The Asean-China Free Trade Agreement and the Greater Mekong Sub-Region

A theoretical reflection on trade, resource depletion and environmental law enforcement

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Abstract

The purpose of this dissertation is to examine the relationship between Free Trade Agreement and the Environment. To do so, the thesis uses a case study on the Asean China Free Trade Agreement (ACFTA) and the Greater Mekong Sub-region (GMS) to analyse how free trade agreements can produce negative externalities on the environment. It will enquire on how free trade agreements exacerbate levels of resource depletion (in the GMS) and, how effective can international environmental law be in limiting resource depletion. By using the theoretical framework of Critical Natural Capital the dissertation analyse the relationship between the ACFTA and the GMS environment highlighting the intrinsic nature between the GMS and its Natural Capital.

Keywords: Free Trade Agreements, Environment, Greater Mekong Sub-region, Asean China Free Trade Agreement, resource depletion, Natural Capital, Critical Natural Capital, Sustainability.

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Acronyms

ADB Asian Development Bank

AEC ASEAN Economic Community

ASEAN+3 Association of Southeast Asian Nations and China, Japan, South Korea

ASEAN+6 Association of Southeast Asian Nations and China, Japan, South Korea, India, Australia, New Zealand

ASEAN Association of Southeast Asian Nations

ASEP ASEAN Subregional Environment Program

CLM Cambodia, Lao PDR, Myanmar

DDT Dichlorodiphenyltrichloroethane (insecticide; CAS Number 50-29-3)

EU European Union

FAO Food and Agriculture Organisation

FDI Foreign Direct Investment

FTA Free Trade Agreement

GDP Gross Domestic Product

GMS5 Cambodia, Lao PDR, Myanmar, Thailand, Viet nam

GMS Greater Mekong Sub-region

HRD Human Resource Development

ICT Information and communications technology

IMF International Monetary Fund

PCB Polychlorinated biphenyl (insecticide; CAS Number 1336-36-3)

PPP Purchasing Power Parity

PRC People's Republic of China

RTA Regional Trade Agreement

US United States

WTO World Trade Organisation

WWF World Wide Fund

Thesis Layout

To ensure the reader has a progressive understanding of the topic, the dissertation will start with an introductive chapter. The introductive chapter will first touch upon the general debate between economy and the environment. Then, it will present the research problem: environmental depletion and environmental law within the case study of the ASEAN China Free Trade Agreement and the Greater Mekong Sub-region environment, and the previous study done on it. The second chapter present the methodology of the study and, it will look at the methods applied. The third chapter will be dedicated to the theoretical framework of trade by looking at Free Trade Agreements and their contribution to resource depletion and at environmental regulation within Free Trade Agreements by revealing the importance of using an approach of economy equal environment rather than economy versus environment. Chapter four will present the case study. Within it, it will present a context and theoretical analysis of the research sub-questions laid out in chapter two. In particular it will look at the Asean-China Free trade agreement and the Greater Mekong Sub-region and how the agreement can exacerbate levels of resource depletion in the Greater Mekong Sub-Region. Then, it will look at the ASEAN China Free Trade Agreement's legal framework for Environmental Protection and how effective it is in limiting resource depletion. Finally, chapter five will present the conclusion to the dissertation.

I. INTRODUCTION

1.1 Background: Environment versus Economy or Environment equal Economy

During the last 20 years the age long dilemma between economic growth achieved through means of Free Trade Agreements and environmental depletion has become more pressing. Economic growth and a healthy environment are outcomes that everybody would love to have since both provide utilities to the recipients (Ubben, 2000). Regrettably there seems to be an intrinsic trade-off between economic activity and environmental preservation (Ubben, 2000). While industry and production use resources that deplete the ecosystem and emit by-products that harm the environment, the process creates economic growth that in turn leads to an increase in income for the population (Fromm, 1981; Gaines, 2008; Neumayer, 2000; Ubben, 2000; Warleigh-Lack, 2014). Furthermore, while local environmental problems can be addressed by existing governmental bodies, at international level (where FTAs are located) there is often a lack of authority that can implement and enforce environmental policies on sovereign states (Friedrich, 2013; Futrell, 2008; Ioannidis et al., 2000; Sands, 2003).

The problem is more acute when talking about developing countries. In particular, the governmental bodies representing developing countries tend to focus primarily on the economic benefits that FTAs will bring without taking into consideration environmental consequences or resource depletion. Southeast Asia is a good illustration of the previous statement as economic development is still very much prominent in this region. In fact, the flourishment of FTAs (the biggest one of them being the Asean-China Free Trade Agreement) aided the economic growth that the region has experienced in the past 20 years by creating rapid economic development which in turn brought dynamism and wealth in Southeast Asia. This was fuelled by food, energy and the demand for commodities within the Asia Pacific and China (Ubben, 2000). Though, at the same time, the region has become polluted, less ecologically diverse and more

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environmentally dirtier (Litta, 2012, p.13). The problem is aggravated by governance weakness and lack of self-enforcing international environmental laws. Furthermore, many environmental problems in the region are transnational in nature making cooperation imperative in order to develop sustainable solutions (Hirsch and Warren, 1998; Litta, 2012; Michaelis, 1992; Mushkat, 2004).

At the centre of the debate between economy versus environment is Natural capital. This because countries are dependent on it on it in order to fuel their economic development. Natural Capital can be defined as the world's stocks of natural assets (Diamond, 2005). These are geology, soil, air, water and the living things. Scholars agree on the fact that the current economic system could bring our society to a so called *'eco-suicide'* (Diamond, 2005). This is fuelled by: deforestation and habitat destruction, soil and water management problems, overhunting, overfishing, effects of introduced species on native species, human-caused climate change, build-up of toxic chemicals in the environment, energy shortages, and full human utilization of the Earth's photosynthetic capacity (Diamond, 2005; Litta, 2012; Muskat, 2004). To conclude, the notion of sustainability could provide an alternative to the dilemma (Bluhdorn et al., 2007; Warleigh-Lack, 2014, Carter, 2001; Cato, 2009; Dryzek, 2005; Eckersley, 2004; Hayward, 1995).

1.2 Research Problem

The thesis uses a case study on the Asean China Free Trade Agreement (ACFTA) and the Greater Mekong Sub-region (GMS) to analyse how free trade agreements can produce negative externalities on the environment. It will enquire on how free trade agreements exacerbate levels of resource depletion (in the GMS) and, how effective international environmental law can be in limiting resource depletion.

The ACFTA Agreement is a Regional Trade Agreement (RTA). RTAs are in all environmentally relevant elements equivalent to the World Trade Organisation (WTO) (free trade) agreements governing trade in goods and, many of them even use WTO agreement

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language (Gaines, 2008). The ACFTA was moulded from WTO agreements (Gaines, 2008). Why choose a Regional Trade Agreement for the case study? According to Gaines (2008) RTAs can be the preferred vehicle to enhance environmental protection and, it can provide an excellent political opportunity for environmental interest within each country to press their governments to pay attention to common environmental interests (Gaines, 2008, p.261). He argues that the nations involved have common environmental concerns thus, at the regional level, it is easier to identify the specific issues to address and agree on solutions and mechanisms in order to address the problems conjointly (Gaines, 2008, p.261). The challenge is to fulfil the potential (Gaines, 2008, p.261). This will depend on mutual environmental interests: geographic proximity and political will of the parties (Gaines, 2008, p.261).

I have chosen the ASEAN-China Free Trade Agreement because it is a landmark agreement since it is the first external regional FTA pursued by ASEAN (Association of Southeast Asian Nations) and the first of China outside its WTO membership. Moreover, it fulfils the characteristics of geographical proximity and to a certain extent (economically), the political will of the parties. To delimit the size of the study I will limit the analysis to the Greater Mekong Subregion, since the region is geographically closer to China than the rest of ASEAN. Also, the Yunnan region, part of the GMS, is a Chinese province.

The GMS can be an extremely relevant case. Firstly, the situation in ASEAN as a whole mirrors that of the Mekong Sub-region. Rising populations, economic development and concurrent actors pose significant dangers to the whole region. Secondly, because the region is so rich in natural heritage, it is important to develop a plan to grow economically without exploiting and degrading it. Mushkat (2004) highlighted how the region is affected by specific environmental problems that are currently causing serious damage to its terrestrial, aquatic and atmospheric ecosystem (Mushkat, 2004, p.1). Due to the region's unique ecosystem, certain global environmental phenomena manifest themselves in particular acute form. For instance, one immediate concern of the results of the greenhouse effect is a likely rise in sea levels which will bring changes in water patterns in the Mekong Region (Mushkat, 2004, p.1). This is of concern

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because the phenomenon will mean an increased likelihood of storms such as tropical cyclones. Another phenomenon brought by intensive economic development is the one of 'garbage imperialism' (Mushkat, 2004, p.14). The ASEAN Region and in particular some areas of the GMS are increasingly becoming the platform for waste dumping, not only limited by nuclear wasting but also, to other ultra-hazardous wastes (Mushkat, 2004, p.1). As we will see in the coming chapters, the unique legislative configuration of the region makes it really hard to solve these issues and develop a sustainable economy.

1.3 Previous studies on ASEAN-China Free Trade Agreement and the Greater Mekong Sub-Region

Previous studies on the topic either focus on the economic potentials of the ACFTA or on how this will bring ecological decline. Furthermore, it is important to mention that the ACFTA is still very new and is being phased in slowly, so any impact assessment can only be preliminary and indicative. This is also the reason why there is little literature done on the topic. The research regarding the case study relied on the body of work from Dosch (2010), Litta (2012), Mushkat (2004), Thiesmeyer (2012). Numerous papers from international and regional bodies were also consulted among them the World Trade Organisation, the World Wide Fund, the International Monetary Fund, the Asian Development Bank and government papers assessing intra and inter regional trade.

The research focus on the GMS countries is inspired by the qualitative policy study of Hing Vutha and Hossein Jalilian from the Cambodia Development Resource Institute and their paper on the "Environmental Impacts of the ASEAN-China Free Trade Agreement on the Greater Mekong Sub-Region" (CDRI, 2009). Theirs, was a single exploratory study that attempted to illustrate the interaction between FTAs trade and environment through a case study of the ACFTA Agreement. The study focused only on the examination of the environmental problems that could arise from trade in Cambodia. Their study highlighted how the ACFTA Agreement does not contain lasting provisions for cooperation on environmental problems that

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can arise as a result of trade liberalization. It showed how, while outside the FTA some concerns were raised by GMS summits, there is still a lack of policy instruments to govern environmental protection. Moreover, it expresses concerns about policy implementation given the current low level of development in the country. The study offered a good starting point to understand the debate between economic development and ecological conservation.

II. METHODOLOGY

2.1 Research Question

Literature about the ASEAN-China Free Trade Agreement on the Greater Mekong Sub-Region is usually policy oriented aimed at assessing either specific environmental problems or the benefits of FTAs for the region's economy and therefore the literature is mostly atheoretical. The purpose of this dissertation is to provide a theoretical argument to analyse the effect of the ACFTA agreement on the Greater Mekong Sub-Region's environment. The theoretical argument will be based on the works of Fromm (1981), Friedrich (2013), Futrell (2008), Gaines (2008), Ioannidis et al. (2000), Neumayer (2000), Ubben (2000), Warleigh-Lack (2014) and, Sands (2003) on the environmental effects on free trade, free traders and environmentalist view on the environment and FTAs and, environmental law enforcement.

The research question for this dissertation is:
How can free trade agreements produce negative externalities on the environment?

With the following sub questions:
1. Can Free Trade Agreements exacerbate levels of resource depletion in the GMS?
2. How effective is the Environmental framework in limiting resource depletion?

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2.2 Ontology and epistemology

Prior to the research design, I reflect on my ontological and epistemological assumptions to illustrate how these influence the research process and design (Davies 1999). In essence, ontology is 'reality' while epistemology is the relationship between reality and the researcher (Davies 1999). As a realist, I assume that the ability to know reality is imperfect thus, reality must be subject to wide critical examination to achieve the best possible understanding of reality. For this reason, the aim of the realism paradigm is to generalise to theoretical propositions (Yin, 1989, p. 21). Since reality is 'real' but only imperfectly and probabilistically apprehendable, triangulation from many sources is required (Perry et al. 1999). This thesis seeks to reveal how FTAs can produce negative externalities on the environment by examining the relationship between FTAs and environment quality, in that I seek to rely on a triangulation of methods (Denzin, 1978).

As realist researchers enter the field with prior theories, theory can be viewed as additional evidence, that is, perceptions, which can be used to clarify the imperfectly apprehendable external reality by triangulating on that reality (Riege, 2003; Perry, 1998). In my thesis I will start with a set of theories obtained with the use of secondary data analysis, which I preferred to other methods as it allowed to gather a much wider range of qualitative data than it would have been possible with other methods and, it enabled me to use a wider range of theories regarding the relationship between FTAs and environment. I will then validate them with a qualitative narrative case study. In other words, I will favour the realist paradigm two-stage approach to a research project, one stage that builds one or two conceptual frameworks, and one or more stages that confirm or disconfirm the framework(s) (Sob and Perry, 2006).

2.3 Research Design

Secondary analysis of qualitative data

This approach involves the use of existing data. This usually was collected for the purpose of a prior study in order to pursue a research interest which is distinct from that of the original work

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(Bryman, 2012). While the approach has not been widely used in relation to qualitative data, various arguments in favour of developing secondary analysis of qualitative studies have been put forward (Hinds et al., 1997; Vogel and Clarke-Steffen, 1997; Sandelowski, 1997; Szabo and Strang, 1997; Thorne, 1994 cited in Bryman 2012, p.355). The strongest argument in favour of qualitative secondary analysis is its ability to generate new knowledge, new hypotheses, or support for existing theories while reducing the burden to gather new data; furthermore, it allows wider use of data from rare or inaccessible respondents (Bryman, 2012: p.355). This method is considered unobtrusive (Webb et al. 1966) as the researcher mainly collects data from archive materials (this category includes statistics collected by governmental and non-governmental organizations, diaries, the mass media, and historical records) (Lee 2000).

Case Study

In their true essence case studies explore a phenomenon. As a research method, case studies investigate contemporary real-life phenomena through detailed contextual analysis of a limited number of events or conditions, and their relationships (Yin, 1984, p.23). Yin defines the case study research method as *'an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used'* (Yin, 1984, p.23). This method allows the researcher to examine the data within a specific context very closely. Thus, often a case study method selects small geographical areas or a very small cluster of individual as the subject of study. This thesis is the end product of the use of both methods. I will use secondary analysis of qualitative data and additional in depth analysis to build the theoretical argument on FTAs, environmental quality and environmental law and its enforcement. I will use the method of case study to validate the theoretical argument by doing an analysis on the negative externalities of the ASEAN-China Free Trade Agreement on the Greater Mekong Sub-Region's environment and their environmental framework to limit resource depletion. In particular, I will use an instrumental case study research. As, in the instrumental case study research, the focus of the study is more likely to be known in advance and established around

theory or methods (Mills, 2010; Drupes and Wiebe, 2010). I will then conclude my dissertation with a reflection on sustainable development.

