

ASEAN COOPERATION ON SUSTAINABLE TRANSPORT: PROGRESS AND OPTIONS

Stefan Bakker¹, Mark Major², Alvin Mejia³ and Ruth Banomyong⁴

ABSTRACT

The member states of the Association of Southeast-Asian Nations (ASEAN) have been cooperating in the area of transport and connectivity since the early 1990s, contributing to economic and social goals in the context of ASEAN integration. However, in the area of transport and environment, actions included in the various strategies and action plans have been rather limited. Given rapid motorization and the accompanying increase in congestion, fuel consumption and associated CO₂ emissions and air pollution, the need for changing transport on to a more sustainable pathway is imminent. The ASEAN Transport Strategic Plan 2016-2025 (KLTSP) places more emphasis on sustainable transport than its predecessor, including a dedicated chapter with goals and actions. This paper reviews the KLTSP in the light of sustainable transport, in particular SDG 7 (energy efficiency), 11 (urbanization), and 13 (climate change), and suggests options for regional international cooperation that have the potential to create significant impact on energy use and emissions of CO₂ and air pollution, and sustainable development in general. It draws on regional environmental governance theory and practice in ASEAN, options for international cooperation in transport from literature and the experience in the EU and the existing ASEAN policy framework for sustainable development, e.g. the ASEAN Charter.

Keywords: International cooperation, transport policy, sustainable transport, ASEAN, regional governance

INTRODUCTION

Sustainable development is a key objective of the Association of Southeast Asian Nations (ASEAN), emphasised in e.g. the ASEAN Charter (ASEAN, 2007) and the ASEAN Community Vision 2025 (ASEAN, 2015a). Transport of people and goods is a key enabler of social and economic development; however, the sector needs to become more sustainable to address a range of negative environmental, economic and social impacts. Indeed, it has been accepted that sustainable transport is a prerequisite for the achievement of the eight of 17 Sustainable Development Goals (United Nations, 2016) and climate change objectives. In the context of economic cooperation in ASEAN, improving connectivity by better transport infrastructure has been a key area of focus since the 1980s (ERIA, 2010).

The transport sector in ASEAN consumes approximately one-quarter of final energy consumption and related CO₂ emissions and is over 90 per cent dependent on oil (IEA/ERIA, 2015). Without action, emissions may almost triple to 870 million tonnes in 2050 (ITPS & Clean Air Asia, 2014), while air quality, energy security, city livability, social equity, traffic safety and economic competitiveness may worsen as well. ASEAN's main role is to address issues at the regional level, such as facilitating trade and establishing a single market, yet it also has the mandate to promote coordination national policies of its Member States through regional cooperation or 'soft law' (Elliott, 2012).

¹ University of Twente, Faculty of Geo-Information Sciences and Earth Observation, P.O. Box 217, 7500 AE Enschede, the Netherlands, sjabakker@gmail.com

² Partnership for Sustainable, Low Carbon Transport (SLoCaT), Shanghai, China

³ The University of Sydney Business School, University of Sydney, Sydney, NSW 2006, Australia

⁴ Thammasat Business School, Thammasat University, Bangkok, Thailand

For the transport sector, this coordination is recognised in regional transportation plans and by the ASEAN Transport Ministers. It is acknowledged that climate change and sustainable transport are important and that regional and national actions need to be taken (e.g. ASEAN, 2016a). At the national level, ASEAN countries are developing a range of transport plans in which local and national sustainable development concerns play a role (Bakker et al., 2017). In the Nationally Determined Contributions (NDCs), ASEAN countries are committing to contributing to climate change mitigation, e.g. by stabilising (Singapore) or reducing up to 25 per cent (Vietnam) or 70 per cent (the Philippines) of economy-wide emissions compared to business-as-usual by 2030, conditional upon the international support. Although there are no transport-specific emission reduction targets in the NDCs, ASEAN countries consider transport a key sector for mitigation and are proposing a wide range of measures that save emissions, including on public transport, non-motorised transport, transport demand management, fuel economy, electricity and hybrid vehicles, vehicle maintenance, green freight, and biofuels (GIZ, 2016).

This paper aims to address the following research questions: 1) How did (sustainable) transport cooperation in ASEAN look in the past decades? 2) how can effective regional cooperation in the transport sector to promote sustainable development be designed?

Sustainable transport should contribute to environmental, social and economic objectives. This paper focuses mainly on the environmental aspects and is thereby related to SDG 7 on energy, SDG 11 on cities and SDG on climate change. It is indirectly connected to SDG 17 on partnerships and considers social (SDG 3 on health) and economic aspects (SDG 9 on industry and infrastructure).

In the literature, there is limited coverage of transport cooperation in ASEAN (e.g. Tongzon, 2016; Preece, 2016), and none focusing on sustainable transport has been found. In regional environmental governance, the literature on ASEAN mainly focuses on regional air pollution (haze) (Aggarwal and Chow, 2009; Heilmann, 2015), climate change (Koh & Bhullar, 2011), and biodiversity, forests and protection of flora and fauna (Elliott, 2012; Kheng-Lian et al., 2016). Kheng-Lian et al. (2016) also provides a review of and further options for collaboration in the areas of wildlife crimes, the ASEAN transnational water action plan, and environmentally sustainable cities. In other areas, such as trade, energy, and food security, more analysis is available.

This paper uses the following methodology and data sources. The literature on regional cooperation and governance literature, particularly on environmental issues, will provide the starting point. Then we look at the governance system and practice in ASEAN, in both economic and environmental sectors, as well as the broader policy drivers for sustainable transport in the region. As for cooperation in the transport sector, we draw on existing literature on policy options as well as experience in the European Union. Section 5 will provide a review of cooperation on sustainable transport since the 1990s, based on public literature and documentation of ASEAN transport working group meetings. Section 6 will use the results and insights from the previous sections to consider which options for cooperation in the future may be worthwhile and feasible. Section 7 briefly concludes the paper.

