.org/sites/default/files/gisw2010countryphilippines_en.pdf) (accessed October 4, 2011).

<sup>41</sup> Terazono, Atsushi, Shinsuke Murakami, Naoya Abe, Bulent Inanc, Yuichi Moriguchi, Shin-ichi Sakai, Michikazu Kojima, Aya Yoshida, Jinhui Li, and Jianxin Yang, et al. 2006. "Current status and research on E-waste issues in Asia." *Journal of Material Cycles and Waste Management* 8, no. 1: 1-12.

<sup>42</sup> Peralta, Genandrialine L., and Psyche M. Fontanos. 2006. "E-waste issues and measures in the Philippines." *Journal of Material Cycles and Waste Management* 8, no. 1: 34-39.

<sup>43</sup> UNEP, "E-waste Volume I." [http://www.unep.or.jp/ietc/Publications/spc/EWasteManual\\_Vol1.pdf](http://www.unep.or.jp/ietc/Publications/spc/EWasteManual_Vol1.pdf) (accessed October 11, 2011).

<sup>44</sup> Ibid.

<sup>45</sup> Terazono et. al., "Current status."

In 2008, Cambodia launched an attempt to establish domestic recycling schemes and to regulate the disposal of electronic equipment and components in an adequate and environmental friendly manner.<sup>46</sup>

Awareness of the devastating threats from dealing with e-waste is generally at a very low level in Cambodia.<sup>47</sup>

### **Extended Producer Responsibility in ASEAN**

Across the globe there have been efforts to address the emerging issue of e-waste by reorientation of the management approaches. In tackling environmental challenges the principle of extended producer responsibility (EPR) has turned out to be a valuable approach. Originally defined by Thomas Lindhqvist it represents an environmental protection strategy by setting manufacturers of products responsible for whole life cycle of their manufactures, including the post-consumption phase.<sup>48</sup>

In order to tackle the issue of e-waste, the EU adopted two directives - the Waste Electrical Electronic Equipment Directive (WEEE-Directive 2002/96/EC) and the Restriction of Hazardous Substances (RoHS-Directive 2002/96/EC). While the EU WEEE directive mainly aims to reduce concerns about waste-management, the EU RoHS directive restricts the use of hazardous substances contained in EEE. Only products that fulfill the requirements are allowed to be sold on the EU market. The decision has also triggered reconsideration of national policies regarding WEEE among non-EU countries, particularly in those with close trade links with the EU. Thailand for instance has responded by a national legislation with similar aims (Thailand RoHS).<sup>49</sup> However, due to varying trade dependencies not all ASEAN member states feel the same pressure to respond. However, it can be hoped that environmental considerations made in certain countries, such as Thailand, may in the longer run, spread over the ASEAN region.

In general, the concept of EPR has drawn attention among policy makers in Asia. In 2005, Thailand published a draft legislation aimed at tackling the stream of e-waste.<sup>50</sup> This regulation can be seen as direct response to the EU WEEE-directive. Thailand has adopted regulations that shift financial responsibilities for recycling of e-waste to producers. The overall policy includes measures that requests from electrical and electronic producers to use a certain minimum level of recycled inputs.<sup>51</sup> Also Vietnam has revised its *Environmental Protection Law* (2005) to include financial responsibilities of producers for the collection for EoL products. The concept of EPR can also be found in the Indonesian *Law on Rubbish Management* (2008), where manufacturers are given more responsibility to deal with EoL products.<sup>52</sup> In Malaysia, the 2007 *Solid Waste and Public Cleansing Management Act* allows

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<sup>46</sup> UNEP, "Policy and Regulations – Phnom Penh (Cambodia)." [http://www.unep.or.jp/ietc/GPWM/data/T2/EW\\_1\\_P\\_PolicyAndRegulations\\_PhnomPenh.pdf](http://www.unep.or.jp/ietc/GPWM/data/T2/EW_1_P_PolicyAndRegulations_PhnomPenh.pdf) (accessed Sep. 29, 2011).

<sup>47</sup> Basel Convention. 2007. "Technical Report on National Inventory of used EEE in Cambodia." Cambodia Environmental Association. Available under: [http://basel.int/techmatters/e\\_wastes/report\\_cambodia\\_11-05-07.pdf](http://basel.int/techmatters/e_wastes/report_cambodia_11-05-07.pdf) (accessed Sep. 29, 2011).

<sup>48</sup> Lindhqvist, Thomas. 2000. *Extended producer responsibility in cleaner production*. The International Institute for Industrial Environmental Economics. Lund, Sweden: Lund University.