2.4 Ethical considerations

The data presented in this thesis was collected in accordance with the ethical guidelines defined by the Swedish Research Council and, it follows the good research practices formulated by Bryman (2012). Since the data collection for this thesis was done using secondary data analysis it does not face ethical issues. For the case study I limited data collection to that of International and Governative agencies adequate to the purpose of study. The economic and environmental figures found on this dissertation have been collected from the policy paper: Greater Mekong Sub-region Statistics on Growth, Connectivity and Sustainable Development (ADB, 2012; ADB, 2015). The tables on the ACFTA, resource depletion and sustainability and normative behavior are from the Author of this dissertation.

2.5 Limitation and self-reflexivity

It is always important to be self-reflexive when doing academic research. This dissertation contains three important limitations. Firstly, it is always a struggle to find the right balance between theory and reality in order to provide the reader with enough economic and policy discussion and background knowledge for him/her to understand the topic of discussion on one side and, at the same time to not lose the scope of the study. In this dissertation theory is heavily discussed but, I made a conscious effort to follow a theoretical paragraph with a case specific one so to not lose the focus of the discussion. Secondly, country specific discussion of the General Mekong Sub-region is very limited due to the lack of awareness of the issue. FTAs and Environment is rarely discussed in academic discourses and in everyday conversations. For this reason, the majority of the academic literature that we have on this topic is Western based, thus only western FTAs are analysed under the light of a theoretical perspective. The third limitation concerns the depth of the analysis. Due to resource limitation and word constriction it was not

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possible to give a truly in depth analysis of the phenomenon. To do so, would have required a much bigger database on the GMS in general and on the single countries that make up the sub-region for the case study. The theoretical discussion suffers from the same flaw, since, the use of quantitative analysis and a review of the current trends and policy frameworks of environmental regulation would have helped create a stronger theoretical discussion. This dissertation can thus be considered a pilot study of how the relationship between the ACFTA Agreement and the GMS Environment could be analysed and evaluated.

III. THEORETICAL FRAMEWORK

3.1 Starting point: Resource depletion

Environmental degradation is often the result of many small actions, that though individually innocuous, become harmful in the aggregate (World Trade Organisation, 1999). Ecological systems can normally withstand a degree of exploitation and pollution but ecological limits and the effects when oltre passing that threshold are largely unknown (World Trade Organisation, 1999). Therefore, it is important to apply a precautionary principle to ensure safety margins against possible irreversible damages (World Trade Organisation, 1999). According to Diamond (2009) the scale and type of resource depletion humanity is facing can be summarised into three big groups: destruction or loss of natural resources, ceiling on natural resources, harmful things that we produce or trade (Diamond, 2009, p.429).

TABLE 1-Resource Depletion

(1) Destruction or loss of natural resources	(2)Ceiling on natural resources [Ceiling is not hard and fixed but soft, we can obtain more of the needed resources but at an increasing cost]	(3)Harmful things that we produce or trade
- Natural habitats - Wild food resources - Biological diversity	- Energy - Freshwater - Photosynthetic capacity	- Toxic chemicals - Alien species - Atmospheric gases

- Soil		

Source: Diamond, 2009.

Destruction or loss of natural resources

Most of natural habitat losses comprise of forests, wetlands, coral reefs and ocean bottoms. The majority has been converted to other uses or destroyed to build human made habitats such as cities, villages and farmland. These losses directly affect our economic activity since forests and the ecosystem related to plants in general provide humans with timber and other raw material along with ecosystem services like protecting the watershed and soil against erosion, maintaining the quality of our water supplies and the existence of commercially important freshwater fisheries. This constitutes the essential step in the water cycle that generates our rainfall, and provides habitats for most flora and fauna. For example, between 1979 and 2009 in the Greater Mekong Sub-region (excluding Yunnan), about one third of the forests were cleared out for economic activity. The major driver of forest conversion is the production of export commodities like rubber, sugar and rice (Litta, 2012; Baumüller, 2008). In Yunnan and Vietnam most of the native forest have been cleared out for scale plantations of exotic species like acacia and eucalyptus (Litta, 2012; Moeliono et al., 2010; Muskat 2004).

FIGURE 1- Causes and extent of land degradation in the GMS
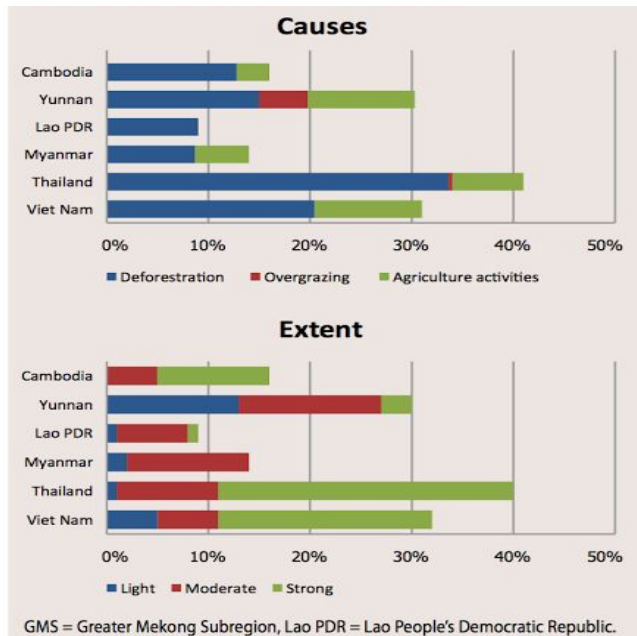
Source: ADB, 2012, p. 157.

Wild foods, like fish constitute a large proportion of protein consumed by humans. Fish and shrimps are now often grown by aquaculture. In principle it could be the cheapest way to produce animal protein, however, in reality the process is making fisheries worse. Fish grown in aquaculture are fed mostly wild-caught fish and thus usually consume 20 times more wild fish meat than what they yield on their own (Diamond, 2009). Cultured fish often escape and interbreed with wild fish harming their genetic heritage (cultured fish are selected for rapid growth not for survival). In the GMS, fishing activities are the most intense and productive of the ASEAN region thanks to the Mekong river basin which is particularly rich in fish especially migratory species (Litta, 2012). This richness is due to the strong connection between riparian and forest systems which together contribute to the system's high biological diversity (Sheil and Murdiyarso, 2009). The process of overfishing and the building dams to increase, among other projects, aquaculture projects are seriously harming the richness of the basin (Muskat 2004; Sheil and Murdiyarso, 2009). Many dam projects are socially and environmentally poorly planned with little consideration of their impacts on the freshwater ecosystems (Muskat 2004; Sheil and Murdiyarso, 2009).

FIGURE 2- Annual total fishery production (thousand of tons)

GMS = Greater Mekong Subregion, Lao PDR = Lao People's Democratic Republic.
Note: Yunnan data not available.
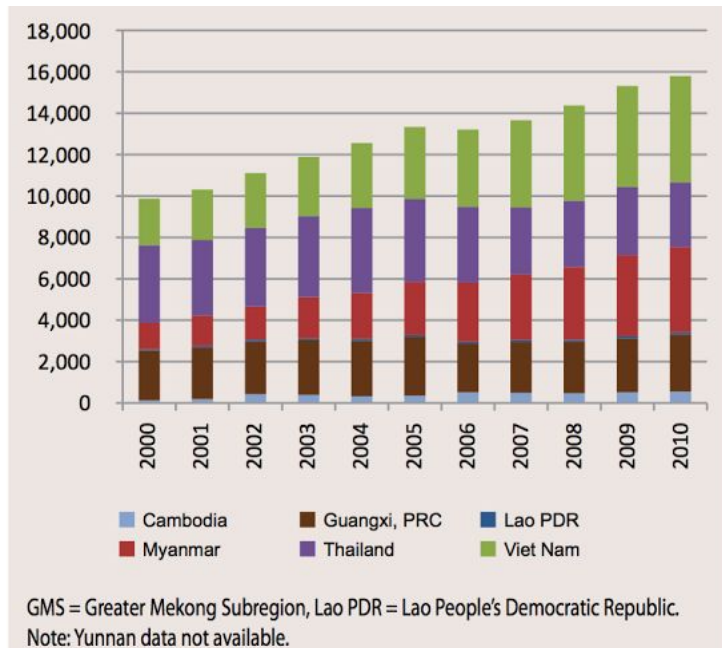
Source: ADB, 2012, p. 168.

Biological diversion is depleting, already a significant fraction of wild species, populations and genetic diversity has been lost. In the GMS there has been a significant decline of some of the iconic species of the region: tigers, elephants, Irrawaddy dolphins, endemic saola and most are now listed as endangered species (Litta, 2012; WWF, 2015). While big animals can be the major cause of concern, it is important to remember that even smaller species contribute to maintaining the ecosystem (e.g. role of the earthworms in regenerating and maintaining soil texture).

Soil damage is the principal worrying cause of resource depletion for agricultural economic activities. Agricultural soil used for growing crops is being carried away by water and wind erosion at rates between 10 and 40 times the rates of soil formation, and between 500 and 10,000 times soil erosion rates on forested land (Diamond, 2009, p.430). As soil erosion rates are so much higher than soil formation rates it means that there is a net loss of soil (Diamond, 2009, p.430). Most countries of the GMS depend on agriculture to fuel their economic development. Agriculture has expanded to meet local and global demand (Litta, 2012). This means that forests are cleared through the method of slash and burn to plant agricultural products which are often

cultivated with intense use of pesticides (Litta, 2012), which is aggravated by increased salinization, acidification or alkalinisation in soils.

FIGURE 3- Agricultural land in the GMS
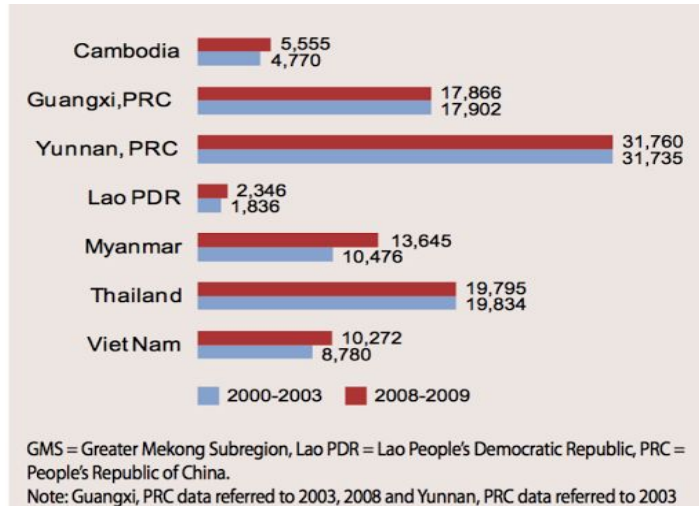
Source: ADB, 2012, p. 153.

Energy, Freshwater, photosynthetic capacity

The world's major energy sources, especially for industrial societies, are fossil fuels: oil, natural gas, coal. There are ongoing discussions about the size of the reserves, nevertheless, extracting them will be costlier environmentally and economically and it will increasingly require deeper digging underground (Diamond, 2009, p.430).

The majority of the world's freshwater is being used for irrigation, domestic and industrial water, boat transportation corridors, fisheries and recreation. This create a vicious circle whereby freshwater underground aquifers are being depleted at rates faster than they are naturally replenished. While freshwater can be recreated using desalinization system, these can be costly and not applicable everywhere (Diamond, 2009, p.430).

FIGURE 4- Water Resources and Withdrawals in the GMS

Water Resources and Withdrawals in GMS Countries

	Cambodia	PRC*	Lao PDR	Myanmar	Thailand	Viet Nam
Water Resources						
Long-term average annual precipitation						
Depth (= internal renewable water resources) (millimeter per year)	1,904	645	1,834	2,091	1,622	1,821
Volume (cubic kilometer per year)	345	6,192	434	1,415	832	603
Long-term average annual renewable water resources						
External renewable water resources (cubic kilometer per year)	355	27	143	165	214	525
Total renewable water resources (cubic kilometer per year)	476	2,840	334	1,168	439	884
Total dam capacity (cubic kilometer)	—	562	8	15	77	20
Pressure on Water Resources						
Total freshwater withdrawal as proportion of average renewable water resources (%)	0.5	19.5	1.3	2.9	13.1	9.3
Agriculture water withdrawal as proportion of average renewable water resources (%)	0.4	12.6	1.2	2.5	11.8	8.8
Area Equipped for Irrigation						
Total area equipped for irrigation ('000 hectare)	353	62,938	310	2,110	6,415	4,585
As proportion of cultivated area (%)	8.9	51.4	26.5	18.1	34.0	48.7
Actually irrigated ('000 hectare)	317	54,219	271	2,110	5,060	4,585

Source: ADB, 2012, p. 189.

FIGURE 5- Total water demand Per Capita, in 1990s and projected in 2020

	Total Demand Per Capita (cubic meter)	Domestic-Industrial Demand (million cubic meter)	
Country	1990	1990	2020
Cambodia	150	78	187
PRC, Yunnan	250	121	328
Lao PDR	280	70	168
Myanmar	—	—	—
Thailand	350	725	1,467
Viet Nam	550	899	1,994

Source: ADB, 2012, p. 189.

Solar energy seems infinite and rarely is included among possible depleting resources. The contrary is true. The amount of solar energy is fixed per acre by plant photosynthesis (Diamond, 2009). Hence, plant growth per acre depends on temperature and rainfall and this is furthermore limited to the geometry and biochemistry of the plants (Diamond, 2009).

(3) Toxic chemicals, alien species, atmospheric gases

Manufacturing and Chemical industries release toxic chemicals into the atmosphere which contributes to the depletion of the ecosystem. These can be synthesized by humans or be naturally present (in nature in small concentrations) but synthesized and released in quantities

larger than natural ones (e.g., hormones) (Diamond, 2009). We swallow them in food and water, breathe them and absorb them into our skin. Many of these toxic chemicals are broken down slowly in the environment (e.g., DDT and PCBs) or not at all (mercury), and they remain in the environment for a long time before being washed out (Diamond, 2009).

Alien species are those that, intentionally or not, we transfer from a native place to a non-native one (Diamond, 2009). Alien species devastate new environments by preying on, parasitizing, infecting, or outcompeting them (Diamond, 2009). For example, in the GMS, the alien tree plant Mimosa Pigra, expanded and converted fertile land along the Mekong basin into sterile shrubs inept to agriculture. Also, the plant reduced fish production and is affecting water birds relying on grasslands.

Human activities include the production of carbon dioxide from combustion and respiration and, methane from fermentation in the intestines of ruminant animals (Diamond, 2009). These gases escape into the atmosphere damaging the protective ozone layer and act as greenhouse gases that absorb sunlight thereby leading to global warming (Diamond, 2009).

FIGURE 6- Greenhouse gas emission profile of the GMS (excluding China)
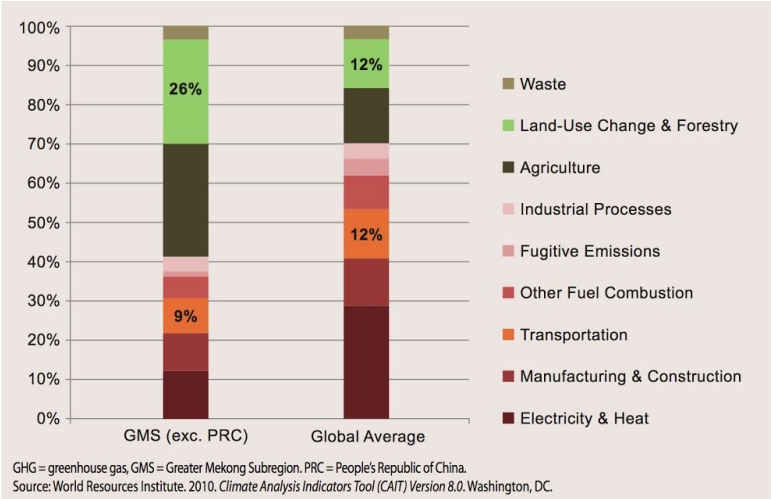
Source: ADB, 2012 p. 247.