REGIONAL INTERNATIONAL COOPERATION

International cooperation between states at the regional level may take different forms. A basic distinction, although not a purely binary one, is that between hard and soft law, with the former defined as “legally binding obligations that are precise (or can be made precise through adjudication or the issuance of detailed regulations) and that delegate authority for interpreting and implementing the law” (Abbott & Snidal, 2000; p.421). Transaction costs, related implementation, enforcement, the risk of free-riding or opportunistic behaviour, can be lower compared to other forms of legalisation; however, contracting cost of hard law (information collection, drafting, negotiation, ratification) can be significant. It is used particularly by states when “forming ‘clubs’ of sincerely committed states, like the European Union and NATO” (p. 429), and “when the benefits of cooperation are great but the potential for opportunism and its costs are high” (p. 429). In soft law, legal arrangements are weakened along the dimensions of obligation, precision, and delegation, which reduces ‘sovereignty cost’ compared to hard law. It also reduces contracting costs, provides more opportunities to come to an agreement and enables parties to learn about the consequences of the agreement (Abbot & Snidal, 2000). In this paper, we consider soft law as a broad range of regional cooperation

arrangements that are different from hard law and distinguish the following types of cooperation (see Table 1).

Technology cooperation: governments pool resources for research and development of cleaner technologies and/or agree to accelerate policies to deploy these. De Coninck (2007) considers several types of international technology-oriented agreements: knowledge sharing and coordination of research activities; research, development and deployment, e.g. in the form of cooperation programmes and based on joint funding; technology transfer, particularly benefiting developing countries; and internationally agreed technology mandates, performance standards or incentives.

Policy cooperation: Stead (2016) looks at new, 'soft', modes of governance concerned with intergovernmental coordination and 'networked arrangements and multi-level approach' for sustainable urban transport. He lists five key instruments: policy indicators and targets to measure progress, benchmarking against current or aspirational peers, policy transfer and best practices, policy experimentation, and the use of visioning exercises. In addition, policy cooperation may include discussion fora or expert groups that develop ideas and standards and guidelines, as well as certification schemes or promotion of low-carbon finance; in addition, high-level political dialogues that help developing a common vision and building mutual trust can support all above-listed categories of cooperation (Stavins et al., 2014).

Cross-border infrastructure: infrastructure development is another area of cooperation between states in proximity, in sectors such as energy (connection of grids), communications, and transport (pipelines, roads, railways, and waterways). This also includes software like common standards to use roads, rail, power. Such cooperation can reduce transaction costs significantly (Kuroda et al., 2007)

Table 1. Typology of international cooperation

Types of cooperation		Description	Examples
Hard law / binding agreements		International agreement on mandatory policies that countries will implement	EU CO ₂ standards for passenger vehicles and vans
Soft law / regional cooperation	Technology cooperation	Governments pool resources for R&D, agree on performance standards or incentives; technology transfer	European Organization for Nuclear Research; UNECE working group on Harmonisation of Vehicle Regulations
	Policy cooperation	Cooperation on policy development involving little sovereignty cost	Green Freight Asia labelling scheme for freight forwarders; EU guidelines for Sustainable Urban Mobility Plans
	Cross-border infrastructure and regional connectivity	Governments of nations in proximity cooperate on hard and soft infrastructure to enable cross-border movement of people and goods	ASEAN connectivity master plan (physical connectivity): linkage of road, rail, waterways and pipelines

REGIONAL GOVERNANCE AND COOPERATION IN ASEAN AND THE EU

The Association of Southeast Asian Nations was formed in 1967, and currently includes ten member states: Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Thailand, Singapore and Vietnam. The total population is 629 million and GDP US\$ 2,432 billion. ASEAN norms and practice of decision making can be characterized by the so-called 'ASEAN Way'⁵, which emphasizes principles of cooperation, consultation, non-interference in internal matters, informality, non-confrontational and 'soft' diplomacy, pragmatism, flexibility, and network structures (Elliot, 2012; Severino, 2007; Nesadurai, 2008; Jetschke & Ruland, 2009). Jayasuriya (2009, p. 337) notes that ASEAN works with "forms of regional regulation [that] rely more on the active participation of national agencies in the practices of regulation than on formal international treaties". According to Elliot (2012), non-hierarchical forms of multi-level governance complement intergovernmental relations, partially because states have limited capability of dealing with environmental challenges. Networks also provide 'fluidity to the policy-making process', supporting consultation, learning and exchange among senior officials, experts and stakeholders (p. 49-50). There is also a certain level of technical and financial dependency on national and international organizations.

Since the late 1980s, environmental issues have become more important in the agenda of ASEAN cooperation, as a response to major international (UN) conferences and growing conscience with donor agencies (Elliott, 2012). The "regionalization of environmental governance proceeded from declarations and principles with minimal standards, to functional approaches and project-based cooperation, through to efforts to establish and implement regional policy initiatives through increasingly complex regulatory structures", including development of minimum regional standards for air and water quality (Elliott, 2012, p. 56). In the forestry domain, AMS have instituted a formal peer-consultation process to review the forestry policies and practices of individual countries, with such processes aiming to be non-adversarial and based on mutual trust.

Especially since the adoption of the ASEAN Charter in 2007, "numerous new treaties and protocols often with detailed obligations and dispute settlement procedures" were adopted, predominantly pertaining to economic cooperation (Ewing-Chow & Hsien-Li, 2013, p.1). Other examples of binding agreements within ASEAN are the ASEAN Petroleum Security Agreement (Nicolas, 2009) and the transboundary air pollution ("haze") agreement. The latter is arguably the most important environmental cooperation instrument to-date. Heilmann (2015) argues "the agreement refers to these norms as binding (the parties "shall"), but the provisions are written in a way that gives discretion to the member states concerning their actions and the types of activities that they carry out to mitigate haze pollution", and no coercive steps can be taken, so it is "ultimately a soft law instrument" (p. 105) or a framework for cooperation. Key instruments in the agreement are a coordinating centre and a fund (USD 240,000 in 2014).