<sup>49</sup> Tingsabhadh, Charit, and Pracha Jantarassophon. 2007. "Electrical and Electronic Equipment – Environmental impacts of trade liberalization." International Institute for Sustainable Development (IISD). Available under: [http://www.iisd.org/pdf/2007/rtea\\_thai\\_electrical.pdf](http://www.iisd.org/pdf/2007/rtea_thai_electrical.pdf). Unlike the EU counterpart, the non-binding Thai RoHS which became effective on February 2, 2009 is a voluntary non-binding standard.

<sup>50</sup> *The Act on the Promotion of Hazardous Waste Management from Used Products*.

<sup>51</sup> Manomaivibool, Panate, and Sujitra Vassanadumrongdee. 2011. "Extended Producer Responsibility in Thailand Prospects for Policies on Waste Electrical and Electronic Equipment." *Journal of Industrial Ecology* 15, no. 2: 185-205.

<sup>52</sup> Saputra, Hervin. "People's Legislative Assembly Passes Law on Rubbish Management." Voice of Human Rights, April 10, 2008. Available under: <http://www.vhrmedia.com/inggris/vhr-news/berita-detail.php?.g=news&.s=berita&.e=50> (accessed October 2, 2011).

the government to put responsibility for the collection of products on the manufacturers, assemblers and importers. However, as Kojima (2005) points out the application of EPR may be difficult in developing countries, since – regarding e-waste – the informal sector takes the central stage for recycling. Since formal recyclers have to comply with certain kinds of environmental standards and follow the labour protection measures, the informal sector – which ignores such regulations – receives a competitive edge that leads to a weakening of the regulated sector. Furthermore, EPR implementation is facing difficulties as it is often not easy to identify the producer or the importer. For products that are assembled by small-scale businesses it seems infeasible to put responsibility on the producer. Smuggled goods and imitation of products are another challenge. In the case of smuggled items it is impossible to apply this approach.<sup>53</sup>

## Analysis

If ASEAN wants to remain its legitimacy as the leading association in the region, the organization has to provide responses to current socio-economic and environmental challenges. Since ecological threats with transboundary effects can only be addressed by joint regional efforts the regional Association of South-East Asian Nations meets high expectations. As the case of e-waste demonstrates, ASEAN is in strong need to refine its regional environmental governance. Although the challenge of mounting volumes of e-waste has received increased attention across the region, ASEAN failed to come up with a common policy in order to tackle the issue.

The initial driver for cooperation is the expectation of mutual gains. A cooperative agreement is only satisfactory when each party finds itself in a better position than without cooperation. Finding a regional response to the matter of e-waste seems to be a difficult task for ASEAN as not only preferences and interests of member states diverge but also perceptions of the problem itself vary greatly. Policy making is largely dependent on the decision makers' perceptions of the situation. In contrast to the challenge of haze from regional forest fires, the issue of e-waste has clearly not reached the top political levels of ASEAN. And since many individual member states see no immediate need for action, cooperation is on a halt. A redefinition of environmental degradation (such as from improper treatment of e-waste) as a security threat could bring new impetus for action and raise regional awareness of the issue.<sup>54</sup> As of now, ASEAN environmental governance allows member states to set their national efforts according to their individual national interests. Thus, there is a strong need to establish ASEAN community law to govern the association with principles that can be applied at the national level. Without the adoption of a binding community law ASEAN will not be able to turn into an effective and successful community.

The region's diversity in terms of economic development and market structure makes policy coordination more difficult. The integration of the new members between 1995 and 1999 was mainly driven by security concerns and less by economic considerations.<sup>55</sup> However, the expansion of membership has influence on policy coordination since agreements require a consensus. Interests of old members differ largely from those of new member nations. While the founding members are all engaged in the production of EEE, the least developed countries do not even possess a domestic industry and their dependence on imports leads them towards a more cautious approach regarding regulation of used EEE and e-waste. Domestic demand in less developed countries is often met by refurbished second hand products, since they are

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<sup>53</sup> For more please refer to: Hotta, Yasuhiko, Mark Elder, Hideyuki Mori, and Makiko Tanaka. 2008. "Policy Considerations for Establishing an Environmentally Sound Regional Material Flow in East Asia." *The Journal of Environment & Development* 17, no. 1 (March): 26-50.

<sup>54</sup> Dokken, Karin. 2001. "Environment, security and regionalism in the Asia-Pacific: is environmental security a useful concept?" *The Pacific Review* 14, no. 4: 509-30.

