



BOOK OF ABSTRACTS

ASIA-EUROPE SUSTAINABLE CONNECTIVITY SCIENTIFIC CONFERENCE

Strengthening Asia-Europe links
through data and research

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Setting the scene

Setting the scene

Ana Rita Neves and William Becker

European Commission, Joint Research Centre

On October 2014, a group of Asian and European leaders gathered in Milan, Italy at the 10th Asia-Europe Meeting (ASEM) Summit. On this occasion, the group decided on the need to further study approaches and concrete steps for enhancing connectivity between Asia and Europe in all relevant fields. Two years after, at the 11th ASEM Summit held in July 2016, in Ulaanbaatar, Mongolia, the leaders of the ASEM political forum agreed to:

- Mainstream connectivity in all its dimensions, including political, economic, digital, institutional, socio-cultural and people-to-people, into all ASEM activities;
- Establish a working group, called the ASEM Pathfinder Group on Connectivity, with the aim of exploring how ASEM could add value in the area of connectivity.

The ASEM Pathfinder Group on Connectivity was tasked with providing a commonly agreed definition of connectivity for the ASEM context. This definition, endorsed by all 53 ASEM partners at the 13th Meeting of ASEM Foreign Ministers in Nay Pyi Taw, Myanmar in November 2017, is presented in Box 1.

Box 1: Definition of ASEM connectivity adopted by ASEM.

Connectivity is about bringing countries, people and societies closer together. It facilitates access and is a means to foster deeper economic and people-to-people ties. It encompasses the hard and soft aspects, including the physical and institutional social-cultural linkages that are the fundamental supportive means to enhance the economic, political-security, and socio-cultural ties between Asia and Europe which also contribute to the narrowing of the varying levels of development and capacities.

Bearing in mind the Asia-Europe Cooperation Framework (AECF) 2000, ASEM connectivity aims to establish the sense of building ASEM partnership of shared interests. It upholds the spirit of peace, development, cooperation and mutual benefit. It will also adhere to and effectively implement relevant international norms and standards as mutually agreed by ASEM partners.

ASEM Connectivity covers all modes of transport (aviation, maritime, rail and road) and also includes, among others, institutions, infrastructure, financial cooperation, IT, digital links, energy, education and research, human resources development, tourism, cultural exchanges as well as customs, trade and investment facilitation.

ASEM connectivity covers all the three pillars of ASEM - economic, political and socio-cultural. It should be result-oriented, and in support of the following key principles: level playing field, free and open trade, market principles, multi-dimensionality, inclusiveness, fairness, openness, transparency, financial viability, cost-effectiveness and mutual benefits. It should also contribute to the materialisation of the principles, goals and targets of The 2030 Agenda for Sustainable Development. Sustainability is one of the important quality benchmarks for the connectivity initiatives in the ASEM context.

Connectivity in the ASEM context is a broad concept, ranging from physical infrastructure (i.e. transport, energy and information and communication technologies), financial cooperation and economic/trade links to political, institutional and human connectivity, including education and research, tourism and cultural exchanges. The definition underlines the link between connectivity and sustainable development, in particular the Sustainable Development Goals (SDGs).

Although the ASEM group had a definition of connectivity, they were still lacking evidence to inform policy making on the state of connectivity between the 51 ASEM member countries. This was the reason why the European Commission's Joint Research Centre (JRC) Centre Competence Centre on Composite Indicators and Scoreboards was called to contribute. The JRC is the European Commission's in-house science service and its main mission is to carry out research to support European Union (EU) policies. One of its main challenges is to bridge the divide between science and policy.

In November 2017, the JRC took up the mission of developing a measurement framework for ASEM sustainable connectivity. Only by measuring connectivity, policy makers could better understand how countries are connected to each other as well as in which areas countries are frontrunners and in which areas they are lagging behind.

The multidimensional nature of ASEM Sustainable Connectivity meant that this concept could not be captured by a single indicator. Thus, the approach used was to develop a framework of relevant indicators which could be combined into composite indicators or indexes— aggregations of indicators that make large and complex data set accessible by offering a 'big picture' overview. In addition, they serve as an access point to the underlying data, enabling users to drill down and explore the wealth of information presented in the indicator framework.