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3.2 Critical Natural Capital as Framework

The definition of natural capital can be summarized as 'the stock which produces the flux of natural resources: the population of fishes in the ocean generating the flux of fish going to the market; the forest generating timber; the oil reserves whose exploitation provides petrol' (Daly, 1994, p.22). Treating nature as capital has always been difficult. Holland (1997) and Dobson (1998) affirm that that the deep incoherence in the notion of Natural Capital along with the description of nature as capital provide little safety for the natural world. Many scholars argue that treating the natural environment as a form of *'capital'* implicitly assumes its substitutability and reproducibility by other forms of capital (e.g. Victor, 1991). Furthermore, others argue that treating environment as a form of capital makes it difficult to give an adequate description of the dynamic ecological systems that should be sustained (e.g. Hinterberger et al., 1997). In this context Chiesura and de Groot (2003) affirm that assessing nature as capital simply reiterates the reductionist and utilitarian vision of neo-classical economics (Chiesura and de Groot, 2003, p.12). For this reason, they interpret the term capital not simply as a stock of resources yielding interest over time or as input to commodity production and consumption (Chiesura and de Groot, 2003, p.12). Rather, the use of the term capital for natural system has to embrace also those functions which are intangible and not ascribable to economic mechanisms of production and consumption activities but which are critical for the well-being and sustainability of human society (Chiesura and de Groot, 2003).

This is when the notion of critical natural capital comes into play. The literature offers various definitions of critical natural capital. Several scholars agree on critical natural capital as *'consisting of assets, stock levels or quality levels that are highly valued, and either essential to human health, to the efficient functioning of life-support systems, irreplaceable or not-substitutable for all practical purposes [e.g. because of antiquity, complexity, specialization, location]'* (Chiesura and de Groot, 2003; Dodds, 1995; Ekins et al., 2003; Tyldesley et al., 1994). The notion of critical natural capital as theoretical framework is particularly useful when one looks at trade since, natural capital is what fuels economic growth and in the case of FTAs is the

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very object of trade between countries (excluding third sector services). In this dissertation the framework of critical natural capital will be used to analyse the debate between economy and the environment. Analysing the debate between economy and environment with the use of critical natural capital as a framework naturally implies the need to reflect on the notion of sustainability.

3.3 Sustainability as Theoretical reflection

Ekins et al. (2003) indicate that what matters about the environment is the ability of the capital stock as a whole to be able to continue to perform (Ekins et al. 2003, p.8). For this reason, they define sustainability as *'the maintenance of the capacity of the capital stock to provide those functions'* (Ekins et al. 2003, p.8). Furthermore Ekins et al. (2003), contrary to other scholarly literature (Pearce and Turner, 1990; Noel and O'Connor, 1998; Daily, 1997; Barbier et al., 1994), define the capital stock as critical and essential for environmental sustainability and all its environmental functions (1) which cannot be substituted for, in terms of welfare generation, by any other function, whether environmental or not; (2) the loss of which would be irreversible; (3) the loss of which would risk, or actually entail, *'immoderate losses'* (Ekins et al. 2003, p.9). Their definition is centered around the concept of strong and weak sustainability.

TABLE 2-Differences between weak and strong sustainability

SUSTAINABILITY	STRONG	WEAK
Key Idea	Very limited substitutability of natural capital by other capitals	Perfectly substitutability of natural capital with other capitals
Consequences	Some human action can entail irreversible consequences	Technological innovation and monetary compensation for environmental degradation
Sustainability issues	Conserving the irreplaceable stocks of natural capital for future generations	Total value of aggregate stock capital should be at least maintained or ideally increased for future generations
Key concept	Critical Natural Capital	Optimal allocation of resources

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Definition or thresholds and environmental norms	*Procedural Rationality:* Scientific knowledge as input for public deliberation	*Instrumental Rationality:* Technical or scientific approach to determine thresholds and norms

Source: Mancebo, 2013; Pelenc and Ballet, 2015.

FIGURE 7-Strong vs Weak Sustainability
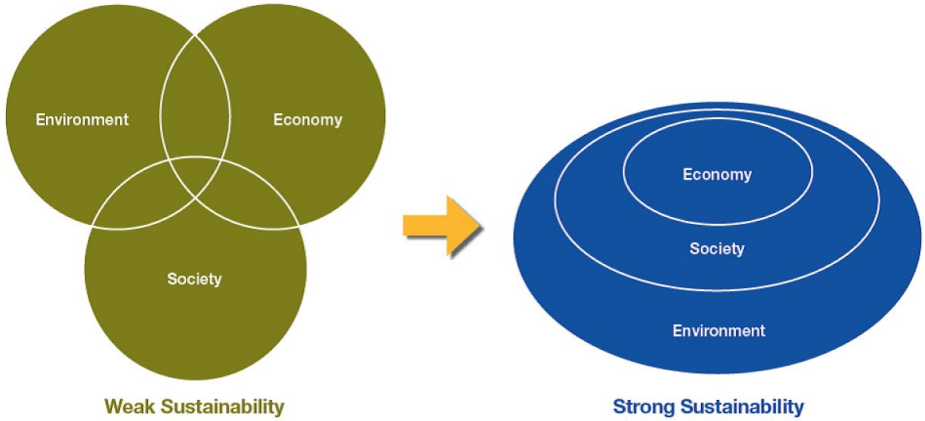
Source:Mancebo,2013; Pelenc and Ballet, 2015.

Sustainable development is a fundamental part the of debate between trade and environmental depletion (World Trade Organisation, 1999). To appreciate why and where trade enters into the sustainable development debate it is important to understand the root causes of environmental degradation: market failures or policy failures (World Trade Organisation, 1999). Market failures refer to the situation in which the normal market forces of supply and demand fail to deliver an outcome for the society as a whole (World Trade Organisation, 1999). This occurs when producers and consumers do not take into account the full cost of their actions and create environmental externalities (World Trade Organisation, 1999). Example: Pollution inflicted on third parties. Lots of resources are invested in polluting activities and few in pollution abatement. If everybody would be free to exploit the environment without restriction the result would be overexploitation (tragedy of the commons).

To stem that, sometimes, it is possible for people that depend strictly on a resource to be able to create a *conservation-cum-distribution* scheme that regulate the use of that resource and

include sanctions and quotas for overuse (World Trade Organisation, 1999). However, while common property systems might work well for small-n societies it can succumb under the pressure of rapid population growth, social changes, and increased mobility (World Trade Organisation, 1999). Therefore, it is up to government and cooperative or international bodies to define and enforce an appropriate balance between environment and economic interests with policies (World Trade Organisation, 1999). Policy failures happen when these bodies are unable to come up with the right solution failing not only to correct market failures but adding distortions of their own (World Trade Organisation, 1999). International trade interacting with these distortions might mitigate or exacerbate environmental problems (World Trade Organisation, 1999).

Thus, the notion of sustainable development entails the creation of a system that act as a balance between economic growth and environmental depletion. Ekins et al. (2003) and Pelenc and Ballet (2015) advise in favour of strong sustainability, that has to be reached by improving the link between natural environment and economic activities and by advancing the construction of a normative basis to strengthen the sustainability of this link (Ekins et al., 2003; Pelenc and Ballet, 2015).

FIGURE 7- Strong link between natural environment and economic activities
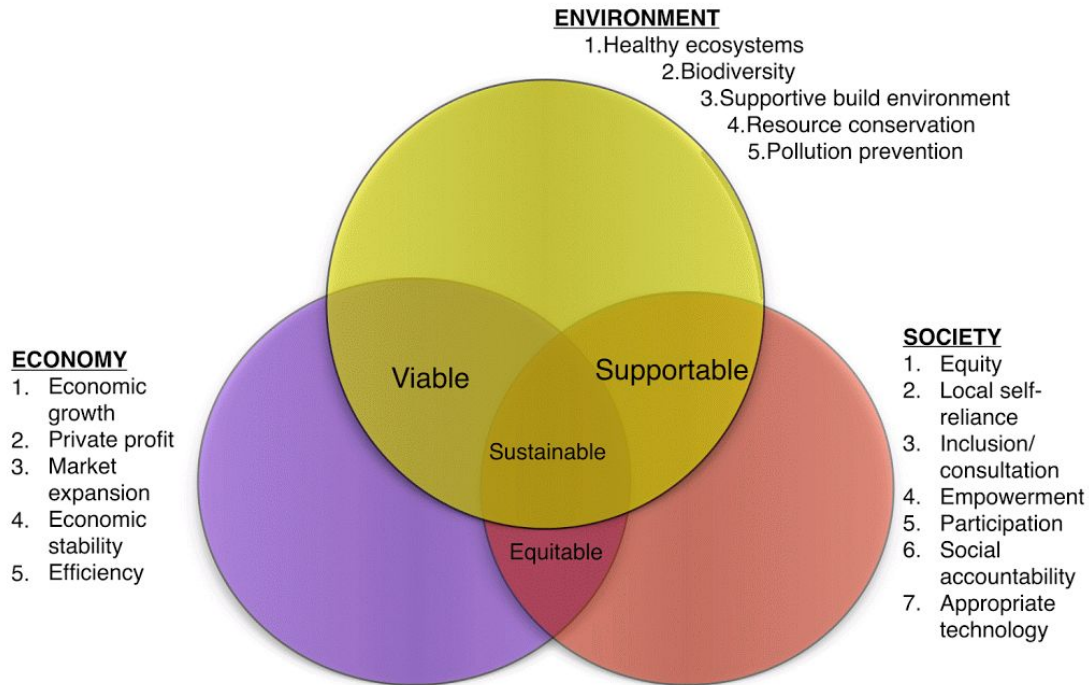
Source: Ekins et al., 2003; Pelenc and Ballet, 2015.

IV.   CASE STUDY

Introduction

The previous chapter, dedicated to the Theoretical Framework, assessed the causes of resource depletion with special reference on the Greater Mekong Sub-region. Keeping in mind the theoretical framework of Critical Natural Capital and the problem of resource depletion in the Greater Mekong Sub-region (GMS), this chapter will provide first a context analysis of the Greater Mekong Sub-region's environment and trade and, of the ASEAN-China Free Trade Agreement and a theoretical analysis to discuss how the agreement can exacerbate levels of resource depletion. Then will provide a context analysis of the current environmental agreements and forums in place and, a theoretical analysis to discuss how effective is environmental law in limiting resource depletion.

1. The Asean-China Free trade agreement and the Greater Mekong Sub-region

1.1 Context Analysis

1.1.1 Trade and Environment in the Greater Mekong Sub-region

The Greater Mekong Subregion (GMS) encompasses an expanse of land traversed by the Mekong river, it covers some 2.6 million square kilometres and contains a population of about 245 million people (Kuroda and Morita, 2012). The countries encompassed are the Yunnan province (People's Republic of China), Cambodia, Laos, Myanmar, Thailand and Vietnam. The GMS is part of the Association of Southeast Asian Nations (ASEAN). ASEAN was founded in 1967 with the purpose of promoting assistance and cooperation between the states, accelerate economic progress and increase the stability of the region. On November 4th 2002 the ASEAN region signed an initial framework agreement with the People's Republic of China with the intention to establish a free trade area. The ASEAN-China Free Trade Area (ACFTA) came into effect on the 1st January 2010. During the last 30 years the GMS natural capital has been a key contributor to the sub region rapid economic development and it is poised to continue at a significant pace. The Sub-region is well placed to benefit from the emerging regional FTAs due to its geographic position, extensive sub regional connectivity and a strong sense of community. Kuroda and Morita described it: *'The Sub-region is home to resilient economies, a wealth of natural and human resources, pristine environments [..]'* (Kuroda and Morita, 2012, p.1).

Let's now present the natural and economic capital of the region. The GMS is one of the most biologically diverse place on earth, it is its uniqueness that enabled and fuelled the region's rapid economic development. To give a worthier panoramic view this paragraph will be divided into the three categories that make up the GMS environment: forests, freshwater and wild species.

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Forests

Before the 1970s the region was highly forested. Wet evergreen forests covered the Cardamom and Elephant Mountains of Cambodia and the Annamites. Evergreen, semi evergreen and dry dipterocarps forests were present in the northern and central parts of Thailand, Laos, Cambodia and Vietnam (MRC, 2003 cited in WWF, 2013). In the Southern parts of China tropical subtropical evergreen broadleaves forests were present across Yunnan, Guangxi and other parts of the country's southern subtropical zone (Dai et al., 2011 cite in WWF, 2013).

Rivers

The Mekong river, that runs its course across all the GMS, is one of the most productive and diverse basin and river system on earth. The river system supports the world's largest and most productive inland fishery of which 35% depends on migratory species. Its connectivity and natural variability support exceptional productivity while sediments and nutrients sustain the landforms, agriculture, and marine fisheries of the Mekong Delta (Dai et al., 2011 cited in WWF, 2013).

Wildlife

The region has unique and rich wildlife. One hundred years ago elephants, wild cattle and other large mammals were plentiful (Bennet et al., 2002; Corlett et al., 2007; FAO 2011b cited in WWF, 2013). Their movements and foraging helped shape the ecosystems we still see today and created unique ecological features (Bennet et al., 2002; Corlett et al., 2007; FAO 2011b cited in WWF, 2013).

Whilst keeping in mind the natural capital of the region, let's analyse the type and level of trade present in the region. The key pillar of the development plans of the GMS was greater outward orientation and increased economic integration with the global economy, this brought rapid growth in the GMS countries that in turn resulted in a sustained integration with the rest of the world. To make this possible, the GMS economies have designed and implemented structural changes from agricultural to modern industrial economies. For this the governments carried out the following economic changes: give the private sector equal rights by reducing the market entry restriction for private firms, facilitate private sector development through a favourable

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policy environment that makes registration and licensing procedures for new firms simpler and more transparent, remove the bias between state owned enterprises in regulation and administrative procedures to favour domestic or foreign private firms, strengthen market institutions including those dealing with contract resolution and enforcement, guarantee equal treatment of land as a collateral and, promote and increase export and trade in regional integration (Chang & Kee, 2008: 325 cited in Dosch, 2010).

To aid the analysis of the type and level of trade, this paragraph will present a series of tables highlighting the economic complexity, trade and, GDP Per Capita of each country part of the Great Mekong Subregion. As Pradeep Srivastava Utsav Kumar, affirms:'Openness is measured as the ratio of the sum of export and import of food and services to GDP [trade to GDP ratio]' (ADB, 2012. p.11). As the table below shows: Thailand, Vietnam and China resulted in a positive trade balance (respectively $ 29.4B, $13.5B, $834B) while Myanmar and Laos resulted in a negative trade balance (respectively $9.1B, $3.2B) (Atlas.media.mit.edu, 2016).

FIGURE 9- Economic complexity, Export, Import, GDP of GMS and PRC (current international $)

Source: The observatory of economic complexity (Atlas.media.mit.edu, 2016)

This because several studies (Frankel and Romer, 1999; Ferrarini, 2010) have demonstrated how, potentially, even when taking into account that countries with higher incomes may trade more, countries that trade more have a higher income thus, higher trade result in higher income. Thus, policies promoting trade by lowering trade barrier or improving trade facilitation can have a positive impact on growth (ADB, 2012).