ASEAN strategies make use of various cooperation instruments related to policy and technology (see Table 1 in Section 2), which we briefly illustrate here. The Peatland Management Strategy (ASEAN, 2014) include, *inter alia*, the following actions: Harmonize definitions and classification of peatlands; Status updates in national inventories; Develop a methodology and prepare guideline for monitoring of peatland areas; Undertake research on appropriate techniques and practices; Strengthen regional sharing of experience and networking through use of mechanisms such as the ASEAN Haze Action Online and the SEAPEAT Network; Designate specific institutions responsible for peatland management and establish National Peatland Working Groups; Formulate or update national policies and strategies based on the thrust and objectives of the regional strategy; Establish pilot project(s) in each country to test new sustainable management. Other examples, such as on ASEAN Energy Market Integration and a Regional Policy Roadmap for Harmonization of Energy Performance Standards for Air Conditioners, show how roadmaps aim at regional harmonization or at a least closer alignment of national approaches in terms of technical matters including definitions, standards and monitoring.

To provide further illustration of how international cooperation could work, we briefly review the governance system of the European Union (EU). We do not intend to carry out a comparative analysis, nor are we implying ASEAN wants to or should follow a similar path, a topic of considerable debate (Jetschke & Ruland, 2009).

⁵ Enshrined in the ASEAN Charter (2008)

After two devastating World Wars, both of which originated in Europe, the six founding Member States (MS) sought to prevent conflicts by placing strategic resources in the hands of a “High Authority”. These lead to the creation of the European Coal and Steel Community (Treaty of Paris, 1951), the first “supranational” international organization. In 2017 the EU has 28 Member States, and implements policy in a wide range of policy areas on behalf of its MS, when it can be demonstrated that problems can be best solved at the “Union level”. There is a single market, free movement of people good and capital, customs union, common competition policy and a single currency, the Euro, shared by 19 MS. The 28 countries are economically, geographically, culturally, climatically and linguistically diverse – but they share commitments to fundamental principles such as the rule of law, democracy and market based economies. In areas of EU “exclusive competence” such as trade policy the EU acts exclusively on behalf of all the MS. So, for example individual Member States are not allowed to conduct trade negotiations. Many policy areas are “shared competence”, where the EU and MS share powers. EU policies are implemented through EU wide laws and funding programs; the EU budget is approximately 1 per cent of GDP⁶. The EU is governed and administered by a number of institutions and agencies including a European Parliament and Council of Ministers (who together agreeing laws and policy), the European Commission (proposing and implementing laws and programs) as well as a European court and auditor. MS that do not meet their legal obligations can be taken before the European Court of Justice and ultimately face heavy fines – which are paid into the EU budget.

ASEAN POLICY FRAMEWORK FOR SUSTAINABLE TRANSPORT COOPERATION

In this section, we look at how sustainable transport fits in the policy context of ASEAN, i.e. wider than the transport sector. This is relevant as sustainable transport cooperation is not merely about the transport sector per se, but rather involves area such as environment and climate change, energy, economy and research and innovation. Here we look at the frameworks for these issues as well as sustainable development, ASEAN Economic Community, and Socio-Cultural Community.

As stated in the ASEAN Charter, one of ASEAN’s purposes is to ‘promote sustainable development’, which includes protection of the region’s environment and ensuring ‘high quality of life’ (ASEAN, 2007, p.4). The ASEAN Vision 2025 highlights the ‘complementarity’ of the UN Agenda on sustainable development (ASEAN 2015a, p. 13). The importance of sustainable development and the sustainable development goals have been reiterated since in various declarations. For example, ASEAN encourages cooperation on financing and research on climate-friendly technologies and integration of “sustainable consumption and production (SCP) patterns into our national policies”.

In the 2025 vision for the ASEAN Economic Community, the vision for transport cooperation (in the context of ‘promoting connectivity’) is “towards greater connectivity, efficiency, integration, safety, and sustainability of ASEAN transport to strengthen ASEAN’s competitiveness and foster regional inclusive growth and development”. In transport cooperation, it aims “to embrace sustainable transport as a new key sectoral focus as it has a vital role to play in the sustainable development of the ASEAN region” (ASEAN, 2015b, p.21). Biofuels are considered in connection with sustainable economic development and can be promoted by free trade and investment in research and development for third-generation biofuels. The blueprint for the ASEAN Socio-Cultural Community (ASEAN, 2016b) refers to ‘green lifestyle’ and ‘people-oriented’, and, in the context of Environmentally Sustainable Cities, includes a measure “to ‘enhance participatory and integrated approaches in urban planning and management for sustainable urbanisation towards a clean and green ASEAN” (p. 12).

ASEAN’s commitment to the climate change agenda and the UNFCCC is stated in multiple declarations. The ASEAN Action Plan on Joint Responses to Climate Change (2012) includes actions related to GHG mitigation such as sharing best practices on energy production and use and policy towards low carbon development and green economy, establishing alliances to promote technology transfer, promoting common understanding on climate instruments and monitoring (MRV), promoting common understanding on access to climate finance and facilitating capacity building.

The Regional Action Plan on Healthy ASEAN Lifestyles (2012) includes in its programme work on road safety and physical activity: “to incorporate healthy lifestyle issues into public planning

⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2016:048:FULL&from=EN>

systems, especially with regard to transport and land use, safe transportation, provision for pedestrian and non-motorized traffic, considerations about noise, green space for physical activity”.