In fact, we built two indexes, one measuring connectivity and facilitators of connectivity in its five dimensions: Physical, Economic/Financial, Political, Institutional and People-to-people and other measuring sustainability linked to connectivity in its three dimensions: Environmental, Social and Economic/Financial. We put 49 indicators in this framework, but to arrive there we reviewed more than 200. A particularity of measuring connectivity is that it suggests the use of bilateral data, i.e. data which measures connections between pairs of countries. In total, 16 bilateral datasets specifying the levels of flows and connections between 51 country pairs were included.

With this approach, we were able to assess how well connected a country is according to the ASEM definition and the extent to which this may be reflected in a country's sustainability.

In order to make all the information accessible and reachable to everyone, we developed a new online data-powered tool – the ASEM Sustainable Connectivity Portal¹. The Portal allows users to:

- Understand in which domains a country is performing better or not so well;
- Explore the relationships between connectivity and sustainability and its underlying components;
- Explore the various types of connections between European and Asian countries.

¹ <https://ec.europa.eu/asem-sustainable-connectivity>

For example, by using the Portal (e.g. the Connectivity Map feature) one can discover that:

- **Asia and Europe are leading trade partners, with \$1.5 trillion of annual merchandise trade**
Trade between ASEM countries accounts for about half of all world merchandise trade. Two major hubs stand out: Germany and China. These countries together are responsible for one quarter of the overall trade in the ASEM group, and are the main trade bridges between the two continents.
- **Foreign direct investment (FDI) between Asia and Europe reaches close to \$90 billion annually**
This is nearly the same size as FDI flows within Europe. Over half of European investment in Asia comes from the UK and Germany, exceeding \$32 billion. In fact, the UK invests twice as much in Asia than in Europe, with India receiving the greatest share. Likewise, China and Japan are the main Asian investors in Europe, collectively amounting to \$12 billion.
- **400,000 tertiary education students move annually between Europe and Asia**
International graduate student mobility provides access to quality education abroad, as well as the opportunity to improve language skills and explore different cultures and societies. The United Kingdom is the top destination for Asian students, with nearly three quarters coming from China, India and Malaysia. Chinese students represent almost half of Asian students in Europe. Australia is the favourite destination for European students, followed by Japan.
- **Over 200,000 scientific articles are the fruit of collaborations between Asian and European research institutions every year**
Cross-continental collaboration in the form of co-authorship of scientific publications represents close to one third of research collaborations in ASEM countries. Countries such as China, Australia, the United Kingdom, Germany, Russia and France provide an intercontinental bridge for scientists. Cross-bloc collaboration is stronger on the Asian side than on the European side, since European countries also have a strong internal collaboration network supported by large EU-funded research programmes.
- **13 million people have migrated between Asia and Europe**
Germany, the United Kingdom and Australia host the largest number of cross-bloc migrants (around 2.5 million each). Large movements of migrants from the United Kingdom to Australia and from Russia and Kazakhstan to Germany are associated with historical, cultural and language ties. Russia is the main country of origin of migrants to Europe, followed by India.

Flows and connections between countries can now be measured and in this way we can understand more precisely how they connect to each other.

Data also tell us that Asia-Europe connectivity is aligned with most of the Sustainable Development Goals, in particular the ones linked to the social dimension of sustainability.

If we plot on the vertical axis Connectivity – higher score is better, and on the horizontal axis – Social Sustainability, further to the right is better, then we see that better connected countries are associated with better performance on social sustainability (Figure 1). Those countries tend to have lower levels of poverty, lower levels of corruption, less inequality, more students in tertiary education, more freedom of the press, and tend to be more inclusive to minorities (which were the indicators we used to measure social sustainability).