FIGURE 10- Gross Domestic Product Per Capita at PPP
(current international $)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
GMS	2973.6	3210.4	3504.0	3806.5	4251.8	4642.3	5081.7	5427.8	5560.6	5887.9	6278.6	6949.7	7335.2
Cambodia	1156.8	1239.5	1353.5	1514.2	1746.5	1967.6	2196.6	2357.9	2341.7	2472.9	2661.7	2854.7	3046.6
Guangxi,PRC	1745.1	1923.5	2112.1	2452.1	2945.1	3386.4	4026.9	4534.5	4954.6	5049.8	5876.3	6992.7	7614.2
Yunnan,PRC	1828.2	1961.7	2124.0	2437.3	2679.7	2995.3	3485.9	3897.2	4185.3	4022.8	4449.6	5331.9	6060.6
Lao PDR	1991.6	2118.3	2249.4	2424.6	2619.2	2869.2	3110.6	3343.8	3551.0	3746.3	4110.0	4274.0	4609.4
Myanmar	1001.6	1116.7	1271.0	1453.7	1670.2	1908.1	2156.3	2387.6	2625.6	2851.2	3266.5	3573.8	...
Thailand	7677.3	8298.6	9092.8	9913.4	10637.9	11420.3	12173.7	12688.0	12382.4	13442.1	13660.5	14924.0	15522.6
Viet Nam	2236.1	2401.9	2599.2	2611.2	3121.0	3402.5	3681.3	3924.1	4123.4	4395.5	4717.0	5000.4	5294.3

Sources: ADB Key Indicators 2015, China Statistical Yearbook database 2015-2014, World Economic Outlook 2015 database, ADB Staff Estimates in ADB, 2015.

FIGURE 11- GMS Members' Gross Domestic Product Per Capita at PPP

Source: ADB Key Indicators 2015, China Statistical Yearbook database 2005-2014, World Economic Outlook 2015 database, ADB Staff estimates in ADB, 2015.

FIGURE 12- GMS Gross Domestic Product ($ trillion)
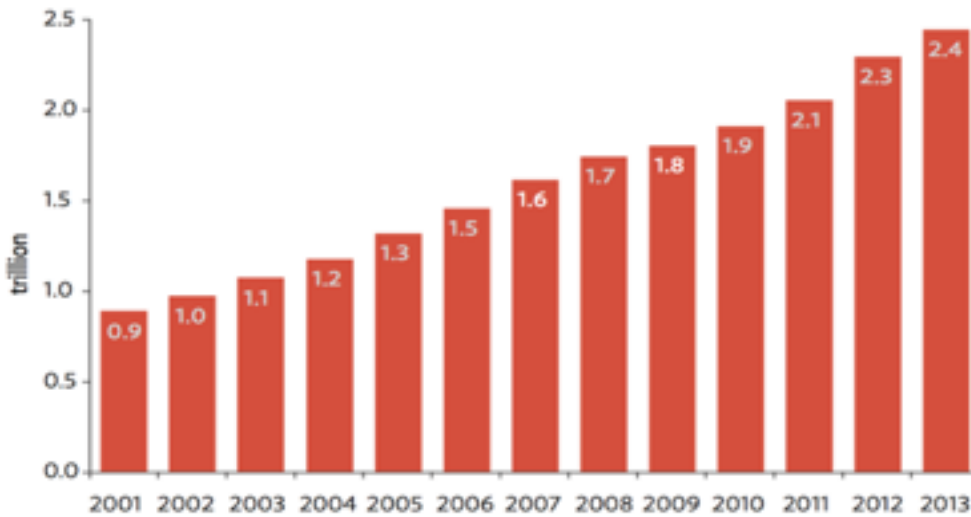
Source: ADB, 2015.

The export and imports of individual countries of the GMS are manufacturing products and low value added goods such as textiles, apparels and primary products (see appendix 1). These account for more than two thirds of the import/export and, significant differences occur in import/export structures among the countries. Furthermore (see appendix 1), intra GMS import/export of CLM (Cambodia, Lao PDR, Myanmar), consist mainly of primary commodities (ADB, 2015). The CLM economies are founded on agriculture and extractives, textiles and tourism (ADB, 2015). Thailand's main economic activities are in the areas of transport, logistic and communication development, manufacturing and service sector (ADB, 2015). Finally, Vietnam and the Yunnan provinces' economic activities focus mainly on developing industrial bases and biotechnology development (ADB, 2015). This highlights once more how, the GMS and, within the GMS the CLM countries in particular, depend almost exclusively on their natural capital (20%- 55% of the total wealth of GMS) to fuel their economic development (ADB, 2015, p.8). Indeed, agriculture and forestry makeup *circa* 30% of GDP (Gross Domestic Product) and is the main source of employment in the CLM countries (ADB, 2015, p.8). Likewise, natural capital sustains the manufacturing and service sectors in Thailand, Vietnam and the Yunnan provinces (ADB, 2015).

The GMS is more vulnerable to climate change compared to the rest of the ASEAN region. This is due to the presence of low-lying coastal areas that are used extensively for fishing and agriculture. These low-lying coastal areas (watersheds, wetland, mangroves, and coastal dunes) service as a buffer against extreme weather events like floods and droughts. As the population shifted from subsistence to commercial production, the overuse of pesticides and chemical fertilisers in agricultural production severely degraded groundwater and reduced soil fertility and crop diversity (ADB, 2015). The same can be witnessed also in Thailand, Vietnam and the Yunnan provinces with the overexploitation of timber harvesting and mineral extraction. This is bringing a significant decline in ecosystem services that could, in a not so distant future, drastically lower the earning capacity of the region (ADB, 2015).

A shift from subsistence to commercial production was driven first by the emergence of the People's Republic of China's economy in the past 10 years and later with the signing of the ACFTA agreement. The PRC (People's Republic of China) has become a major market for GMS natural resource products, this in turn increased integration between the GMS region and other regional and global markets (figure 13).

FIGURE 13- People's Republic of China trade with GMS (current international $)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Cambodia	3	2	13	21	36	57	70	121	162	160	224	240	276	321	482	563	733	934	1134	944	1441	2499
Laos	20	13	32	41	40	54	35	29	26	32	41	62	64	109	114	129	218	264	402	752	1085	1301
Myanmar	372	392	390	490	512	767	659	644	576	508	621	632	862	1080	1145	1209	1460	2078	2625	2900	4442	6501
Thailand	1240	1270	1318	1351	2024	3363	3145	3515	3672	4216	6624	7051	8557	12651	17342	18112	27723	46341	29381	95293	6473	
Vietnam	3	32	179	400	533	1052	1152	1437	1246	1218	2466	2809	3264	4639	6742	8197	9949	1511	1945	2104	3008	4020

Source: Asian Development Bank Statistical Database System (SDBS) in ADB, 2015.

As shown in figure 13, during the past 20 years, total GMS trade grew swiftly even not taking China into considerations. Moreover, it can be said that intra GMS5 (Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam) and trade between the GMS5 and the PRC grew faster than the overall trade, this resulted in an augmented GMS5 trade in the total trade of the GMS (figure 14,15).

FIGURE 14- Intra-Regional Trade Shares (%)
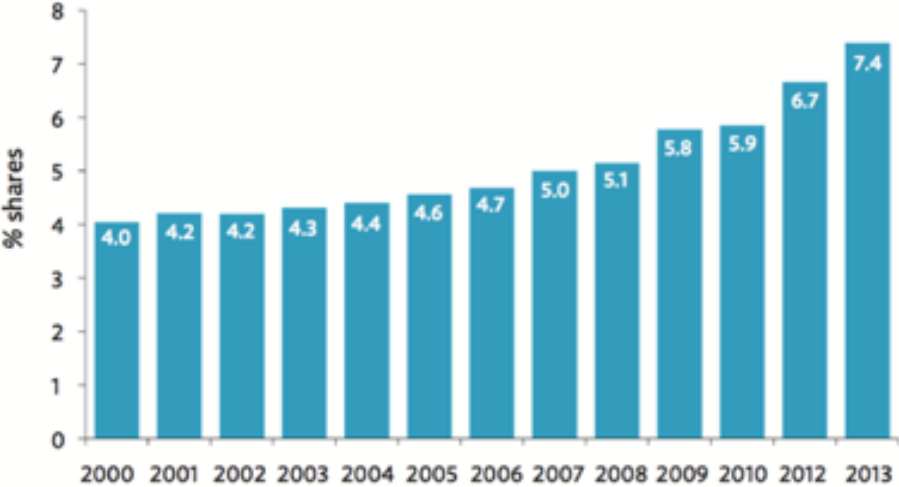
Source: ADB, 2015.

Finally, as said before (see figure 13), there has been an increase in the share of trade between China and the GMS, a rebalance in favour of regional markets and suppliers. Intra industry trade is mostly present between the PRC, Thailand and Vietnam since the export basket of these countries is slightly different from the rest of the GMS as the latter is not yet fully part of the regional production network (see appendix 1). This is shown also, in the level of total trade in the region, while growth in trade was manifested on the whole region, it was even higher in the countries cited above. A reverse in the trend applies to trade with non GMS countries, this steadily declined during the past decade. Ultimately, trade dynamism within the region is highlighted by the changing patterns of bilateral trade flow and the growing role of intra industry trade.

FIGURE 15- Trade of GMS: intra, ASEAN, World
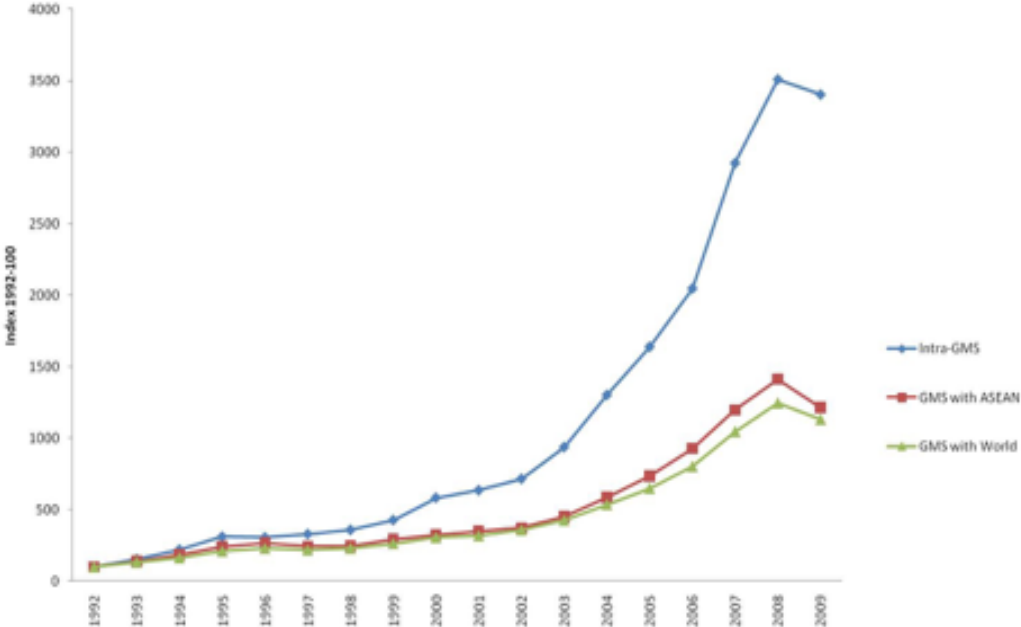
Source: Artnet.unescap.org, 2016 cited in ADB, 2015

1.1.2 The signing of the ACFTA Agreement and its general outline

In November 2001, the ASEAN community (comprising the GMS) and China agreed to a number of negotiations aimed at creating an ASEAN-China Free Trade Area. During the subsequent year, they ratified a framework agreement based on comprehensive economic cooperation which the main objectives are: to strengthen and enhance economic trade and cooperation between the parties; to promote and progressively liberalise trade in goods and services by creating a transparent liberal and facilitative investment regime; to explore new areas of interests for closer economic cooperation between the parties; to facilitate effective economic integration by bridging the development gap among new ASEAN members (Fta.gov.sg, 2015).

The framework is composed by three independent agreements: the Agreement on Trade in Goods implemented in 2005, the Trade in Service Agreement implemented in 2007 and the

Investment Agreement implemented in 2010. The agreement on Trade in Goods regulates the abatement of tariffs on goods. The Trade in Service Agreement regulates the market access in the sectors and subsectors of the individual economies of each party. The Investment Agreement aims at creating a transparent and competitive economic environment. The Agreement on Trade in Goods participating countries, is committed to reduce and/or eliminate tariffs under five different lists by following three different schedules. The Trade in Service Agreement instead, aims at progressively liberalising trade in services with substantial sectoral coverage in 26 branches of 5 services areas on the basis of WTO commitment (Fta.gov.sg, 2015). These are finance, telecommunication, education, tourism construction and medical treatment (Fta.gov.sg, 2015). The Investment Agreement is actually experiencing ongoing negotiations and will include agreements on cooperation and investments to liberalise the investment regime, increase market access, commit to protect the investments in the Chinese market. Cooperation must focus on agriculture, ICT, HRD, investment and the Mekong River Basin development (Fta.gov.sg, 2015).

TABLE 3- Agreement on Trade in Goods, elimination of tariffs

EARLY HARVEST PROGRAM	NORMAL TRACK	SENSITIVE TRACK
Tariff elimination on immediate, common identified products shall be carried out by January, 2010 for the most advanced regions and by 2015 for the less advanced members. It allow as well for an Exclusion List whereby a party can exempt certain products from the program's coverage and a Request list for inclusion of certain programs not covered by the program but by mutually agreed by China and the concerned ASEAN members.	NORMAL TRACK I Under normal track ASEAN 6 and China have committed to undertake tariff reduction and/or elimination in accordance with the following threshold: 1.Each party shall reduce to 0-5% of its tariff lines placed in the normal track 2.Each party shall reduce to 0-5% no later than 1 January 2007 the tariff rates for at least 60% of its tariff lines placed in the normal track 3.Each party shall eliminate all its tariff lines placed in the normal track no later than 1 January 2010 NORMAL TRACK II	SENSITIVE LIST ASEAN 6 and China are allowed to place 400 tariff lines at the HS 6-digit level and 10% of the total import value based on 2001 statistics in the Sensitive Track. The applied MFN tariff rates for products placed in the ST shall be reduced to 20% no later than 1 January 2012. These tariff rates shall be subsequently reduced to 0%-5% no later than January 2018. HIGHLY SENSITIVE LIST Tariff lines placed by ASEAN 6 and China placed in the Highly Sensitive List should be no more than 40% of the total number of tariff lines in the Sensitive

	Under Normal track II member countries are given the flexibility to have tariffs or some tariffs line under the Normal Track, not exceeding 150 tariff lines, eliminated no later than 1 January 2012. Each Party shall eliminate all its tariffs for tariffs lines placed in the Normal Track II no later than January 2012	Track or 100 tariff lines at the HS 6-digit level, whichever is lower. The applied MFN tariff rates of tariff lines placed in the respective Highly Sensitive Lists shall be reduced to no more than 50% not later than 1 January 2015 for ASEAN 6 and China and 1 January 2018 for the newer ASIAN Member States

Source: Direct quote from, ASEAN- People's Republic of China, 2002.