In the context of energy, ASEAN has adopted an aspirational goal of reducing energy intensity by 20 per cent by 2020 as a medium-term target and 30 per cent by 2025 as a long-term target based on the 2005 levels. The transport sector has not played a significant role to date in energy cooperation. The ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025 only includes ‘The conduct of a feasibility study on energy efficiency in the Transport Sector would be considered during this period’ (2016-2020). Energy security is considered a key issue in ASEAN, and the basis for cooperation is laid down in the (binding) ASEAN Petroleum Security Agreement, and refers to energy efficiency and conservation, fuel switching and energy diversification as medium and long-term strategies, without referring to the transport sector explicitly. Tongsovit (2016) shows that energy security in the ASEAN region has declined in 2010 compared to 2005.

No explicit references to the Sustainable Development Goals, the Paris Agreement on Climate Change and the New Urban Agenda have been found. This may be due to the fact that these were adopted relatively recently.

It should also be noted that in contrast to the adopted declarations and cooperation goals, ratification and implementation of agreements often falls behind (Jetschke, 2009; Olsen et al., 2015).

ASEAN COOPERATION ON SUSTAINABLE TRANSPORT: A REVIEW

Since the 1980s, the transport sector has been an important area of cooperation in ASEAN. The main aims were to create an efficient and integrated transport system that supports the ASEAN Free Trade Area, an integrated production area and to narrow the development gap between the member states (ERIA, 2010). To date, transport cooperation has been a key part of ASEAN efforts to promote connectivity (ASEAN, 2016c) and essential in realising the ASEAN Economic Community (ASEAN, 2015b). Most of the efforts are related to cross-border infrastructure and measures to facilitate trade, such as reducing non-tariff barriers.

Institutional structure and governance framework

The biannual ASEAN Senior Transport Officials Meetings (STOM), with participation by all AMS usually at the level of permanent secretary have the responsibility to supervise, coordinate and implement the transport action plans and strategies. It is supported by four working groups (land transport, aviation, maritime, and transport facilitation) and one Special Working Group on the Singapore – Kunming Rail Link. These working groups, facilitated by the ASEAN Secretariat, meet once or twice annually and are represented by mid to high-level staff from the ministries of transport of the 10 AMS. The STOM reports to the ASEAN Transport Ministers meeting, which has taken place annually since 1996. Transport cooperation is part of the economic pillar of ASEAN, and progress is reported through the AEC scorecard and indicators in the Master Plan on ASEAN Connectivity (MPAC). There are no institutionalized cooperation or coordination efforts with other sectoral economic bodies such as energy, automotive products, trade, research/technology, or with the socio-cultural pillar of which environmental working groups are a part. However, in some cases, representatives from other working groups are invited to transport working group meetings (ERIA, 2010). Dialogue Partners, mainly development organisations, may be invited to participate in (parts of) the STOM and working group meetings. Some Dialogue Partners, such as Japan, China, and the Republic of Korea, convene dedicated meetings with STOM and ASEAN Transport Ministers. Other actors, such as civil society and business associations, may play an indirect or informal role, and in some cases, participate in official transport meetings as observers.

Sustainable transport in ASEAN policies and action plans

Environmental considerations first appeared in 1996, and the plan (ASEAN, 1997) noted cooperation on transport can focus on “where externalities such as safety and pollution as well as competition have acquired regional dimension to warrant cooperative action.” As early as 1998, specific measures were also included in action plans, e.g. to “adopt harmonised standards and regulations with regard to vehicle specifications (e.g. width, length, height and weight), axle load

limits, maximum weights, and pollution or emission standards”⁷. In transport cooperation plans until 2010, promoting environmentally sustainable transport was emphasised, however as ERIA (2010) notes “limited efforts were made in selected [AMS]” and sharing of experiences and capacity building appeared to be limited to exchange in working group meetings and some workshops. The ASEAN Strategic Transport Plan 2011-2015 included more actions related to energy efficiency, (GHG) emissions, and “environmental-friendly transport system, vehicles and fuels” and “green public transport system” in the capital cities.

With the Kuala Lumpur Transport Strategic Plan (ASEAN, 2016a), sustainable transport was covered in a dedicated chapter for the first time. The chapter includes ten actions and 31 milestones (see Appendix I), and widens the scope of topics compared to earlier plans, by including non-motorised transport, fuel economy, green freight and logistics, economic instruments, development of a monitoring framework and integration with land-use planning. In addition, other chapters of the plan cover rail infrastructure, inland and maritime transport, intelligent transport systems and road safety. However, the plan does not refer to global agendas on sustainable development, climate change or urban development, which all AMS have agreed to.

In energy cooperation plans, transport has played a limited role to date. Cooperation on science and technology included an action on fuel cell research and biofuel life-cycle methodology harmonisation.

Instruments and implementation

The instruments used in actions and milestones on sustainable transport in the KLTSP are mainly the exchange of experience and knowledge, capacity building, workshops and carrying out studies (see Appendix I). ASEAN plans also ‘encourage’ member states to adopt and implement suggestions and results from studies. A few notable examples of milestones are i) to “develop ‘Avoid’, ‘Shift’ and ‘Improve’ (ASI) strategies at the regional and Member States level”, ii) development of databases on sustainable transport and green freight, iii) convening of expert groups, iv) formulation of a regional fuel economy roadmap, v) creation of a ‘checklist guide’ on green logistics, vi) development of a monitoring framework and harmonised approach for indicators, vii) compilation of data, viii) development of guidelines (on green logistics and transport - land-use integration), ix) creation of a platform for information exchange, and x) carrying out training. The road safety strategy (ASEAN, 2016d) includes, inter alia, ‘harmonisation of standards, road rules and legislation’ and ‘monitoring and reporting progress’. Implementation of the actions and milestones mainly depends on projects and funding from Dialogue Partners such as Japan, Germany, and the Asian Development Bank. As the KLTSP (adopted November 2015) is in its early stage of implementation at the time of writing (July 2017), it is not possible to evaluate the implementation of the plan.