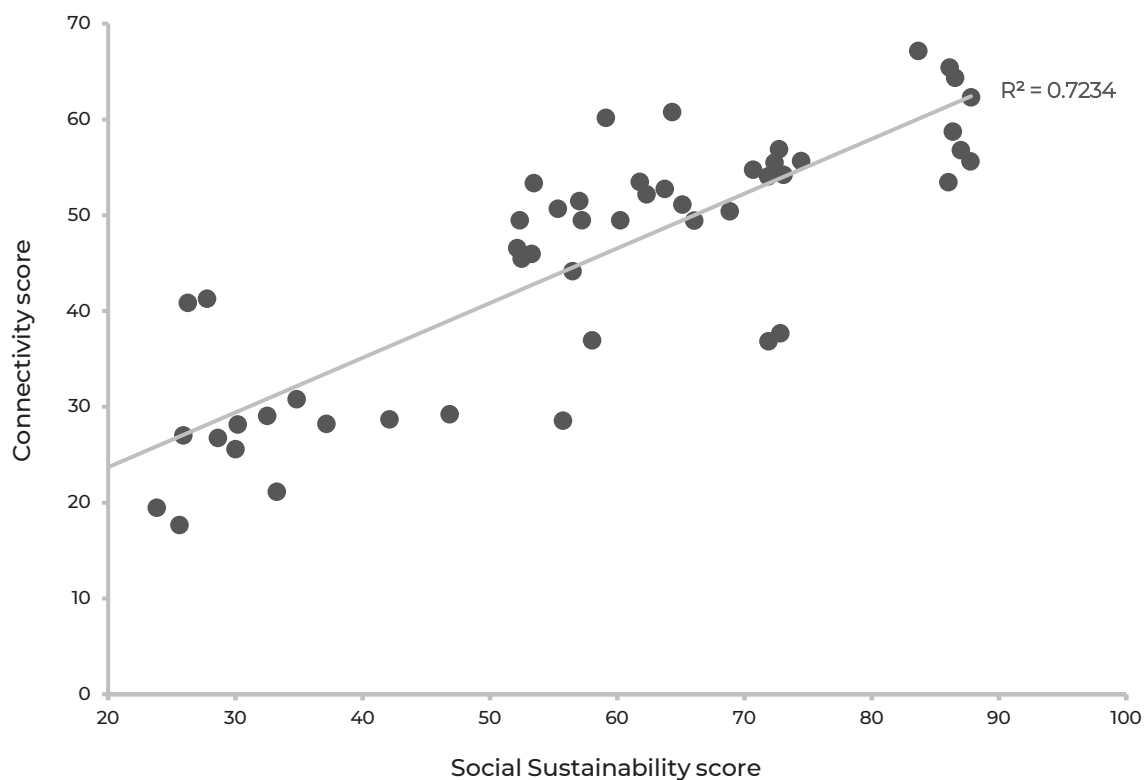


Figure 1: Relationship between the ASEM Connectivity index and the Social Sustainability sub-index.

The ASEM Sustainable Connectivity Portal came at a time in which connectivity is very high on the ASEM political agenda. The Portal was part of the EU contribution to the 12th ASEM Summit, held in Brussels, Belgium in October 2018. Moreover, the EU has put forward sustainable connectivity in its 2018 'Connecting Europe and Asia – Building blocks for an EU Strategy'. The EU strategy has set out an approach to connectivity which is sustainable, comprehensive and rules-based, with policies that should be economically, fiscally, environmentally and socially sustainable in the long term².

The main purpose of the ASEM Sustainable Connectivity Portal and its accompanying study³ was to provide evidence to support and ramp up the policy debate on sustainable connectivity between Asia and Europe.

² European Commission (2018). Joint Communication to the European parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, Connecting Europe and Asia - Building blocks for an EU Strategy, JOIN(2018) 31 final.

³ Becker, W., Domínguez-Torreiro, M., Neves, A. R., Tacao Moura, C. J., & Saisana, M. (2018). Exploring ASEM Sustainable Connectivity: What brings Asia and Europe together? Luxembourg. doi: 10.2760/738153.

With the aim of continuing linking science and policy in the area of sustainable connectivity, the JRC joined efforts with a group of partners to set up the first ever scientific conference on Asia-Europe Sustainable Connectivity – AESCON. The conference is organised in collaboration with the Asia-Europe Foundation (ASEF), the Economic Research Institute for ASEAN and East Asia (ERIA) and the Center for China and Globalization (CCG).