The rationale behind the creation of this agreement is a complex one that involves multiple parties' interests and dreams. As Bernardino explain: *"Today's logic of economic integration underlying free trade agreements does not simply enhance trade relations between and among independent sovereign nations just like in the old mercantilist era"* (Bernardino, 2004, p.6). During the last few decades, technological advances made possible the de-location and the outsourcing of the production process to several low wage developing countries where production costs are lower. This process can be highly mobile thus, industries can easily relocate where production is cheaper many times over the course of the industry's life. While the creation of Free Trade Agreements has been, traditionally, more widespread among the western countries, the ratification of the AFCTA gave way to a new business path.

Bernardino theorise that China's objectives regarding the ACFTA creation are more geopolitical than economic (Bernardino, 2004). These objectives can be grouped into two categories: the reinforcement of the economic, political and strategic relationship with the western powers (US and EU in particular) and its hegemonic aspirations over the rest of Asia. China aims to counter American containment strategy while at the same time protect its trade routes in Southeast Asia (Bernardino, 2004). China's admission to the WTO in November 2001 played a big role to the blossoming of Free Trade Agreements in Asia. China's alliances with other major ASEAN Countries had the double benefit of expanding it alliances with its East Asian neighbours (ASEAN+3 which produced the Asia Free Trade Agreement and the East Asia

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Investment Area and the ACFTA agreement) and exerting itself as an economic powerhouse within the Asian basin. The reason why China has been complacent to create RTAs is because China can afford a trade-off where on one hand it is incurring manageable trade deficits with ASEAN, where it can relocate its most polluting industries and acquire cheaper raw materials, while at the same time can enjoy a huge trade surplus with the US and the EU (Bernardino, 2004).

The ASEAN region (especially the GMS) looks at the ACFTA economic possibilities has a mean to re attract foreign investments and to re direct into the region some of the amount of Foreign Direct Investments that are now almost unilaterally directed to China, this will help the local economy to boost its re-launch which has been sluggish after the 1997 Financial Crisis (Bernardino, 2004). The region aims at becoming the prime export market of raw material, electronics, energy and machinery part to the Chinese based industrial plants (Bernardino, 2004). Yue (2006), contributes to this discussion by looking at the effective level of integration among the ASEAN countries, necessary to have a balanced outcome. Yue (2006) claims that in reality: *'The ASEAN economic integration of the GMS into ASEAN has proceeded much more slowly than many analysts and observers would like to see'* (Yue, 2006, p.5). This is especially poignant because it shows how in reality intra-ASEAN industrial complementation and production, trade in services, transport and logistics and people exchange and flow is greatly different among the individual countries, thus, exposing some countries more than others to be victim of environmental exploitation. The GMS and in particular Cambodia, Lao PDR, Myanmar and Vietnam, are low transitional economies that lack economic complementarity between the rest of the ASEAN, and have a reduced capacity to provide big markets and investments (see previous subchapter and appendix 1). The GMS has been under the spell of a consistent development gap (see figures 10, 11, 12 and Appendix 1). The ACFTA agreement is intended to benefit this region with the implementation of a preferential market and with having a more efficient resource allocation that will bring increased competition and better access to FDI and technology transfers. Hence, as Dosh illustrate, the ACFTA has been a significant driver of the rapid expansion of trade (Dosch, 2011). If one looks at the trade indicators one can see how two

thirds of it fall in the least polluting sector but a third fall in the most polluting sector and, the most polluting sector taintedness is likely to increase (see appendix 1).

To conclude, despite the fact the ACFTA agreement will bring enormous benefits to the GMS region, it will also constitute a problem for the environmental sustainability of the region. For this reason, it will be necessary to enforce the environmental policies already present as well as create a more comprehensive environmental policy framework to address resource exploitation and illegal harvesting since the region's major trade appertains to natural resources such as mineral, agricultural goods and wood.

1.2 Theoretical analysis

1.2.1 Trade and environment a critical assessment: Can Free Trade Agreements exacerbate levels of resource depletion?

The discourse of trade and environment is often pervaded by a perceived conflict between the effort to liberalise trade and protect the environment (Ubben 2000). The assumption takes the form of a zero sum game. On one side, international trade is the culprit of excessive rates of environmental degradation and on the other, free trade compromises environmental quality to favour welfare improvement (Ubben, 2000).

a. Environmental effects of free trade

Grossman and Krueger's (1991) study on the NAFTA's environmental effect highlighted for the first time that the interaction between trade liberalization-trade law and, environmental condition-environmental law can take various forms (Gaines, 2008). The classic formulation identifies four challenges that trade might present for environmental protection: regulatory effect, competitiveness effect, scale and composition effects (Gaines 2008, Special studies trade and environment). (1) Regulatory effect: trade can affect the nation's environmental regulations. Some fundamental principles of trade law prohibit a nation from erecting regulatory barriers that

discriminate against imported goods, thus trade rules might coerce a country to accept products that do not meet its own health or environmental standards (Gaines, 2008, p.2). This can become burdensome when sanitary or phytosanitary norms are involved, since they seek to prevent the introduction of agricultural pests and diseases (Gaines, 2008, p.2). Thus, a nation's choice among several regulatory options to address a particular environmental harm can be constrained by trade law especially since core trade principles mandate that a nation should choose the *'least trade restrictive'* measure among the regulatory options reasonably available to it and should not arbitrarily or unjustifiably discriminate against foreign products (Gaines, 2008, p.2). (2) Competitiveness effect: this is a two-step process. First, theoretically (though usually not respected in the real world) domestic producers required to meet high environmental standards, will be at a cost of production disadvantage thus at a price disadvantage when competing with foreign producers who have lower environmental standards (Gaines 2008, p.3). Second, this commercial pressure is transmitted to the political system, since it fuels opposition from domestic producers to increase environmental standards to protect domestic business and employment (Gaines 2008, p.3). So, a downward pressure on environmental standards is exerted as a consequence of international trade competition, hindering environmental agencies considering new regulatory initiatives or higher regulatory standards (Gaines 2008, p.3). While this effect enjoys a strong theoretical argument, there is no evidence that it has broadly ever occurred. (3) Scale effect: for *'n'* coefficients of pollutions and *'n'* composition of production augmented economic activity will augment pollution ergo economic growth is always harmful for the environment (Gaines, 2008; WTO, 1999, p.30). Thus, is the associated income growth that drives the demand for a cleaner environment (WTO, 1999, p.30). In other words, if the political process is not captured by polluting industries or compromised by unelected governments, raising incomes will increase the willingness to pay for goods produced according to stricter environmental standards and taxes that reduce pollution per unit of output (WTO, 1999, p.30). (4) Composition effect: around the world trade induced specialization produce the composition effect. In other words, countries that once produced a variety of products to satisfy local demand will now specialize on a specific subset and import the rest thus increasing economic benefits through increased efficiency and economies of scale in production (WTO,

1999, p.30). The problem arise when specialization takes the form of cleaner or polluting industries. Since not every country can specialise only on cleaner industries due to the fact that one country importables are another exportables, the net effect on the local environment will be positive if expanding sectors are less polluting and the opposite is true (WTO, 1999, p.30). Therefore, international trade will redistribute local pollution problems that have a competitive advantage in industries that are inherently more polluting whatever the basis for comparative advantage might be (WTO, 1999, p.30).

   b. *Free traders and environmentalists view on the Environment*

Free traders view. Trade negotiators recognise that benefits from liberalisation generally results in lower prices, increased choices and future export opportunities thus, their goal is to lower trade barriers to increase economic welfare (Etsy, 1994, p.12-36, Giddens, 2008). Furthermore, they agree on the notion that trade liberalisation will produce economic prosperity and this will in turn create additional resources to devote to environmental protection (Ubben, 2000, p.2). They believe that trade restrictions based on environmental policies will prevent foreign producers from entering new markets thus decreasing the efficiency gains from trade (Esty, 1994, p.12 cited in Ubben 2000). For this reason, they worry that economic costs will exceed the benefit if one put reliance on trade restrictions to further environmental protection (Ubben, 2000, p.2). Moreover, they disagree with those who put efforts to control for differences in environmental regulations, their fear is that environmental regulation will serve as a new form of protectionism resulting in lost economic opportunities (Esty, 1994, p.38; Ubben 2000, p.3). Finally, they argue that groups other than environmentalists will use such regulations to extract monopoly rents (Ubbens 2000, p.3).

The Environmentalists' View. Ubben (2000) argue that trade liberalisation is viewed by environmentalists as an invitation for increased pollution, loss of one's own standard and policies that are made by absent, unaccountable and business-driven politician (Ubben, 2000, p.3). Furthermore, they feel that the rules of international trade do not take into account the unaccountability of the politicians (Etsy, 1994 p.18; Ubbens, 2000, p.3). Many environmental

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groups argue that lower environmental standards will strengthen the argument of competitive disadvantage since this can have a significant impact on the stringency of new environmental law (Etsy, 1994, p.23, Ubbens, 2000, p.3). Furthermore, they fear that industries will try to externalise pollution costs to improve their position relative to the competition failing to recognize the costs of environmental degradation and having an incentive to avoid internalising them (Esty, 1994, p.36-37; Ubben, 2000, p.4). Environmentalist groups are split over the notion of sustainable development. Some accept the notion of 'limits to growth' and thus oppose economic development and all forms of trade (Ubben, 2000, p.4). They argue that in the short run free trade will increase pollution because of the increased economic activity it creates (Ubben, 2000, p.4). Also, they affirm that because of the *'scale effect'* trade generates wealth that enables individuals to consume more goods as well as non-renewable and renewable resources well above their natural regenerative rates (Ubben, 2000, p.4). Finally, they argue that trade liberalisation brings forth market entry agreements that force environmental regulations to take a step back (Ubben, 2000, p.4). Here the trade-off is easy access to foreign markets that allows producers to achieve scale economies and the ability of individual countries to design environmental regulations suited to its own unique conditions (Ubben, 2000, p.4). Other environmentalist groups have a positive view towards economic growth and they accept *'sustainable development'* so as long as this is accomplished in an environmentally friendly way (Ubben, 2000, p.4). According to Etsy (1994) this faction seeks to secure gains from trade for environmental purposes and implement environmental standards to ensure a sustainable free trade (Etsy, 1994, p.61).

c. Trade liberalisation: benefits and damages to the Environment

There are numerous ways where trade liberalisation can benefit the environment. Trade liberalisation can promote the transfer of genetic material and technology that can improve agricultural development and the environment in the form of a reduction in chemical use (Ubben, 2000, p.5). However, while transfer of technology can be beneficial there can be a downside to the process. Alien species can have a negative impact on the environment (Ubben, 2000, p. 5; Zilberman, 1992; p.1145). For instance, in the GMS, the alien tree plant Mimosa Pigra, expanded

and converted fertile land along the Mekong basin into sterile shrubs inept to agriculture. In the field of biotechnology and agriculture, the transfer of biological pest controls like predator organisms or the use of genetically developed crops resistant to disease and; transfer of farming species like crop rotation, low till or no till; can reduce dependence from chemicals and reduce soil erosion (Ubben, 2000, p. 5; Zilberman, 1992, p.1145). Although, some agricultural practices and crops are inappropriate for some world's regions (Ubben, 2000, p. 5; Zilberman, 1992, p.1145). Lopez for instance argue that one of the major causes of forest biomass and soil depletion is poverty. Thus, the disruption of traditional institutions and practices of the poor is the main cause of rural environmental degradation since, free trade can result in the collapse of traditional practices increasing environmental degradation and contributing to place those who are less affluent in a cycle of poverty (Lopez, 1992, p.1138; Ubben, 2000, p.6). However, according to Ubbens and other scholars (e.g. Zilberman, 1992) it is the same traditional institutions that trap people into poverty. Thus, they argue that it is important to make a distinction between the protection of the environment through traditional practices from the support of traditional institutions that exclude the locals from benefitting from international trade (Ubben, 2000, p.6). Trade liberalisation can improve the efficiency of resource allocation by removing inefficient prices and subsidies. This is, however, difficult to predict since free trade only serves to bring prices more in line with world prices and there is no reason to believe that one set of prices is better for the environment than the other (Lopez 1992, p.1141; Ubben, 2000, p.7). Moreover, trade liberalization can aid resource allocation allowing countries to specialize in the production of good and services in the sectors where they are Pareto efficient. Ubbens explains this as reaching a Pareto optimal production, if there are no other allocation of resources that could make one group better off without hurting other groups then, as long as environmental quality is taken into account when resources are allocated, theory trade that promote efficiency will benefit the environment (Ubbens, 2000, p.7).[1] Realistically this can result in countries specialising in capital intensive activities since they usually have higher intense growth than labour intense regions thus putting the environment at risk. Lopez (1992) explain this as

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[1] Efficiency allows a country to maximize its output for a given level of resources, and it can be argued that the efficient level of resources is a step toward environmentally sustainable development (Brack, 1998, p.1; Ubbens, 2000, p.7).

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'countries have two basic mechanisms to increase the profitability of capital, (i) compressing real wages in the short run through various direct and indirect means, (ii) minimizing any environmental restrictions that could have a negative effect on the profitability of capital' (Lopez, 1992, p.1141). These means include serving as storage areas for waste dumping and expand economic practices on highly erodible and marginal land (Ubbens 2000). Finally, trade can increase environmental standards, if everyone had the same standards it would be easier and more cost effective to produce products to the highest standard. Brack (1998) argues that the increase in environmental standards can increase the speed of developing countries to reach the environmental stage as it causes an increase in income (Brack, 1998, p.1-14). In turn, an increase in income creates the potential for investment in environmental protection helping speed up the transition to a balance of environmental and economic growth for developing countries (Ubben, 2000, p. 8; Antel, 1993, p.787). However, the link is not automatic since policies need to be implemented to ensure environmental concerns are pursued simultaneously (Ubben, 2000, p. 8). If this does not happen trade liberalisation will only promote patterns of unsustainable development, therefore increasing pollution a resource depletion. Furthermore, if express environmental protection trade rules set multilaterally neglecting country specific environmental issues that arise during the periods of economic growth it will be hard to achieve environmental sustainability (Brack, 1998, p.2; Esty, 1994, p.64; Ubben, 2000, p.9).

1.1.2 Can the ASEAN- China Free Trade Agreement exacerbate levels of resource depletion in the GMS?

In the previous sub-chapter we have analysed the perceived conflict between the effort to liberalise trade and protect the environment (Ubben 2000). This sub-chapter will use the theory previously laid out to examine how the ASEAN- China Free Trade Agreement can exacerbate levels of resource depletion in the GMS.

Currently, regional integration processes in the GMS emphasise primarily market liberalisation and regional integration as a way to increase economic growth (Dosh, 2011, p.1).