Drivers, agenda setting

The overall vision for post-2015 transport cooperation, adopted by the transport ministers, includes a reference to ‘sustainability’: “Towards greater connectivity, efficiency, integration, safety, and sustainability of ASEAN transport to strengthen ASEAN’s competitiveness and foster regional inclusive growth and development” (ASEAN, 2016d; p. 4). The Strategic Goal for Sustainable Transport is to “Formulate a regional policy framework to support sustainable transport which includes low carbon modes of transport, energy efficiency and user-friendly transport initiatives, integration of transport and land use planning (p. 17). Further explicit references to air quality, the UNFCCC agreements, and sustainable development have not been found in official ASEAN transport strategies. Earlier, ERIA (2010), the study used as a basis for the 2011-2015 plan, does refer to the millennium development goals, including environment and climate change. In addition, we note that the AEC Blueprint (ASEAN, 2016a), which includes a chapter on transport and connectivity, does not refer to the ASEAN socio-cultural blueprint, its environmental goals, and scorecard. In short, the environment may not be a strong driver for transport cooperation hitherto.

⁷ Ha Noi Plan of Action, which supports the ASEAN 2020 vision. There is no evidence however, that action has been taken on pollution or emission standards between 1998 and 2015.

The MPAC (ASEAN, 2016c) indirectly supports sustainable transport, particularly modal shift strategies, through the development of multi-modal transport including rail and maritime / in-land transport. Energy cooperation seems to focus on electricity production. Energy-efficiency in consumption such as buildings are of lower priority and appear more driven by international organisations. In petroleum security, energy efficiency is mentioned but the key actions in the agreement are related to securing supply in emergency situations. In general, ASEAN regional cooperation is driven by its member states, with a key role for the chair of the respective working groups, and a topic can be pursued if countries benefit from cooperation. Looking at the country perspective, there is limited evidence of drivers for regional cooperation or cases where one or multiple AMS are pushing an agenda (other than cross-border infrastructure or trade facilitation). Thailand has organised an ASEAN workshop to discuss of car taxation based on CO₂⁸. The Singapore Land Transport Academy regularly organised workshops and training on transport where ASEAN countries are invited to, including on urban transport. Malaysia was driving the green freight and logistics topic, together with Japan. In reviewing national transport strategies and plans, we found that for multiple AMS, ASEAN and its strategies are being referred to in the context of the AEC, connectivity and free trade – predominantly in sections on improving infrastructure -, and in some cases road safety. We did not find evidence of other sustainable transport aspects of ASEAN plans playing a role in national strategies yet.

Summary

This brief review shows ASEAN cooperation on sustainable transport is growing since the 1990s, both increasing in breadth and depth. Yet it can be said sustainable transport is still of lower importance compared to the connectivity agenda and has limited ambition. In terms of activities, cooperation predominantly focuses on carrying out studies, sharing experience and discussions in expert groups. Work on developing standards and tools for policies and transport indicators and monitoring has started or is being planned. Many of the activities are dependent on international organisations to be developed and funded. Cooperation with other relevant ASEAN bodies such as energy, environment, and industry is rather limited as well. In general, the absence of a strong ASEAN mandate and few country-level drivers limit the current ambition.

Box 1: Transport policy in the European Union

Transport has been a shared competence of the European co-operation since 1957, the aim has been to develop facilitate transport of passengers and freight between and across the EU Member States through a *common transport policy*. A vision and ten quantified goals for EU action on transport is set out in the European Commission's (2011) White Paper "Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system", although since 2014 there has been an adjustment of policy priorities. Important drivers of action on the environmental impacts of transport have been EU environment and single market policy – not transport policy. For example, EU laws on climate and air quality drive action on transport in cities, aviation and reduce emissions from new vehicles.

OPTIONS FOR REGIONAL COOPERATION ON SUSTAINABLE TRANSPORT

Based on the preceding evaluation, the cooperation typology and instruments (Section 2) and the discussion on regional governance in ASEAN in Section 3, we explore options (instruments) for strengthening ASEAN sustainable transport cooperation, some of which may be relevant to other sectors as well.

Common vision and strategy: a vision on sustainable transport in ASEAN endorsed and adopted by all ten-member states can provide a point of reference for regional and national policymaking. If politically feasible this vision could include quantitative, long-term targets for objectives such as energy, climate change mitigation, and air pollution⁹. A strategy can elaborate

⁸ <http://transportandclimatechange.org/news-events/towards-co2-based-vehicle-taxation-in-asean-countries/>.

⁹ There is a precedent for quantitative targets: ASEAN already has adopted a target to halve road crash fatalities by 2020.

necessary steps to realise the vision. The EU White Paper (EC, 2011) includes such a vision, targets and actions.

Knowledge sharing, policy transfer: the current actions promoting knowledge sharing and policy transfer can be strengthened and expanded to make them more effective. In addition to learning from countries and cities outside the region, there is a large and untapped potential to learn from intra-ASEAN experience, as AMS are developing and experimenting with new policies and programmes (Bakker et al., 2017). Key innovative policies include jeepney modernisation in the Philippines, fuel efficiency standards for new vehicles in Vietnam and Brunei Darussalam, CO₂-based vehicle taxation in Thailand, vehicle quota and electronic road pricing in Singapore, bus reform in Myanmar, a green technology finance scheme in Malaysia, and public transport systems (see Box 2). To further facilitate knowledge sharing, development of knowledge platforms, such as a dedicated website where data and information on country policies are gathered and maintained, and dissemination are required.

Studies, knowledge development: carry out, publish and disseminate high-quality research into sustainable transport solutions that can be applied in the region, while considering the different national and local circumstances and transferability of policies.

Institutions: sustainable transport policy development is a multi-sectoral undertaking and currently the topic is missing a 'home'. The institutional setup can be improved by strengthening the transport working group meetings and the interaction with other relevant ASEAN bodies such as energy and environment. Regional expert groups on dedicated topics can improve the link between national and regional policies. In addition, data collection and knowledge development and management could be enhanced by a dedicated institution, e.g. following the example of the ASEAN Centre for Energy, and annual conferences. Setting up a facility to support public-private partnerships may provide assistance in developing viable projects.