With this conference, we expect to:

- Bring together researchers, data and policy analysts in an academic forum to share the latest research as well as to discuss the global and local challenges associated to connectivity;
- Initiate a network of researchers with interest on Asia-Europe sustainable connectivity and create new collaborations;
- Identify pathways to provide further support ASEM sustainable connectivity policy making with science.

Opening

Opening remarks by Stephen Quest

Director-General of the Joint Research Centre, European Commission

It is a pleasure to be with you today, and even if we have had to adapt ourselves to new and challenging circumstances, I am very happy that we have found a way to enable this conference to go ahead.

This first scientific conference on Asia-Europe sustainable connectivity comes at a crucial moment. Our world is confronted with a number of serious challenges all at the same time. While we battle with the ongoing COVID-19 pandemic, we also need to step up our efforts to deal with climate change and meet the Sustainable Development Goals. We need to deal with technological changes that have a serious impact on the lives of many, changing the ways we work and live. And we face important economic and social challenges.

Science clearly has a role in helping us to meet these challenges, and in my remarks today I would like to focus on **three areas where I believe we can usefully strengthen our efforts** and make a real difference. Allow me to mention them briefly:

First, we need to strengthen the interface between science, policy and the political level.

I head up the European Commission's Joint Research Centre, and with over 2,000 scientists, we provide scientific support across the entire range of European Union policies.

I took the lead of this organisation in the midst of the COVID-19 pandemic and immediately witnessed how policy makers looking to scientists to provide the information they require to make the right choices.

During my first months in my new position, we have made serious efforts to deepen the connection with policy makers, and it is my strong conviction that much can be gained by further strengthening mutual understanding.

On the one hand, scientists need to invest in understanding real policy needs, and to understand and accept that it will not be scientific evidence alone that will determine political choices.

At the same time, policy makers need to be much more specific in what they would like scientists to provide, and understand that science does not necessarily bend in the light of policy preferences.

In this context, I am very pleased that the organisers of this conference have been able to bring together people from these different worlds..... It therefore provides an excellent opportunity for scientists, policy makers and the diplomatic community to explore ways to maximize the contribution of science.

Second, we need to strengthen our scientific efforts. Artificial intelligence, super-computing, 5 and 6G, new ways of digital cooperation, these are just some of the tools that will help us to find new answers, especially in the areas that our conference will be dealing with.

The Joint Research Centre's expertise and multi-disciplinary experience will certainly play its role. We will be fully mobilised to support the recovery package, which will both support the European Union in recovering from the COVID-19 pandemic and drive investment in the twin green and digital transitions.

On the specific field of sustainable Connectivity, the Joint Research Centre is already very active:

For example, our scientists of the Competence Centre on Composite Indicators and Scoreboards have:

- identified the most relevant and available indicators to measure connectivity in its physical, economic, political, institutional and people-to-people forms.
- provided an online interactive tool to make information accessible and reachable to everyone, from researchers and policy analysts to businesses and policymakers.
- and were involved in the dissemination of European standards for the construction sector in South East Asian countries. Major constructions in Asia have been designed adopting these standards.

Strengthening international cooperation is the third area we need to focus on. The challenges we all face are global challenges; therefore the answers must be found through global cooperation.

The European Commission is a strong advocate of multilateral international cooperation and attaches great importance to its relations with our Asian partners. It believes that AESCON can promote connectivity in areas such as transport, energy, IT as well as human and institutional.

Let me give you a concrete example: our study on ASEM sustainable connectivity in 2018 found that over 200,000 scientific articles were the fruit of collaborations between Asian and European research institutions every year. It is my firm belief that this number of cross-border scientific collaborations has the potential to be even higher.

Strengthening the interface between science, policy and politics, strengthening our scientific efforts and strengthening international cooperation...all these three elements come together in this conference, which is itself an excellent example of European and Asian cooperation.

I believe that our cooperation will bring valuable results and the JRC is certainly committed to contribute.