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As a testimony of this statement, of the three pillars of the ASEAN community, only the economic one as a concrete time schedule (Dosh, 2011, p.1). The same can be said for the ACFTA. Furthermore, the agreement does not contain any provision on environmental cooperation (Litta, 2012). This narrow view focused only on trade liberalisation could exacerbate some of the challenges that trade might present for environmental protection. For instance, it could affect the nation's environmental regulations by affecting environmental standards. Dosch argue that, the intensified competition could lead to a *'race to the bottom'* (Dosh, 2011, p.5). The government would lower standards hoping to give domestic firms a competitive edge to attract FDI (Dosh, 2011, p.5). This however seems to be overstated. The Cambodian Development Research Institute shows how: *'Competitiveness is determined by factors including human capital, technology, business climate, quality of a country's institutions and so on. While environmental controls are likely to add costs to production, they do not seem to be significant in total production costs, having limited influence price and competitiveness compared to other factors'* (CDRI, 2009, p.18 cited in Dosh, p.5). Furthermore, focusing only on economic growth can exacerbate inequalities between the wealthiest and the poorest percentile thus leading to a scale effect. Infact, if the political process is not captured by polluting industries or compromised by unelected governments, raising incomes will increase the willingness to pay for goods produced according to stricter environmental standards and taxes that reduce pollution per unit of output (WTO, 1999). But, since there is no provision for social equality this will hardly happens. The Asian Development Bank point out how there is strong economic disparity in the subregion due to the concentration of infrastructure along coastal areas whereas, the hinterland, which support one quarter of the total population, remains largely inaccessible (ADB, 2012, p.12).[2] Finally, weak environmental policies could favor shifts in the composition of of production, exports and foreign direct investment (FDI) to more pollution- or resource-intensive sectors (ADB, 2012, p.12). In other words, creating a composition effect where trade induced specialization takes the form of cleaner or polluting industries. Dosh highlight how *'the share of products in the most polluting sectors in overall GMS5-China trade increased from 21.93% to*

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[2] Definitive studies on this phenomena have not been formulated.

25.36%, while the Estimated Pollution Intensity (EPI) increased from 17.9 pounds to 118.5 pounds'(Dosh, 2011, p.12).

From the literature, a dual view coexists. One sees trade liberalisation as a way to create further economic growth, thus reducing the poverty level and generating a positive cycle of resource consumption that will prevent further environmental degradation (Thiesmeyer, 2012). They argue that trade and investment liberalisation are the major ingredients of regional integration, this intensifies international competition and attract investments and jobs, at the same time, there is not a deep integration as a whole exposing government regulation to impinge on environmental and social issues (IGES, 2015, p: 73). The other claims that trade liberalisation will only bring further degradation and exploitation of resources, a negative cycle that will generate even more poverty (Thiesmeyer, 2012). Thus, those in favor of trade liberalisation argue that economic development in the GMS continues to growth thanks to the ACFTA agreement (GDP +9/10%: ADB, 2012, p.3). Furthermore, they argue how thanks to trade liberalisation, FDI four-fold increase between 2002-2016 has contributed significantly to the GMS development (ADB, 2012, p.3). On the other side, those contrary to trade liberalisation cite how in the past ten years the GINI coefficient has increased for most of the GMS, meaning and increase in wealth disparity (ADB, 2012, p.3). Furthermore they argue that trade liberalisation benefits did not outweigh the negative externalities it created (see chapter on theoretical framework, sub-chapter: starting point, resource depletion). However, to conclude, Dosh argue that is empirically difficult to prove a strong correlation between *'trade liberalisation and environmental depletion, since these are more directly related to government policies and institutions to trade openness per se'* (Dosh, 2011, p.9).

2. The legal framework for Environmental Protection

2.1 Context Analysis

2.1.1 The ASEAN way versus China's approach: a review of the current environmental agreements and forums in place

General agreements about environmental conservation prior to the ACFTA exist, along with the China-ASEAN Strategy on Environmental Protection Cooperation in 2009 instituted right after the signing of the ACFTA Agreement. Since its institution ASEAN has signed numerous agreements to regulate and protect the Environment and over the years has expanded its cooperation. The region of South East Asia in general, holds the record for having the longest history of sub regional environmental cooperation. Cooperation started in 1978 with the ASEP Environmental Program and from then numerous agreements, treaties and memorandum have been signed over the years. Furthermore, with increasing economic cooperation with the neighbouring countries, a series of forums have been created to deal with sustainable development and environmental protection.

The initial phases of this process, were only directed toward ASEAN members. It started with the launch of the ASEAN Environmental Program I in 1977 and II in 1982. It envisioned the establishment of conservation and protected areas at the national level and a network of ASEAN nature reserves and heritage parks, it was then amplified to include a strengthening of the institution building process to better control the procedure of environmental conservation.

The '90s witnessed an increase of this building process with the ratification of the Strategic Action Plan on Environment (1999-2004) (IGES, 2015). This process was completed with the launch of the Regional Action Plan for Environmentally Sound and Sustainable Development (2001-2005) (IGES, 2015). From 2009 onwards, ASEAN's work on environmental protection has been guided by the ASEAN Socio-Cultural Blueprint (2009-2015) which will be of paramount importance this year since, ASEAN has completed the creation of the ASEAN Economic Community (AEC) (IGES, 2015).. Furthermore, since the beginning of the new millennium, following the Singapore Declaration on Climate Change, Energy and the Environment, issued at the 3rd East Asia Summit in 2007, ASEAN has been active consolidating environmental-related cooperation with its strategic external partners instituting various cooperative forums (IGES, 2015). Furthermore, ASEAN has initiated a bilateral collaboration with its Dialogue Partners especially, after the signing of the ACFTA agreement with China,

with the adoption of the China-ASEAN Strategy on Environmental Protection Cooperation in 2009 (IGES, 2015).

To conclude, the GMS environment initiatives are under the strategic framework (2012-2020) 'GMS Economic Cooperation Programme'. The program is based on *'strategic thrusts'* (IGES, 2015, p.42). The aim is to *'protect the environment and promote the sustainable use of natural resources'* (IGES, 2015, p.42). The flagship program is the 'Core Environment Programme and Biodiversity Conservation Corridors Initiative' (IGES, 2015, p.42). The CEP-BCI comprises the following four components in its current phase (2012–2016): (i) sustain development planning systems, methods, and safeguards; (ii) improve management of conservation landscapes for sustainable livelihoods; (iii) enhance climate resilience and promotion of low-carbon development; (iv) strengthen institutions and sustainable financing for environmental management (IGES, 2015, p.42). These activities will be coordinated with other working groups of the GMS programme (IGES, 2015, p.42).

Below is a table with all the Agreements signed by ASEAN both within its regional partners and with its strategic external partners from 1978 onwards, and by China from 1958 onwards.

TABLE 4- Environmental Agreements signed by China

AGREEMENTS-CONVENTIONS	STATUS-DATE
VIENNA CONVENTION 1988 **Convention for the Protection of the Ozone Layer** • Convention on Biological Diversity • The Cartagena Protocol on Biosafety • Convention on International trade in Endangered Species of Wild Fauna and Flora (CITIES)	Accession- 11/09/1989 Signed- 11/06/1992 Ratified- 05/01/1993 Approval- 08/06/2005 Signed-08/08/2000 Accession- 08/01/1981 Entry into force- 08/04/1981
BASEL CONVENTION-1992 **Convention on the Control of Transboundary Movement of Hazardous Wastes and their disposal** • Convention on Wetlands of International Importance- Ramsar Convention • Convention to combat desertification in those Countries Experiencing Serious Drought and/or Desertification-1994 • International Plant Protection Convention- 1952 • International Tropical Timber Agreement- 1994	Signed- 22/03/1990 Ratified- 17/12/1991 Entry into force- 31/07/1992 Signed- 14/10/1994 Ratified- 18/02/1997 Adherence- 20/10/2005 Signed- 22/02/1996 Approval- 31/07/1996
Plant protection Agreement for Asia and the Pacific Region- 1956 • United Nations convention on the Law and Sea	Signed- 10/12/1982 Ratified- 07/06/1996
United Nations Framework Convention on Climate Change (UNFCCC) • Kyoto Protocol Source: Author	Signed- 11/06/1992 Ratified- 05/01/1993 Entry into force- 21/03/1994 Signed- 29/05/1998 Approval- 30/08/2002 Entry into force- 16/02/2005

TABLE 5- Environmental Agreements signed by ASEAN
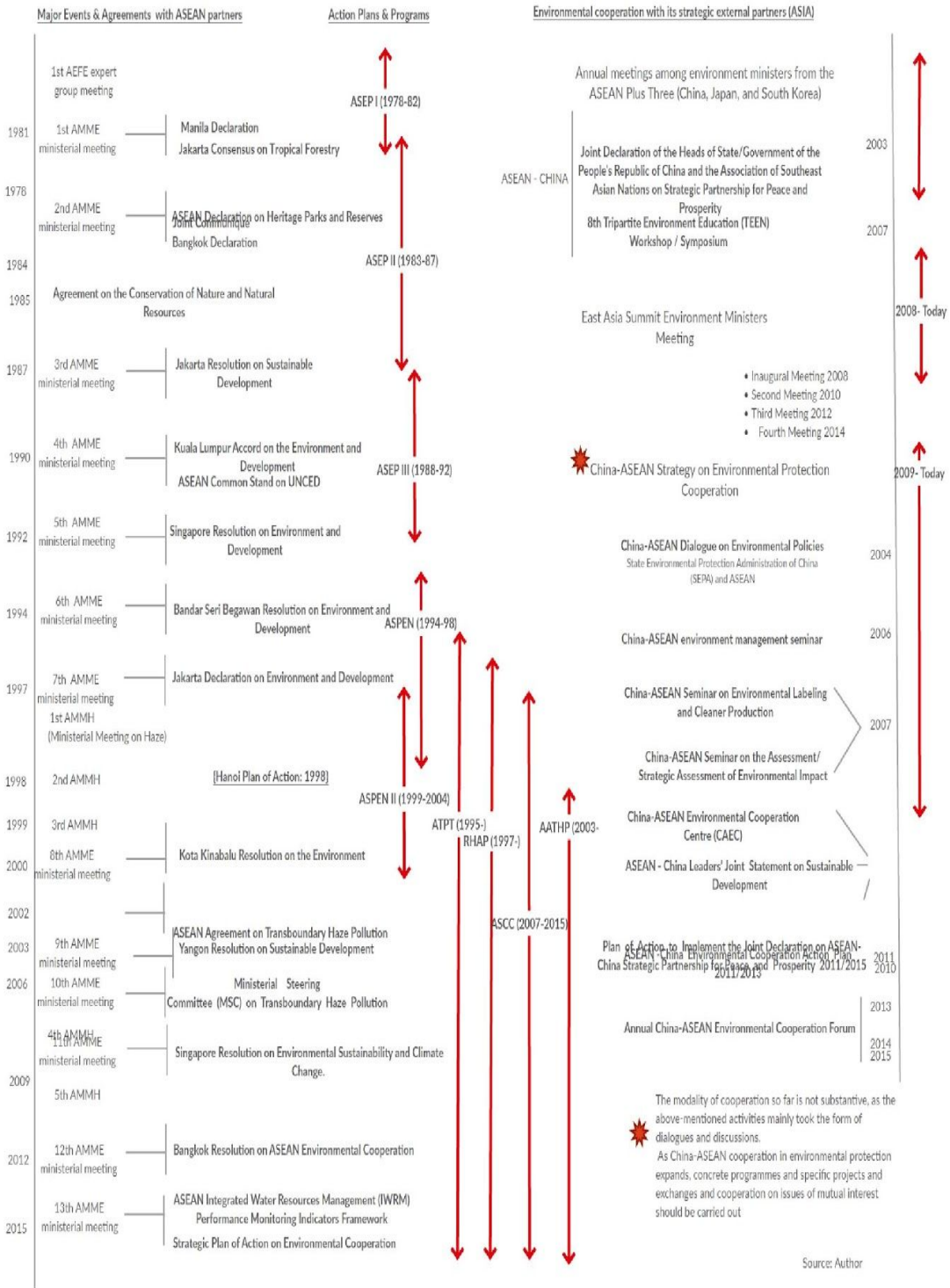
2.2 Theoretical Analysis

2.2.1 How effective is environmental law in limiting resource depletion?

There challenges stand in the way of effective lawmaking. These are: to international cooperation, to implementation, to effectiveness.

a. Challenge to international cooperation

Seeking international cooperation to solve environmental issues or limit resource depletion is usually quite hard (Bodansky 2010, Kiss and Shelton, 2007). Environmental disputes are usually framed in factual terms thus, since the ones who oppose taking action to solve the problems usually do so on the basis that science is weak and imprecise, reaching a consensus is usually difficult (Bodansky 2010, Friedrich, 2013). This entails that, while the emergence of an issue on international policy agenda is the first step in developing international response, states often disagree circa the significance of the problem, what kind of response it should be and if an international response is needed at all (Bodansky, 2010). Furthermore, environmental disputes rarely concerns only facts, often they stem from differences in values and interests (Bodansky, 2010; Kiss and Shelton, 2007; Sands, 2003). Differences in values usually concern priorities and they produce different attitudes about uncertainty and risk (Bodansky, 2010). Bodansky uses traditional societies to explain how differences in values concern priorities. Traditionally, developing societies have argued that it is impossible for them to devote significant resources to environmental problems given the multitude of problems they face thus, development must be prioritised over environment (Bodansky, 2010, p.133). However this view has been challenged in recent decades, developing countries still antepone economic development to environmental protection (Bodansky, 2010, p.133). With regards to how values produce different attitude about uncertainty and risk an easy example is that of states with significant coal or oil resources else, states with large areas of tropical forests, like the Great Mekong Region, versus states without forests. It is clear that the peculiarity of each state determines its own perception of values and as a consequence its attitude over uncertainty and risk (Bodansky, 2010, p.133). Moreover, states have no incentive to stop polluting or protect the natural resources to the extent that these costs and benefits represent externalities (Bodansky, 2010, p.48). Sands (2003) explain this saying that

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polluting states have different interest from the polluted ones and, states who possess valuable natural resources have contrasting interests from those of the international community. This becomes evident during environmental negotiations where, victim states tend to be 'pusher', polluting states 'draggers' and, states both polluters and victims 'intermediaries' (Bodansky, 2010, p.143). Contraries from differences of values, differences of interests do not preclude cooperation (Bodansky). Sands (2003) affirm that actors with different interest can theoretically agree on mutually beneficial outcomes that result in leaving both sides better off through negotiation. In practice this can be difficult to achieve. Bodansky (2010) include as barriers the distributional issues. An example of distributional issues is represented by *'global issues'* for example climate change. *'Global issues'* show us how, even when states have symmetric interests, it is difficult to cooperate. Cooperation can prove difficult because states' individual interest often diverge from collective interests (Kiss and Shelton, 2007). Bodansky (2010) explain this as 'the tragedy of the commons'. While collectively states have an interest in stopping pollution to the extent that the global benefits exceed the cost, tragedy of the commons teach us that each individual state has the interest in continuing to pollute if most of the damages from its pollution are externalized (Bodansky, 2010, p.143). More in general, sometimes a states may reject an agreement that is in his interest because the agreement seems unfair and it is hard to find a solution to distribute that gain (Bodansky, 2010, p.143). Bodansky (2010) gives the example of a upstream-downstream agreement. In upstream-downstream situation, agreement might require the victim to pay the polluter to stop polluting; this outcome would leave both parties better off as long as the victim received a bigger benefit from the reduced pollution than the payment needed to get the polluter to stop (Bodansky, 2010, p.143). The victim might reject such a deal arguing that the injured party should not be the one who ends up paying since that would be unfair (Bodansky, 2010, p.143). The importance of distributional issues in negotiations is exemplified by the 'fair division game' (Bodansky 2010; Sands, 2003). In the 'fair division game' person X divides a resource (a cake) and person Y chooses whether or not to accept the division. If person Y accepts the parceling each player gets its share of the resource (cake) but if he rejects all remain empty handed. According to Bodansky (2010) and Sands (2003), if one were to employ a logic of consequence one would expect player Y to accept the first division no

matter how small, since small is better than nothing. People, however, consistently employ a logic of appropriateness preferring to get nothing rather that accepting a highly unequal division of the spoils. From this game Bodansky (2010) and Sands (2003) suggest a few possible principles of equity, these are: equal entitlements to a resource, historical responsibility, ability to pay. Finally, in addition to difficulties to reach international cooperation because of differences in values and interests, there is the problem of the size in the number of participants involved in environmental problems (Bodansky, 2010; Kiss and Shelton, 2007; Sands, 2003). In fact, the greater the number of actors involved, the more difficult it becomes to organise and sustain cooperation. In small-n games social norms emerge informally on how to allocate use of common resources and limit externalities (Bodansky, 2010). Also, in local communities violations are likely to be detected and result in significant reputational costs since everybody know one another (Bodansky, 2010, p.144). In large-n games community based norms tends to be weaker and violations more difficult to detect. States have smaller incentives to invest resources in negotiating an agreement because the benefits of environmental cooperation are diffused public goods shared by all alike (Bodansky, 2010, p.144). Even when they succeed in negotiating an effective agreement states have difficulty imposing effective sanctions against free riders and violators (Bodansky, 2010, p.144). For instance if the benefits of the regime are public goods, like slowing global warming they cannot punish a violator by excluding it from these benefits to do so would require suspending the entire regime to punish a single state (Bodansky, 2010, p.144). Regarding community based norms domestic policy can pose an obstacle to the agreement. Infact, even when an agreement serves a state's national interests the state might reject it because of opposition from politically powerful groups (Bodansky, 2010, p.144).