Data, indicators, monitoring: a common and harmonised approach for monitoring sustainable transport indicators within ASEAN at the national level provides benefits for monitoring progress towards common goals related to transport and climate change, avoids duplicating research work for developing monitoring systems, enables benchmarking and cross-country learning as to effectiveness of policies, and can inform the public about emerging issues and trends. In addition, output and outcome indicators, linked to the SDGs, could be added to the AEC and ASCC Scorecards, which are the key monitoring tools at the regional level. In the EU, the publication of comparable data, indicators, and monitoring have been a key "soft" mechanism to drive action and progress.

Awards: recognition of countries, cities or individuals that show remarkable achievements in the field of sustainable transport policy by awards or other means provides an additional incentive and is a means to highlight best practices. The current practice of the ASEAN Environmentally Sustainable Cities awards can be built upon.

Box 2. Integrated mass transit systems: potential for best practice sharing

High-quality public transport systems, well-integrated with other modes, are key to sustainable transport, yet may be complex to develop. High-capacity systems such as metro, light rail and bus rapid transit need first and last mile connectivity with non-motorized modes and paratransit, and be facilitated by integrated ticketing, land-use policies such as transit-oriented development, transport demand management and institutional development (Morichi & Acharya, 2013). ASEAN countries and cities are making significant progress in this area. Singapore's extensive network of rail and bus lines can be used by a single smart card, and its programme 'Walk Cycle Ride SG' aims at better access by walking and cycling. Cities such as Kuala Lumpur, Bangkok, Hanoi, Jakarta, Phnom Penh and Manila are developing and expanding urban rail systems and can learn from Singapore's experience. Jakarta's BRT has been in operation since 2004, and is now the world's longest with 13 main corridors (totaling 230 km), which are integrated with many feeder routes and other bus lines. Such experience can be valuable for Yangon, Kuala Lumpur, Vientiane, Phnom Penh, Cebu, Ho Chi Minh City, and Brunei Darussalam, which are developing their own BRT systems. Institutional development such as transport authorities covering metropolitan urban regions, such as the Land Public Transport Commission in Peninsular Malaysia, can further help to integrate public transport systems. Best practice sharing on such issues would support KLTSP actions 1.2, 2.2 and 2.5, and is also taking place through the country updates in the UNCRD Asia Regional Environmentally Sustainable Transport Forums. It should be noted however that due to each country's circumstances and preferences, realizing policy transfer through knowledge sharing programmes remains challenging (Gray et al., 2017).

Technical and performance standards, common definitions, guidelines, tools: examples could be a fuel economy standard or label¹⁰; guidelines for national policies (such as included in the ASEAN ITS Roadmap (ASEAN, 2015c)) and indicators/monitoring, and greenhouse gas impact assessment tool for policies or specific options such as alternative fuels.

Research and technology cooperation: to date, under the ASEAN Science and Technology Network, activities on related to the transport sector have been limited to biofuels and fuel cells (funded by the ASEAN Science Fund). The 2016-2025 ASEAN Plan of Action on Science, Technology, and Innovation emphasises the role of green and low-carbon technology, 'transformation to low-carbon society', energy security and energy efficiency, however, transport is not addressed explicitly. Developing partnerships between scientists, universities and other stakeholders can be enhanced, pooling of resources for research and development in key transport technologies, joint policy research on transport and land-use planning (e.g. in urban areas) are actions that may be considered.

To show how such instruments can be to promote the different strategies in sustainable transport, Table 2 summarises these options based on the "Access + Avoid-Shift-Improve" approach (Bakker et al., 2014). This sustainable transport policy framework emphasises that in addition to improving access to opportunities, transport policy should aim to avoid the need to travel, e.g., by improved urban planning, travel demand management or road pricing, and e-communication options; shift transport to cleaner or more efficient modes, e.g., rail freight or public transport; and (c) improve the environmental performance of modes by making vehicles more energy efficient and fuels less carbon-intensive. In addition to policy instruments, there are cross-cutting and supporting actions. Possible drivers and rationales for developing such cooperation instruments are also highlighted (see Section 4), as well as possible key actors involved in implementation.

¹⁰ This does not necessarily mean that all member states adopted the same standards at the same time; a convergence approach could be appropriate as well.

Table 2. Cooperation options and drivers: Illustrative examples

	Access / connectivity	Avoid / shift	Improve	Cross-cutting / supportive instruments
Typical measures	Infrastructure, reduction of trade barriers	Rail, water infrastructure (inter-urban); Public transport, NMT, planning, logistic centres, etc (urban)	Fuel efficiency, alternative fuels, clean fuels	Monitoring system; institutional development; knowledge development
Regional cooperation instruments	Joint action plans for infrastructure development and national policy changes (current practice);	Joint action plans (current practice); policy transfer; networks, expert groups; studies; guidelines; awards; benchmarking; PPP facility	Fuel economy and technology roadmap; standards; mutual recognition schemes; expert groups; technology cooperation; studies/ best practice; green freight labelling scheme; policy dialogues; policy tools; capacity building; benchmarking	Joint vision / strategy; capacity building; joint indicator system; knowledge sharing; knowledge centre and website; curricula development; academic cooperation; conferences / Mobility Week
Drivers	Economic / social development	Accessibility, urban liveability, environment, (sustainable development)	Environment, trade / economic integration, single market, energy security, R&D policy	Supports various goals stated in ASEAN strategies
Actors	Ministries of transport, trade/industry; MDBs	Ministries of transport, urban development; local governments; civil society; MDBs, technical cooperation	Ministries of transport, energy, environment, trade/industry; business sector; research / science community; civil society; IOs	Ministries of transport; academics; civil society; IOs

IO: international organization; MDB: multilateral development bank; PPP: public-private partnership

CONCLUSION

Sustainable transport is a relatively new topic in ASEAN transport cooperation, which focuses mostly on facilitating trade and connectivity as part of the ASEAN Economic Community agenda. Sustainable transport covers social, economic and environmental dimensions, and is essential in achieving multiple SDGs, notably on poverty reduction, road safety, energy efficiency and climate change, while ASEAN transport cooperation itself could be seen as contributing to SDG 17 on partnerships.