I wish you a fruitful conference

Thank you.

Opening remarks by Toru Morikawa

Executive Director, Asia-Europe Foundation (ASEF)

Good Morning for the participants from Europe Good Afternoon for the participants from Asia.

It is a pleasure to welcome you today on behalf of the Asia-Europe Foundation (ASEF), one of the partners of AESCON – the Asia-Europe Sustainable Connectivity Scientific Conference. My name is Mr MORIKAWA Toru, and I am the Executive Director of the Asia-Europe Foundation.

ASEF is an intergovernmental, not-for-profit organisation which brings together the people of Asia and Europe. We respect diversity, facilitate innovation and link civil society to the Asia-Europe Meeting Process, in short “ASEM”, which is an intergovernmental cooperation forum with partners from 51 countries and 2 institutions in Asia and Europe. ASEM has been an important driver in the relationship between its partner countries. ASEF is the sole permanently established institution of the ASEM Process.

As the sustainable connectivity has become the focus of cooperation in the ASEM Process, AESCON is organised to bring together researchers and policy analysts from Asia and Europe. We are grateful to the other partners and EU as donor to organize this important meeting. Taking the actual pandemic of Covid19 into account, we commend the timeliness of the meeting.

Please allow me talk a bit more about ASEF. For more than two decades, ASEF has been enhancing dialogues, enabling exchanges of ideas and encouraging collaborations, providing human connection through our projects and activities in seven thematic areas: culture, education, governance, economy, sustainable development, public health and media. I wish you consider ASEF as a possible partner of your future work to promote the big idea of “Sustainable Connectivity.”

The growing links between Asia and Europe are already among the most important inter-regional relationships in the world. According to an article of the World Economic Forum before the pandemic, Asia and Europe are global leading trade partners, trading more between them than between any other regions in the world, with USD 1.5 trillion in trade; both continents also bring people and societies together with millions of people having migrated between the two regions.

With this in mind, we pose a number of questions; How to draw more benefit from the huge potential of the exchange between the two regions to the people in the two regions and beyond? How to enhance the connectivity between the two regions in a more sustainable way? What are the gaps to be addressed? How can we cope with or avoid its negative impacts? And now, how to overcome the challenges caused by the COVID-19 pandemic? Where do we focus and allocate our limited resources?

We wish through the reports and the discussion in these events, our participants and partners, are able to share their best practices, find commonalities and learn from each other, for enhanced mutual understandings among them and further, to provide food for thoughts to different policy makers of the ASEM process.

We hope that this event will open up the doors for collaboration with many more like-minded organisations. With that, I will end my speech by wishing all of you will benefit from the exchange of friendships, knowledge and ideas in this meeting. May this conference be the precursor to more initiatives to enhance the sustainable connectivity between our two regions.

Thank you.

Opening remarks by Koji Hachiyama

COO, Economic Research Institute for ASEAN and East Asia (ERIA)

It gives me immense pleasure to welcome all of you to this high powered and academically rich Asia Europe Scientific Conference on very important subject of Asia-Europe Connectivity.

After months of uncertainty, we are gathered in a virtual setup, meeting under the shadow of COVID-19 pandemic, which has disrupted normal life, business, and connectivity in Asia and other parts of world. It is a timely reminder to all present here that connectivity entails not just infrastructure and strategies for trade and economic cooperation, regulations and soft infrastructure. It entails connectivity and cooperation in all aspects, especially in knowledge exchange, sustainable development, security, mobility of people. Most of all, if Asia-Europe region must be future ready to meet the challenges of Digital transformation and Fourth Industrial Revolution, digital connectivity with safe, secure and reliable data free flow is absolutely essential. Then we can realize completed digitalized society. In 2020, Asia and Europe can cooperate to build the hard and soft infrastructure and develop international norms and standards of digital connectivity in the ASEM region, which can also be applicable to other parts of the world.

Asia and Europe represent a sizeable part of the global community. Since its inception in 1996, the Asia-Europe Meeting, or ASEM, has played a key role as a forum for dialogue and cooperation in connecting Asia and Europe. I am particularly pleased to see this conference form an important event of the 13th ASEM which will be held next year in Cambodia.