b. *Challenges to implementation*

Bodansky (2010) describes implementation as the process by which policies get translated into action, this can encompass a wide range of measures. Bodansky (2010) gives as examples policies like monitoring and enforcing compliance or building a power plant that emits less pollution (Bodansky, 2010). The term implementation is usually reserved for a situation in which

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the relationship between an international rule and the behavior it aims to change is more attenuate (Bodansky, 2010; Sands, 2003). The bigger the gap between the two, the more that must be filled in through a process of further policy elaboration (Bodansky, 2010, p.143). Translating policy into action can be difficult, Richard Elmore describe this process as 'grand pretensions, faulty execution, puny results' (Hill, 1993). Furthermore, critics often criticise the lack of implementation of international environmental law at the domestic and international level (Bodansky, 2010; Friedrich, 2013; Gaines, 2008; Ioannidis, Papandreou and Sartzetakis, 2000; Kiss and Shelton, 2007; Sands, 2003). While implementation can sometimes be straightforward, environmental law that aims to control not just state conduct bul also private conduct poses a difficult challenge (Bodansky, 2010, p.144). Straightforward implementation occur when the state itself is the regulatory target (Bodansky, 2010, p.144). Implementation involves only compliance, the state can implement a rule simply by performing or not performing the prescribed action (Bodansky, 2010, p.144). For example it can implement an obligation to report on its national legislation regarding trade in endangered species simply by preparing and submitting the required report (Bodansky, 2010, p.144). In other instances the implementation process seems boundless. Usually commitments are adopted, efforts are made to implement, the commitments are adjusted and then problems are managed rather than eradicated (Bodansky, 2010, p.144). Bodansky (2010) and Sands (2003) describe this process as part of a perpetual cycle of policy that is driven by new information, experience, and political pressures. Various studies affirms that success depends on various factors among others, the depth or stringency of the commitment; the type of commitment involved; how much implementation converse with other domestic policy objectives and the capacity of the state since implementation requires resources and expertise to draft laws, monitor behavior, administer a permitting scheme, prepare reports, bring prosecutions (Bodansky, 2010; Friedrich, 2013; Gaines, 2008; Ioannidis, Papandreou and Sartzetakis, 2000; Kiss and Shelton, 2007; Sands, 2003).

   c. Challenge to effectiveness

According to Bodansky (2010), effectiveness has three meanings: legal, behavioral and problem solving. Legal effectiveness focuses on the issue of compliance, whether outcomes conform to

what a legal rules requires (Bodansky, 2010, p.270). If a treaty set forth obligations of conduct, then it is legally effective to the degree that states act consistently with its requirement (Bodansky, 2010, p.270). Thus, they often view a treaty as effective if it achieves compliance on the contrary it is ineffective if states fail to meet their obligations (Bodansky, 2010, p.270). For example a duty to reduce carbon dioxide emissions by 10% . If a treaty sets forth obligations of results then it is legally effective if emissions decline by the required amount (Bodansky, 2010, p.270). Behavioral effectiveness focuses on the role of international environmental law. How international environmental law causes states and and individuals to modify their behavior in the right direction and toward achieving the regimes' objective (Bodansky, 2010, p.270). Thus, a treaty is behaviorally effective if it influences an actor's behavior, even if the actor does not fully comply with the treaty's obligations (Bodansky, 2010, p.270). To conclude, problem solving effectiveness focuses on the degree to which a treaty achieves its objectives or solves the environmental problem it addresses (Bodansky, 2010, p.270).

According to Bodansky (2010) and Friedrich (2013) compliance is a function of two factors. The first factor is the obligations established by a rule, what the rule requires states or other actors to do or achieve (Bodansky, 2010, p.271; Friedrich, 2013). The second factor is the actual conduct or results of those subject to the obligations (Bodansky, 2010, p.270; Friedrich, 2013). Often the obligations established by a rule are unclear, it may be difficult or, even impossible to identify the required or prohibited conduct and, thus to categorize behavior as 'compliant' or 'noncompliant' (Bodansky, 2010, p.271; Friedrich, 2013). Furthermore, compliance by itself is not a sufficient indicator of a treaty's value (Bodansky, 2010, p.271). Often compliance is a scanty indicator of a treaty's value since, according to Bodansky (2010), it is not a necessary and/or sufficient condition for behavioral or problem solving effectiveness (Bodansky, 2010, p.271). In other words, a high degree of compliance may only signify that an international environmental regime is unpretentious and does not require significant changes in states' behavior and, the opposite is true (Bodansky, 2010, p.271). To make the concept of compliance more meaningful Bodansky suggest a distingui between mere compliance and treaty induced compliance (Bodansky, 2010, p.271). Thus, in order for compliance to be treaty

induced, the treaty must have some causal effect: it must influence a state to act differently than the state would have acted otherwise (Bodansky, 2010: p.271).

2.2.2 How effective is the ACFTA Environmental framework in limiting resource depletion?

a. To international cooperation

As we have seen in the previous paragraph, seeking international cooperation to solve environmental issues or limit resource depletion is usually quite hard (Bodansky 2010, Kiss and Shelton, 2007). The major obstacle is often to establish how environmental depletion is going to affect the region's economic potential (Dosh, 2011, p.6). Formally, the ACFTA does not contain any provision for cooperation on environmental problems that may arise as a result of trade liberalisation (Dosh, 2011, p.6). However, an upgrade of environmental legislation and law enforcement to strengthen environmental legislation is taking place but the process is still slow and full of obstacles (Dosh, 2011, p.6). While both China and the GMS recognise and understand that rapidly expanding trade and economic growth is unsustainable over the long term, reconciling trade, investment liberalisation and environmental protection is still a key challenge of China and the GMS (Dosh, 2011, p.6). As highlighted the previous paragraph, environmental disputes rarely concern only facts, often they stem from differences in values and interests (Bodansky, 2010; Kiss and Shelton, 2007; Sands, 2003). These different priorities produce different attitudes about uncertainty and risk (Bodansky, 2010). Thus, while as we have seen in the chapter: the ASEAN way versus China's approach: a review of the current environmental agreements and forums in place, that the signing of the ACFTA framework agreement in 2002 has triggered a series of initiatives directed at environmental sustainability, developing countries still antepone economic development to environmental protection (Bodansky, 2010: p.133). Often, the legislative environmental framework of the ACFTA suffers from this fate. The 2006 resolution on sustainable development to further enhance regional cooperation to protect the environment, promote biodiversity and deal with cross border problems along with the 2009 idea of 'green ASEAN' provide a good example of this. However theoretically they both provide a balanced approach on the three dimensions of sustainable development -economic, social and environmental-, in practice this is not yet in reach within

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ASEAN (Dosch, 2011). This is highlighted in a clause of the agreement which states: *'The greening of the ASEAN economy requires ASEAN to increasingly pursue market based approaches. The potential for trade in environmental goods and services are huge, and is certainly sustainable in the longer term, compared to the conventional exploitative use of ecosystem resources. However, as developing nations, with about 185 million people in ASEAN still earning less than USD2 a day, **economic** **growth** **and** **social** **development** **shall** **remain** **a** **priority'*** (ASEAN Secretariat 2009: 2 cited in Dosh, 2011, p.17, emphasis added). Furthermore, one of the biggest problem the GMS is facing in relation to the ACFTA relates to the use of public goods. As we have seen in the paragraph regarding resource depletion in the theoretical framework chapter, most of the environmental problems the GMS is facing concern the use of Forests and the Mekong river basin for economic purposes. These are public goods and thus is much harder to find cooperation and reach agreements especially because, it is hard to punish a violator by excluding it from these benefits since to do so would require suspending the entire regime to punish a single state (Bodansky, 2010: p.144). Finally, the problem on cooperation also stem from the size and amount of countries involved in the Agreement (Bodansky, 2010; Kiss and Shelton, 2007; Sands, 2003). In the GMS alone (excluding the rest of ASEAN) we have six countries with many different ecosystems, economic and political structures and languages and ethnicities (WWF, 2015). In fact, the greater the number of actors involved, the more difficult it becomes to organise and sustain cooperation.

b. *To Implementation*

In the case of the ACFTA implementation is usually the hardest part of the whole process of creating an effective environmental framework. The ACFTA shows infact, a big gap between international rule and the behaviour it aims to change (Bodansky, 2010; Sands, 2003). The bigger the gap between the two, the more that must be filled in through a process of further policy elaboration (Bodansky, 2010: p.143). At the level of individual countries China and most of the GMS have environmental clauses established as constitutional principle and the individual legislation has increased significantly in the last 10 years (Dosch, 2011, p. 8). Furthermore, as seen before, China and most GMS countries are members of the main global environmental

treaties. As statement of this is the 'Roadmap mission statement' (Dosh, 2011) that states that *'ASEAN shall work towards achieving sustainable development as well as promoting a clean and green environment by protecting the natural resource base for economic and social development including the sustainable management and conservation of natural resources [..] and ASEAN will actively participate in global efforts towards addressing global environmental challenges [..]'* (Dosh, 2011, p.16). However, there is a flourishing of such agreements, the behaviour still the same. No matter whether the agreement includes straightforward implementation or they are simply a starting point to develop a more substantial agreement, the strategic objectives clauses immediately allow for member states veto and exit option that de facto impinge on the implementation process of a more pro-environment agenda (Dosh, 2011). The clauses work as carte blanche for ASEAN politicians and officials to evade responsibility for commitment to environmental protection (Dosh, 2001, p.16). Finally, the capacity of the state since implementation requires resources and expertise to draft laws, monitor behaviour, administer a permitting scheme, prepare reports, bring prosecutions (Bodansky, 2010; Friedrich, 2013; Gaines, 2008; Ioannidis, Papandreou and Sartzetakis, 2000; Kiss and Shelton, 2007; Sands, 2003). In the case of the ACFTA unclear jurisdiction and shadowy, very costly and difficult procedures for filing complaints in case of non-compliance to the norm make it very difficult to change the *status quo*. Thus, as Dosh argues, success in achieving environmental sustainability depends on the overall improvement of the administrative system legal structures and capacities of the GMS and China (Dosh, 2011, p. 18).

TABLE 6- Bodansky, from Norms to Environmental Outcomes

Source: adapted from Bodansky, 2010: p.257.

   c. To effectiveness

The AFCTA suffers from a deficiency on all three meanings of effectiveness. Infact, as Dosh highlights, beyond political rhetoric, environmental commitment in the context of trade

facilitation is low (Dosh, 2011, p.15). This is due to the fact that most GMS economies suffer from deeply rooted dysfunctions in the country's administrative and judicial structures and this affects the enforcement of national laws and the fulfilment of international obligations as well (Dosh, 2011, p.15). Furthermore, in the tradition of the 'ASEAN Way' all existing agreement are embedded in soft law and hardly enforceable (Dosh, 2011, p.15).

To conclude, as Dosh argues, success in achieving environmental sustainability depend to the overall improvement of the administrative system legal structures and the efforts put forth by the single countries (Dosh, 2011, p.17). Probably, the ASEAN Charter and the implementation of the ASEAN community which ended this year, might be helpful to achieve a more effective environmental policy in the region (Dosh, 2011, p.17).

TABLE 7- Bodansky, Measures of Environmental Effectiveness

No regime	Actual Performance	Collective Optimum	Environmental Objective

Relative improvement from the status quo ante

Distance to objective

Success in capturing possible improvements
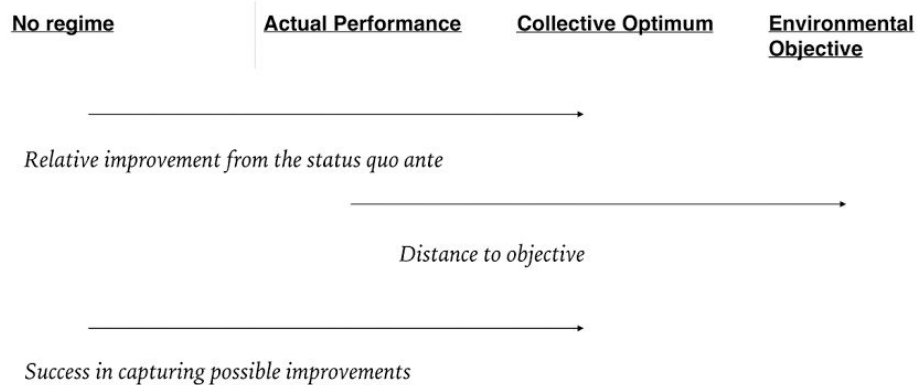
Source: adapted from Bodansky, 2010: p.258.

Conclusion

A theoretical reflection on sustainability

This dissertation has examined the debate between economic growth achieved through the means of FTAs and environmental depletions. It focused on the case study of the ASEAN CHINA Free Trade Agreement to analyse how free trade agreements can produce negative externalities on the environment. In particular, it analysed how the agreement can exacerbate levels of resource depletion and how effective is the international law in limiting resource depletion. The theoretical notion of Critical Natural Capital has been the fil rouge of this discussion. Natural capital is extremely important to the economies of this region since, the GMS and, within the GMS the CLM countries in particular, depend almost exclusively on their natural capital (20% 55% of the total wealth of GMS) to fuel their economic development (ADB, 2015, p.8).

While from a theoretical standpoint it was easy to draw a link between free trade agreements and environmental depletion, empirically it was difficult to prove a strong correlation between trade liberalisation and environmental depletion since these are more directly related to government policies and institution rather than trade openness per se (Dosh, 2011, p.9). Furthermore, while on paper general agreements about environmental conservation prior to the ACFTA exist, along with the China ASEAN Strategy on Environmental Protection Cooperation in 2009 instituted right after the signing of the ACFTA Agreement. These suffers from challenges to implementation, cooperation and effectiveness, impinging the very nature of the framework.