<sup>55</sup> Cambodia, Lao, Myanmar and Vietnam.

more affordable for people. Since least developed countries are dependent on the import of used EEE it seems unlikely that they would agree on stricter regulations of the trade of EEE and WEEE. Any regional proposals for regulating e-waste or the trade of second hand products would trigger conflicts among member states. The logic of the markets is definitely a crucial factor of the complex issue. National governments have no immediate incentives to favour a ban of international trade of WEEE and used EEE since this would cause economic losses and an increased need for raw material imports for production processes. A total ban of transport would not stop the movement of waste streams but result in the spread of illegal operations by the informal sector across the region. Most nations will not agree to ban the import of second hand WEEE since it represents a cheap source of meeting domestic demand. Least developed nations are dependent on the imports of second hand EEE, since they do not engage in a large scale production of EEE.

Regional trade of e-waste and second hand EEE is driven by economic incentives such as cheap and abundant labour, low environmental standards and a high demand for second hand EEE or secondary raw materials. While at first a ban of transboundary shipment of WEEE (such as the Basel Convention) seems to be an appropriate method to limit the flow of e-waste, practically the attempt fails due to implementation and enforcement issues at the national level. Although most countries have laws and regulations in place to restrict the trade of hazardous waste, enforcement of the regulations represents a major issue. Whereas harmonization of standards and definitions of e-waste seems an achievable task, major challenges arise from market logics. The ASEAN region is characterized by economies that engage as exporters of EEE as well as importers of used EEE and WEEE. From an economic perspective, e-waste represents a valuable resource that may lower the cost of production for the domestic industry. Countries such as Indonesia and Vietnam are now in the initial phase of building up a domestic EEE manufacturing industry. For other countries, such as Thailand, the Philippines, Malaysia and Singapore the electronic industry already enjoys a vital position within the overall economy. With rising prices in raw materials on international markets competition for secondary resource generated from e-waste will increase. However, due to fears of potential economic losses it seems unlikely that regional governments will agree on a regional framework to tighten regulations on the import of WEEE and trade of e-waste unanimously. The prohibition of import of second hand EEE is considered as policy for countries such as Vietnam to promote the build-up of a domestic industry rather than environmental protection efforts. Whereas the perceptions of the problems stemming from inappropriate treatment of e-waste vary largely among decision makers in the region, political leaders realized the economic potentials of e-waste or second-hand EEE. Since valuable components are repaired and reused again, landfills of the least developed nations do not see the expected large streams of e-waste.

While countries with higher economic development and higher income levels - such as Singapore, Malaysia and to a lesser degree also Thailand and the Philippines have already made experiences in setting up advanced recycling stations for hazardous wastes, countries with relatively low economic development (CLMV) did not develop adequate recycling and treatment facilities.<sup>56</sup> Less advanced economies in the region do not possess formal waste management schemes where e-waste streams could be integrated.<sup>57</sup> Across the region collection and recycling of WEEE is largely accomplished by the informal sector, which provides income for thousands of people. In most member states, the informal sector is the largest player in collection and recycling of WEEE. Furthermore, the informal sector is in competition with formal sector. Since the informal sector operates under a lower cost

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<sup>56</sup> TBM report, "TBM report, "Analysis of Transboundary Movements."

<sup>57</sup> Damanhuri E. 2010. "Informal collectors of recyclable waste and used goods in Indonesia." In: Kojima M (ed.) *Eria Research Project 2009*, No.10, *3R Policies for Southeast and East Asia*. Jakarta, Indonesia: ERIA, 71–101.

structure it is able to pay higher prices for discarded EEE, and thus undermines the formal national collection and recycling schemes.<sup>58</sup> So far, only the more advanced economies were able to establish facilities that can deal with large amounts of the hazardous waste in a more appropriate manner.

## Conclusion

As in many other regions in the world increased efforts for integration and cooperation at the regional level can be witnessed also in ASEAN. Originating from a structure mainly concerned with security ASEAN developed into an organization that now promotes economic cooperation and integration. Although ASEAN has come closer than ever to reach the goal of establishing a real community, the organization is still far of fully implementing it, due to its reluctance to reform its decision making structures. Leaders have acknowledged that the region's environmental and natural resources are endangered, however, in comparison to economic cooperation concerted efforts in environmental cooperation seems harder to achieve as the mutual gains are not immediately perceived. The rising volumes of e-waste and the transboundary shipment of secondary EEE have drawn the attention of regional leaders but they were so far not able to cooperate on the issue. In the case of e-waste, ASEAN is facing difficulties to agree on a common policy response. In such a complex situation of varying starting points and diverging interests ASEAN fails to operate as a mediator for policy coordination among the member states. Competition among the economies spurs economic nationalism and even drives position of countries more apart. ASEAN members still put national interests over the interests of the community.