ERIA is particularly proud to be associated with Asia-Europe connectivity and the ASEM mechanisms. ERIA was a forerunner of connectivity-related studies in the ASEAN region. It developed the concept of holistic connectivity, which takes into account the physical, institutional, and people's aspects of connectivity in a community or region. Our connectivity-related research is also helping closer economic cooperation between Asia and Africa, and Asia and Europe.

To support the ASEM Summit, ERIA prepared the 'ASEM Connectivity Vision 2025' jointly with Mongolia in 2016. In 2018, ERIA supported the European External Action Service (EEAS) and prepared the "Brussels Report on Strengthening Asia Europe Connectivity" for the 12th ASEM Summit. ERIA also supported the ASEM Pathfinders Group on Connectivity (APGC) in developing an Inventory of ASEM Connectivity activities to draw out tangible areas of cooperation in connectivity (TACC) in ASEM.

In 2019, ERIA is supporting the ASEM Chair, Cambodia, through a plenary study on Inclusive, sustainable and future ready ASEM. Scholars and policy experts from Asia and Europe are contributing to this plenary project, which will be presented to the ASEM leaders in the summit.

I am sure that our efforts will continue to bring the people of Asia and Europe closer together, and to integrate the two regions as deeply as possible.

I wish this conference every success over the next days.

Opening remarks by Miao Lu

Co-founder and Vice-President, Center for China and Globalization (CCG)

It is with great honour to speak at the Asia-Europe Sustainable Connectivity Scientific Conference. It is an innovative idea to measure and value the connections between Europe and Asia with Sustainable Development Goals (SDGs). I much appreciate and admire this research dimension and it is worth of learning by other institutions and scholars as well.

The European Union (EU) and China are two of the biggest traders in the world. In 2019, China was the third largest partner for EU exports of goods (9%) and the largest partner for EU imports of goods (19%). For Europe, currently China is the EU's second-biggest trading partner behind the United States. China highly values the relation with EU and is eager to strengthen joint actions with EU and seek for multilateral solutions in order to deal with various global challenges and issues. We can strength the ties in people-to-people exchanges, fight against climate change, seek for stronger cooperation in business, promote the enforcement of intellectual property rights and also work together towards on other goals of the SDGs. China is the biggest overseas education market in the world. Amid US's harsh rhetoric, it is likely that U.S. will no longer be the top choice for Chinese students seeking for an overseas education. Alternatively, it is estimated that European countries may replace US in the future in the overseas education destination.

All in all, these circumstances show the existing and necessary connectivity and collaboration between Asia and Europe. We are living in an integrated world and it is less possible to overcome the challenges without collaboration. Particularly with the absence of Trump Administration in the multilateral institution, China would like to be a main actor and promotor of multilateralism. Moreover, think tanks between two regions can also seek for more fields and areas to strengthen the partnership. Center for China and Globalization (CCG) as a leading non-government think tank in China is focused on global movement of people, international education, globalization, regional connectivity and global governance. CCG is the only official Chinese partner of Munich Security Conference and Paris Peace Forum and has hosted several activities during these two significant events. In August, CCG has jointly released the Chinese language version of the World Migration Report 2020 with International Organization of Migration (IOM). We are eager to play more roles in the China-EU joint research and events of people-to-people exchanges, education, trade, IP, climate change and so on.

I believe this conference will be a productive one with the exchanges of researchers and policy analysts from various countries and it will definitely deepen the understanding and promote the connectivity between the two continents. It will be a great chance to host this event in China and CCG is keen to co-organise it if possible. Finally, wish a great success of the Asia-Europe Sustainable Connectivity Scientific Conference in advance.

Keynote by Romana Vlahutin: Sustainable Connectivity – The European way

Ambassador-at-Large for Connectivity, European External Action Service

The European Union (EU) is built thanks to connectivity which is sustainable, comprehensive, and rules-based. Connectivity is the EU's DNA. Our Single Market demonstrates that every day.