Finallly, it is important not to forget whom more stringent environmental laws can benefit. Poverty is still a priority problem in the development of the GMS. The region is still characterized by a high economic inequality and, some of the countries are still moving from a centrally planned to a market based economic system, thus there can be a widespread tendency of impoverishment and marginalization of the rural people. Also, the promotion of openness of

economies could increase economic volatility making the countries even more fragile (Thiesmeyer, 2012). This implies that while more participation in trade could lead to poverty reduction it might subject the most destitute segment of the local population to severe hardship due to the loss of ecologic habitat (Thiesmeyer, 2012). To avoid this negative cycle there must be a chance to create targets of policy directions to reduce poverty and income disparity, as well as creating full access to the markets engaging those economically disadvantaged in the creation of green industries of raw materials, timber harvesting and agricultural produces (ADB, 2015).

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Appendix 1

Vietnam trade structure

Exports to the World (% shares)					HS* Sector/Description	Imports from the World (% shares)				
2004	2005	2010	2012	2013		2004	2005	2010	2012	2013
9	8	6	4	4	1. Live Animals; animal products	1	1	1	1	1
10	10	11	10	8	2. Vegetable Products	1	2	3	3	3
0	0	0	0	0	3. Animal or vegetable fats and oils and their cleavage products	1	1	1	1	1
2	2	3	3	3	4. Prepared foodstuffs; beverages, spirits and vinegar; tobacco	3	3	4	4	4
24	26	12	11	8	5. Mineral products	13	15	10	11	8
1	1	2	2	2	6. Products of the chemical or allied industries	10	10	9	9	9
4	4	6	5	4	7. Plastics and articles thereof; rubber and articles	7	7	8	8	8
1	1	2	1	2	8. Raw hides and skins, leather, furskins and articles	2	2	1	1	1
1	1	1	1	2	9. Wood and articles of wood; wood charcoal; cork and articles of cork	2	2	1	1	1
0	0	1	0	0	10. Pulp of wood	2	2	2	2	2
18	16	18	16	16	11. Textiles and Garments	12	11	10	10	10
11	10	7	7	7	12. Footwear, headgear, umbrella, sun umbrellas, walking sticks	1	1	0	0	0
1	1	1	1	1	13. Articles of stone, plaster, cement, asbestos, mica or similar products	1	1	1	1	1
0	0	4	0	0	14. Natural or cultured pearls, precious or semi-precious stones	2	2	1	0	0
2	2	4	4	4	15. Base metals and articles of base metals	13	13	15	12	12
8	8	14	25	31	16. Machinery and mechanical appliances; electrical equipment	20	20	25	31	35
1	1	2	2	2	17. Vehicles, aircraft, vessels and associated transport equipment	6	4	4	3	2
0	0	1	2	2	18. Optical, photographic, cinematographic, measuring, checking, precision equipment	1	1	2	2	2
0	0	0	0	0	19. Arms and ammunition; parts and accessories thereof	0	0	0	0	0
4	5	5	4	4	20. Miscellaneous manufactured articles	1	1	1	1	1
0	0	0	0	0	21. Works of art, collectors' pieces and antiques	0	0	0	0	0
100	100	100	100	100	Total Shares (%)	100	100	100	100	100
26.5	32.4	72.2	114.5	132.0	Total ($ billion)	32.0	36.8	84.8	113.8	132.0

Source: ADB, 2015 .

Thailand trade structure

Exports to the World (% shares)					HS* Sector/Description	Imports from the World (% shares)				
2004	2005	2010	2012	2013		2004	2005	2010	2012	2013
2	2	2	2	1	1. Live Animals; animal products	2	2	1	2	2
4	3	4	4	4	2. Vegetable Products	1	1	1	2	1
0	0	0	0	0	3. Animal or vegetable fats and oils and their cleavage products	0	0	0	0	0
7	7	7	8	8	4. Prepared foodstuffs; beverages, spirits and vinegar; tobacco	2	1	2	2	2
4	5	5	7	7	5. Mineral products	14	18	18	20	21
3	4	5	5	6	6. Products of the chemical or allied industries	9	8	8	7	7
10	11	12	13	13	7. Plastics and articles thereof; rubber and articles	5	4	5	5	4
1	1	0	0	0	8. Raw hides and skins, leather, furskins and articles	1	0	0	0	0
1	1	1	1	1	9. Wood and articles of wood; wood charcoal; cork and articles of cork	1	1	0	0	0
1	1	2	1	1	10. Pulp of wood	1	1	1	1	1
7	6	4	3	3	11. Textiles and Garments	3	2	2	2	2
1	1	0	0	0	12. Footwear, headgear, umbrella, sun umbrellas, walking sticks	0	0	0	0	0
1	1	1	1	1	13. Articles of stone, plaster, cement, asbestos, mica or similar products	1	1	1	1	1
3	3	6	6	4	14. Natural or cultured pearls, precious or semi-precious stones	3	3	6	6	7
4	5	4	5	5	15. Base metals and articles of base metals	13	13	14	12	12
37	36	32	29	29	16. Machinery and mechanical appliances; electrical equipment	36	34	31	30	27
7	9	10	12	13	17. Vehicles, aircraft, vessels and associated transport equipment	5	5	5	7	8
2	2	2	2	2	18. Optical, photographic, cinematographic, measuring, checking, precision equipment	2	2	3	3	3
0	0	0	0	0	19. Arms and ammunition; parts and accessories thereof	0	0	0	0	0
2	2	1	1	1	20. Miscellaneous manufactured articles	1	0	1	1	1
0	0	0	0	0	21. Works of art, collectors' pieces and antiques	0	0	0	0	0
100	100	100	100	100	Total Shares (%)	100	100	100	100	100
96.2	110.1	195.3	229.5	228.5	Total ($ billion)	94.4	118.2	182.4	247.6	250.7

Source: ADB, 2015 .

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Myanmar trade structure

Exports to the World (% shares)					HS Sector/Description	Imports from the World (% shares)				
2004	2005	2010	2012	2013		2004	2005	2010	2012	2013
8	7	5	4	4	1. Live Animals; animal products	2	2	2	1	1
11	11	20	14	11	2. Vegetable Products	1	2	1	1	1
0	0	0	0	0	3. Animal or vegetable fats and oils and their cleavage products	5	5	4	4	3
1	1	1	1	1	4. Prepared foodstuffs; beverages, spirits and vinegar; tobacco	5	6	7	7	6
34	42	44	45	42	5. Mineral products	13	12	14	9	10
0	0	0	0	0	6. Products of the chemical or allied industries	9	9	8	6	6
1	1	3	3	2	7. Plastics and articles thereof; rubber and articles	6	7	5	5	5
0	0	0	0	0	8. Raw hides and skins, leather, furskins and articles	0	0	0	0	0
19	21	14	15	15	9. Wood and articles of wood; wood charcoal; cork and articles of cork	0	0	0	0	0
0	0	0	0	0	10. Pulp of wood	2	2	1	1	1
20	10	9	11	11	11. Textiles and Garments	11	11	8	8	9
1	1	1	1	1	12. Footwear, headgear, umbrella, sun umbrellas, walking sticks	1	1	1	1	1
0	0	0	0	0	13. Articles of stone, plaster, cement, asbestos, mica or similar products	1	1	1	1	1
1	1	3	4	11	14. Natural or cultured pearls, precious or semi-precious stones	0	0	0	0	3
3	3	1	1	1	15. Base metals and articles of base metals	11	12	12	16	9
0	0	0	1	0	16. Machinery and mechanical appliances; electrical equipment	22	18	22	20	22
0	0	0	0	0	17. Vehicles, aircraft, vessels and associated transport equipment	7	8	9	17	14
0	0	0	1	0	18. Optical, photographic, cinematographic, measuring, checking, precision equipment	1	2	1	2	2
0	0	0	0	0	19. Arms and ammunition; parts and accessories thereof	0	0	0	0	0
1	1	0	0	0	20. Miscellaneous manufactured articles	1	1	2	2	3
0	0	0	0	0	21. Works of art, collectors' pieces and antiques	0	0	0	0	0
100	100	100	100	100	Total Shares (%)	100	100	100	100	100
3.3	3.8	6.6	8.4	10.8	Total ($ billion)	3.1	3.2	9.1	15.4	18.8

Source: ADB, 2015.

Trade structure Lao PDR

Exports to the World (% shares)					HS* Sector/Description	Imports from the World (% shares)				
2004	2005	2010	2012	2013		2004	2005	2010	2012	2013
1	1	0	0	0	1. Live Animals; animal products	1	1	2	4	4
7	6	6	7	6	2. Vegetable Products	2	2	2	1	1
0	0	0	0	0	3. Animal or vegetable fats and oils and their cleavage products	0	0	0	0	0
1	1	2	2	2	4. Prepared foodstuffs; beverages, spirits and vinegar; tobacco	10	11	7	7	5
4	12	35	32	32	5. Mineral products	16	20	21	20	19
1	0	1	3	2	6. Products of the chemical or allied industries	6	6	5	5	5
1	1	1	2	3	7. Plastics and articles thereof; rubber and articles	4	4	4	3	3
0	0	0	0	0	8. Raw hides and skins, leather, furskins and articles	0	0	0	0	0
37	28	16	19	25	9. Wood and articles of wood; wood charcoal; cork and articles of cork	0	0	0	0	0
0	0	0	0	0	10. Pulp of wood	1	1	1	1	1
41	30	12	9	7	11. Textiles and Garments	10	9	8	2	2
1	1	1	1	1	12. Footwear, headgear, umbrella, sun umbrellas, walking sticks	0	0	0	0	0
0	0	0	0	0	13. Articles of stone, plaster, cement, asbestos, mica or similar products	3	2	2	2	2
1	2	0	1	2	14. Natural or cultured pearls, precious or semi-precious stones	1	2	1	1	1
1	14	23	22	18	15. Base metals and articles of base metals	9	7	9	10	9
2	1	2	1	1	16. Machinery and mechanical appliances; electrical equipment	21	18	18	21	28
0	0	0	0	0	17. Vehicles, aircraft, vessels and associated transport equipment	9	12	16	19	17
0	0	0	0	0	18. Optical, photographic, cinematographic, measuring, checking, precision equipment	1	1	1	1	1
0	0	0	0	0	19. Arms and ammunition; parts and accessories thereof	0	0	0	0	0
1	1	0	0	0	20. Miscellaneous manufactured articles	1	1	1	2	1
0	0	0	0	0	21. Works of art, collectors' pieces and antiques	0	0	0	0	0
100	100	100	100	100	Total Shares (%)	100	100	100	100	100
442	609	2,072	3,210	3,924	Total ($ million)	974	1,124	3,261	5,798	6,651

Source: ADB, 2015.

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Trade structure People's Republic of China

Exports to the World (% shares)					HS* Sector/Description	Imports from the World (% shares)				
2004	2005	2010	2012	2013		2004	2005	2010	2012	2013
1	1	0	0	0	1. Live Animals; animal products	1	1	2	4	4
7	6	6	7	6	2. Vegetable Products	2	2	2	1	1
0	0	0	0	0	3. Animal or vegetable fats and oils and their cleavage products	0	0	0	0	0
1	1	2	2	2	4. Prepared foodstuffs; beverages, spirits and vinegar; tobacco	10	11	7	7	5
4	12	35	32	32	5. Mineral products	16	20	21	20	19
1	0	1	3	2	6. Products of the chemical or allied industries	6	6	5	5	5
1	1	1	2	3	7. Plastics and articles thereof; rubber and articles	4	4	4	3	3
0	0	0	0	0	8. Raw hides and skins, leather, furskins and articles	0	0	0	0	0
37	28	16	19	25	9. Wood and articles of wood; wood charcoal; cork and articles of cork	0	0	0	0	0
0	0	0	0	0	10. Pulp of wood	1	1	1	1	1
41	30	12	9	7	11. Textiles and Garments	10	9	8	2	2
1	1	1	1	1	12. Footwear, headgear, umbrella, sun umbrellas, walking sticks	0	0	0	0	0
0	0	0	0	0	13. Articles of stone, plaster, cement, asbestos, mica or similar products	3	2	2	2	2
1	2	0	1	2	14. Natural or cultured pearls, precious or semi-precious stones	1	2	1	1	1
1	14	23	22	18	15. Base metals and articles of base metals	9	7	9	10	9
2	1	2	1	1	16. Machinery and mechanical appliances; electrical equipment	21	18	18	21	28
0	0	0	0	0	17. Vehicles, aircraft, vessels and associated transport equipment	9	12	16	19	17
0	0	0	0	0	18. Optical, photographic, cinematographic, measuring, checking, precision equipment	1	1	1	1	1
0	0	0	0	0	19. Arms and ammunition; parts and accessories thereof	0	0	0	0	0
1	1	0	0	0	20. Miscellaneous manufactured articles	1	1	1	2	1
0	0	0	0	0	21. Works of art, collectors' pieces and antiques	0	0	0	0	0
100	100	100	100	100	Total Shares (%)	100	100	100	100	100
442	609	2,072	3,210	3,924	Total ($ million)	974	1,124	3,261	5,798	6,651

Source: ADB, 2015.

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Trade structure Cambodia

Exports to the World (% shares)					HS* Sector/Description	Imports from the World (% shares)				
2004	2005	2010	2012	2013		2004	2005	2010	2012	2013
1	0	0	0	0	1. Live Animals; animal products	1	0	0	0	0
0	0	1	2	3	2. Vegetable Products	1	1	1	1	1
0	0	0	0	0	3. Animal or vegetable fats and oils and their cleavage products	0	0	0	0	0
0	0	1	1	1	4. Prepared foodstuffs; beverages, spirits and vinegar; tobacco	6	6	1	6	5
0	0	0	0	0	5. Mineral products	12	9	0	15	12
0	0	0	0	0	6. Products of the chemical or allied industries	6	5	0	5	5
1	1	2	2	2	7. Plastics and articles thereof; rubber and articles	2	2	2	3	3
0	0	0	0	0	8. Raw hides and skins, leather, furskins and articles	1	1	0	1	1
0	0	1	0	1	9. Wood and articles of wood; wood charcoal; cork and articles of cork	0	0	1	0	0
22	19	32	29	25	10. Pulp of wood	2	2	32	2	12
72	74	55	55	55	11. Textiles and Garments	47	42	55	37	32
2	2	3	4	4	12. Footwear, headgear, umbrella, sun umbrellas, walking sticks	0	0	3	1	1
0	0	0	0	0	13. Articles of stone, plaster, cement, asbestos, mica or similar products	1	1	0	1	1
0	0	0	1	0	14. Natural or cultured pearls, precious or semi-precious stones	1	0	0	2	1
0	0	0	0	0	15. Base metals and articles of base metals	4	4	0	4	4
0	0	3	1	3	16. Machinery and mechanical appliances; electrical equipment	8	10	3	10	11
0	0	2	4	5	17. Vehicles, aircraft, vessels and associated transport equipment	6	6	2	9	9
0	0	0	0	0	18. Optical, photographic, cinemato graphic, measuring, checking, precision equipment	0	5	0	1	1
0	0	0	0	0	19. Arms and ammunition; parts and accessories thereof	0	0	0	0	0
0	0	0	0	0	20. Miscellaneous manufactured articles	2	2	0	1	2
1	1	0	0	0	21. Works of art, collectors' pieces and antiques	0	1	0	0	0
100	100	100	100	100	Total Shares (%)	100	100	100	100	100
2.8	3.0	5.6	7.8	9.2	Total ($ billion)	2.1	2.6	5.6	7.1	9.2

Source: ADB, 2015.