ASEAN lacks the necessary institutional structure that facilitates an effective implementation of environmental agreements. For enhanced regional environmental governance, ASEAN needs to form a central ASEAN bureaucracy with enforcement authority. Regional integration can only be achieved when member states cede certain sovereignty to a central authority. However, the organization suffers from a general resistance to legalism and formalism as its member states are reluctant to show political commitment to cede power to a central body. This may be due to a lacking regional identity but also due to the (mis)understanding of potential gains from cooperation. As of now, ASEAN is not equipped with enough authorities to enforce existing agreements. ASEAN is unable to adopt EU-like-directives, due to its institutional structures and the weak legal framework. If future agreements are not legally binding and still lack clear instruments of implementation and enforcement they will be unable to tackle regional environmental challenges. The current emphasize on consultation and consensus building to reach joint positions hinders progress in integration and policy coordination.<sup>59</sup> Individual countries follow their self-interest than seeking for collective benefits. Given the large variations in levels of economic development, market structure, institutional structures, technological capabilities, environmental awareness and the progress of basic environmental protection legislation it seems unlikely for the ASEAN region to implement a common policy for the issue of e-waste. Thus, a first step to address the issue needs to take place at the national levels by promoting national recycling industries under stricter regulations and establishing organizational linkages between the formal and the informal sector. A further fruitful step could be the introduction of a

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<sup>58</sup> Liu X., Tanaka M., and Matsui Y. 2006. "Electrical and electronic waste management in China: progress and the barriers to overcome." *Waste Management and Research* 24: 92–101.

<sup>59</sup> Wiebe, Franck. 2000. "Environmental Cooperation in ASEAN," in: *The Environment and International Trade Negotiations*, ed. Diana Tussie, London: Macmillan Press, 205-23.



certification scheme for facilities with proper methods of recycling. In addition, certain tax policies and subsidies could bundle waste streams towards certificated facilities.<sup>60</sup>

While ASEAN is not able to bridge the gap between the member states, also the second option for overcoming obstacles in policy coordination seems problematic. In the EU, integration processes were propelled by active engagement of its member states.<sup>61</sup> The existence of a single frontrunner allowed the implementation of higher standards across the region. However, ASEAN also lacks an accepted frontrunner in the case of tackling e-waste that could push other members for speeding up their efforts. While several countries such as Thailand or Malaysia have pushed ahead with national legislation, it seems unlikely that they take the position of leaders in the region.

Due to current governance modes, ASEAN is more likely to cooperate on issues where member states' interests align. In cases where member states have common goals and perceptions the approach of consensus may lead to adequate results, but in cases where interests and perceptions diverge, the approach leads to a standstill. Since the removal of the principles of non-interference and consensus seems impossible in the near future, a redefinition of the range of application of the principles could bring progress. The environmental realm could be a proper testing area for such fundamental changes, such as setting environmental measures with a binding character. Since a region-wide policy response on e-waste is hard to achieve, a multi-phased approach under the formula of ASEAN minus X could provide a viable option.<sup>62</sup> In such a case several more developed ASEAN countries could move ahead with an agreement based on common interests. After gaining benefits from the agreement other countries may follow the example. However, such a multi-phased approach must be implemented with care, since it also includes a risk of further weakening the overall community.

We can assume that with economic progress in the region also environmental challenges will grow and thus the region would benefit greatly by strengthening its regional environmental governance. However, effective regional environmental governance must be based on cooperative policy formulation in combination with concrete mechanisms to facilitate implementation of policies. Only regional cooperation can secure improvements in the protection of the environmental base which is the basic necessity for sustainable growth and prosperity in the region.

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<sup>60</sup> ASEAN Secretariat. 2009. Fourth ASEAN State of the Environment Report 2009. <http://www.scribd.com/doc/22458510/Fourth-ASEAN-State-of-the-Environment-Report-2009-Full-Report> (accessed September 28, 2011).

<sup>61</sup> Germany for instance, was a major driver for stricter environmental regulations on car emissions. Despite conflicts of interests among car producing member states, at the end, people and the environment benefited from stricter regulations for car emissions. Other EU car industries had to adjust their production structures to meet the new requirements. For the EU, car emission standards provided a spur in innovation.

<sup>62</sup> See: Akenji, Lewis, Yasuhiko Hotta, Magnus Bengtsson, and Shiko Hayashi. 2011. "EPR policies for electronics in developing Asia: an adapted phase-in approach." *Waste Management and Research* 29: 919.

- Alegre, Alan G., and Patria Gwen M. L. Borcena. "Philippines – Foundation for media Alternatives (FMA)", available under: [http://www.giswatch.org/sites/default/files/gisw2010countryphilippines\\_en.pdf](http://www.giswatch.org/sites/default/files/gisw2010countryphilippines_en.pdf) (accessed October 4, 2011).
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