With the adoption of the ASEAN Transport Strategic Plan 2016-2025, sustainable transport has gained importance due to a dedicated chapter on the topic, with actions mainly related to energy and environmental topics. However, there are no references to the Paris Agreement or the Sustainable Development Goals, nor to the ASEAN Socio-Cultural Community and its (environmental) goals. This shows that transport development strategy in ASEAN is not linked with global environmental and sustainability agenda. Alignment is also lacking with the other pillars of the ASEAN Community.

The instruments used are predominantly focussing on policy cooperation, e.g. by best practice and knowledge sharing, capacity building, information platforms and development of a harmonised monitoring approach. This approach is common in ASEAN cooperation frameworks, with its strong preference for consultation and networking, dialogue, non-interference, soft diplomacy, and weak institutions, and our findings are in line with the literature on networked regionalism. The private sector and civil society are involved to a limited extent, and implementation of actions partially depends on funding from international Dialogue Partners. In general, there is a gap between what is happening and what was discussed or has been agreed upon by AMS.

With climate change, air quality, energy security, liveability becoming more important as policy drivers, as well as the strong basis in various ASEAN declarations and strategies, to advance sustainable transport, there may be potential to raise the ambition. This would require 1) increased awareness of the importance of sustainable transport for economic development, 2) institutional development, in particular, collaboration between transport and environment institutions at the regional and national level, 3) integration of sustainable transport indicators in the monitoring mechanisms of the AEC and ASCC, 4) more intensive cooperation to exchange best practices, enhance capacity and develop harmonised approaches in action areas such as fuel economy policies, green freight, and urban transport, and 5) continued funding for implementation of action plans, by AMS, international organisations and the private sector.

ACKNOWLEDGEMENTS

We wish to thank the ASEAN Expert Group on Sustainable Land Transport and the ASEAN Secretariat, and the project team “Energy Efficiency and Climate Change Mitigation in the Land Transport Sector in the ASEAN Region”, funded by the German Federal Ministry of Economic Development and Cooperation, in particular Tali Trigg, Aditya Mahalana and Friedel Sehlleier.

REFERENCES

- Abbott, K., D. Snidal (2000). Hard and Soft Law in International Governance. *International Organization* 54, 3, Summer 2000, pp. 421–456.
- Aggarwal, V., J. Chow (2010). The perils of consensus: how ASEAN's meta-regime undermines economic and environmental cooperation. *Review of international political economy*.
- Agrawala S., S. Klasen, R. Acosta Moreno, L. Barreto, T. Cottier, D. Guan, E. E. Gutierrez-Espeleta, A. E. Gámez Vázquez, L. Jiang, Y. G. Kim, J. Lewis, M. Messouli, M. Rauscher, N. Uddin, and A. Venables, 2014: Regional Development and Cooperation. In: *Climate Change 2014: Mitigation of Climate Change*. IPCC working Group III. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- ASEAN (2007). *The ASEAN Charter*. ISBN 978-979-3497-62-7. ASEAN Secretariat, Jakarta.
- ASEAN (2014). *ASEAN peatland management strategy 2006-2020*. ISBN 978-602-7643-86-4. Available from <http://environment.asean.org/wp-content/uploads/2015/06/ASEAN-Peatland-Management-Strategy-2006-20201.pdf>.
- ASEAN (2015a). *ASEAN Community Vision 2025*. Available from <http://www.asean.org/storage/images/2015/November/aec-page/ASEAN-Community-Vision-2025.pdf>.
- ASEAN (2015b). *ASEAN Economic Community. Blueprint 2025*. ISBN 978-602-0980-59-1. ASEAN Secretariat, Jakarta.
- ASEAN (2015c). *ASEAN ITS Policy Framework v 2.0*.
- ASEAN (2016a). *Kuala Lumpur Transport Strategic Plan (ASEAN Transport Strategic Plan) 2016-2025*. Jakarta, the ASEAN Secretariat ISBN 978-602-0980-70-6.
- ASEAN (2016b). *ASEAN Socio-Cultural Community blueprint*. Available from <http://www.asean.org/storage/2016/01/ASCC-Blueprint-2025.pdf>
- ASEAN (2016c). *Master plan on ASEAN connectivity 2025*. ISBN 978-602-6392-02-2. ASEAN Secretariat, Jakarta. Available from <http://asean.org/storage/2016/09/Master-Plan-on-ASEAN-Connectivity-20251.pdf>.
- ASEAN (2016d). *Regional road safety strategy*. ISBN 978-602-6392-14-5 Jakarta, ASEAN Secretariat. Available from http://asean.org/storage/2016/10/ASEAN-Road-Safety-Strategy_full_24Oct16_rev_clean.pdf.
- ASEAN (2017a). *ASEAN Community in Figures 2016*. ASEAN Secretariat, Jakarta. Available from <http://www.aseanstats.org/publication/asean-community-in-figures-acif-2016/>.
- ASEAN Centre for Energy (2015). *The 4th ASEAN Energy Outlook 2013-2035*. Available from <http://www.aseanenergy.org/resources/publications/the-4th-asean-energy-outlook/>.
- Bakker, S., M. Zuidgeest, H. de Coninck, C. Huizenga (2014). Transport, development and climate change mitigation: Towards and integrated approach. *Transport Reviews* 34, pp.335–355.
- Bakker, S., K. Dematera, M. Kappiantari, A. T. Nguyen, M. D. Guillen, G. Gunthawong, M. Zuidgeest, D. Liefferink, M. van Maarseveen (2017). Low-Carbon Transport Policy in Four ASEAN Countries:

Developments in Indonesia, the Philippines, Thailand and Vietnam. *Sustainability* 9 (7), pp.1217-1233.

Coninck, H. de (2007). *Technology rules! Can technology-oriented agreement help address climate change*. PhD thesis, Amsterdam Free University, ISBN 978-90-8659-354-5.

Elliott, L. (2012). ASEAN and Environmental Governance: Strategies of Regionalism in Southeast Asia. *Global Environmental Politics* 12 (3), pp 38-57.

ERIA (2010). *ASEAN Strategic Transport Plan. Final Report*. October 2010. Available from <http://www.eria.org/ASEAN%20Strategic%20Transport%20Plan.pdf>.

European Commission (2011). *White Paper. Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system*. COM (2011) 144 final, Brussels. Available from <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52011DC0144>.

Ewing-Choi, M., T. Hsien-Li (2013). *The Role of the Rule of Law in ASEAN Integration*. EUI Working Paper RSCAS 2013/16, Robert Schuman Centre for Advanced Studies, San Domenico di Fiesole, Italy.

GIZ (2016) *ASEAN's transport sector contributions to combating climate change: INDC analysis*. Available from <http://transportandclimatechange.org/news-events/aseans-transport-sector-contributions-to-combating-climate-change-indc-analysis/>.

Gray, D., R. Laing, I. Docherty (2017). Delivering lower carbon urban transport choices: European ambition meets the reality of institutional (mis)alignment. *Environment and Planning A* 2017, Vol. 49(1) 226–242, DOI: 10.1177/0308518X16662272.

Heilmann, D. (2015). After Indonesia's Ratification: The ASEAN Agreement on Transboundary Haze Pollution and Its Effectiveness As a Regional Environmental Governance Tool. *Journal of Current Southeast Asian Affairs*, 34, 3, 95–121.

IPTS & Clean Air Asia (2014). *A Study on a Long-term Transport Action Plan for ASEAN*. Available from <http://cleanairasia.org/study-of-long-term-transport-action-plan-for-asean-region-lpa-project/>.

Jayasuriya, K. (2009). Regulatory regionalism in the Asia-Pacific: drivers, instruments and actors, *Australian Journal of International Affairs*, 63:3, p.335-347, DOI: 10.1080/10357710903104810.

Jetschke, A., J. Rüländ (2009). Decoupling rhetoric and practice: the cultural limits of ASEAN cooperation, *The Pacific Review*, 22:2, p.179-203, DOI: 10.1080/09512740902815326.

Kheng-Lian, K., N. Robinson, L. Lin-Heng (2016). *ASEAN environmental legal integration. Sustainable goals?* ISBN 978-1-316-60431-1. Cambridge, UK, Cambridge University Press.

Kuroda, H., M. Kawai, R. Nangia (2007). *Infrastructure and Regional Cooperation*. ADB Institute Discussion Paper No. 76. Available from <http://hdl.handle.net/10419/53537> (last access 12 April 2017).

Morichi, S. S. Acharya (eds., 2013) *Transport Development in Asian Megacities. A new perspective*. ISBN 978-3-642-29742-7. Springer-Verlag Berlin Heidelberg, Germany.

Nesadurai, H. (2008). Association of Southeast Asian Nations (ASEAN). *Global Monitor. New Political Economy* 13 (2), pp.225-239.

Nicolas, F. (2009). *ASEAN Energy Cooperation An Increasingly Daunting Challenge*. Note de l'Ifri. ISBN : 978-2-86592-603-9, Institut Français des Relations Internationales, Paris, Bruxelles.

Olsen, S., S. Teoh, I. Miyazawa (2015). ASEAN Community and the Sustainable Development Goals: Positioning Sustainability at the Heart of Regional Integration. In: *Greening Integration in Asia, how regional integration can benefit people and the environment*, Institute for Global Environmental Strategies, Japan.

Preece, R. (2016). Reforming automobile excise taxes in the ASEAN region for pro-growth and pro-environment outcomes. *World Customs Journal* 10 (1), pp.45-72.

Severino, R. (2007). ASEAN Beyond Forty: Towards Political and Economic Integration. *Contemporary Southeast Asia: A Journal of International & Strategic Affairs*, 29 (3), pp.406-423.

Stavins R., J. Zou, T. Brewer, M. Conte Grand, M. den Elzen, M. Finus, J. Gupta, N. Höhne, M.-K. Lee, A. Michaelowa, M. Paterson, K. Ramakrishna, G. Wen, J. Wiener, and H. Winkler (2014). International Cooperation: Agreements and Instruments. In: *Climate Change 2014: Mitigation of Climate Change*. IPCC Working Group III. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Stead, D. (2016). Key research themes on governance and sustainable urban mobility. *International Journal of Sustainable Transportation* 10 (1), pp.40-48, Available from <http://dx.doi.org/10.1080/15568318.2013.821008>

Tongsopit, S., N. Kittner, Y. Chang, A. Aksornkij, W. Wangjiraniran (2016). Energy security in ASEAN: A quantitative approach for sustainable energy policy. *Energy Policy* 90 (2016) pp.60–72.

Tongzon, J. and S-Y. Lee (2015). Achieving an ASEAN single shipping market: shipping and logistics firms' perspective. *Maritime Policy & Management* 43 (4), pp.407-419.

Treaty of Paris (1951). Treaty establishing the European Coal and Steel Community, ECSC Treaty. Available from <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3Axy0022>.

United Nations (2016). *Mobilizing Sustainable Transport for Development. Analysis and Policy Recommendations from the United Nations Secretary-General's High-Level Advisory Group on Sustainable Transport*. Available from <https://sustainabledevelopment.un.org/content/documents/2375Mobilizing%20Sustainable%20Transport.pdf>.