After the COVID-19 pandemic, investment in connectivity, in addition to supporting recovery, also helps the development of more sustainable, inclusive and resilient economies.

The EU's Connectivity strategy is an inclusive platform open for cooperation with all partners. Our prosperity and stability is underpinned by connectivity, within the EU itself, its immediate neighbourhood and further beyond. Our offer for partnership is based on our key principles: sustainability and level playing field. The EU's approach relies on adherence to market rules, EU and international requirements and standards, and a level playing field, in order to deliver benefits for all parties concerned and in all the countries along the planned routes.

Infrastructure needs are vast and no country can meet them alone. Both public and private capital is indispensable and may only be achieved through due diligence and guarantees which reduce risk, for which the EU has the know-how and experience. Cooperation at regional and global level is indispensable.

Given the high costs and long-term nature of such investments, it is critical for us that projects are financially, environmentally, socially and fiscally sustainable, are fully transparent, and allow a level playing field for our businesses. The present crisis shows why these criteria are so important to ensure that all parties concerned benefit, in particular the users, the general public and the economy.

Connectivity needs a strong rules-based multilateral framework – for everyone's sake

Shada Islam

Managing Director New Horizons Project & Senior Advisor European Policy Centre

In September 2019, Friends of Europe released the discussion paper ["Connectivity needs a strong rules-based multilateral framework – for everyone's sake"](#). The publication underlines the compelling need to multilateralise connectivity by drawing up binding international norms, standards and regulations.

We all know that connectivity generates high rewards. Infrastructure is indispensable to Agenda 2030 and achieving the Sustainable Development Goals (SDGs). It improves livelihoods, increases mobility and empowers people. Connectivity increases countries' economic competitiveness by improving trade ties and making them more attractive to investors. It also plays a role in peace-building and conflict resolution.

But there are challenges – increased connectivity has engendered fierce global competition. An increased number of connectivity actors strains an already tense environment. It can lead to duplication of projects – or the implementation of those with contradictory aims – a lack of basic standards for sustainability and labour conditions, as well as insufficient consultation with civil society or the private sector – both of which stand to lose or gain much through connectivity projects.

We put forward three recommendations for improving connectivity – both in the region and beyond. And the name of the game is multilateralism.

- A plurilateral code of conduct should be created. The EU has already signalled its intention to engage on enhancing connectivity and finding complementary rules and regulations. Its Strategy for Connecting Europe and Asia calls for fiscal, environmental, social and economic sustainability, as well as rules-based frameworks. This could become the basis of a new rulebook for connectivity which connectivity actors sign on to.
- The Multilateral Cooperation Center for Development Finance (MCDF) – established by China's Ministry of Finance and eight multilateral financial institutions – should be reinforced. Its aim is to foster high-quality infrastructure connectivity investments through information-sharing, capacity-building and project preparation. This Center could be built upon to include all connectivity actors and regions which receive connectivity investment. It could as well become a dialogue mechanism for exchange on connectivity projects.
- Create an International Connectivity Forum for consultations with the private sector and civil society. For any infrastructure project to succeed, it must have community backing and support. And the private sector must be in the loop as well for local training, procurement exercises and employment. Members of this Forum could keep an eye out for corruption and project delays, provide community insights, and so on.
- These are the potential building blocks for creating a more connected region – and a more connected world. They can also help to overcome key challenges to connectivity, such as transparency, communication, sustainability, inclusion and so on.

We have seen that connectivity can create a healthy sense of competition, but for it to succeed it is important to know when to compete, and when to cooperate. What we need is connectivity cooperation and collaboration, not connectivity conflicts and confrontation.

People-to-People Connectivity

EU-India Cooperation in Higher Education as an Enabler of the ASEM Sustainable Connectivity

Zane Šime

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Introduction

There is no better moment for discussing the ASEM connectivity than AESCON, a gathering which takes place against the backdrop of recent scholarly appraisals of Mogherini's focus on the EU's global presence and engagement (Bargués-Pedreny, 2019, p. 2). Likewise, AESCON is organised in the wake of the reiterated references to such earlier coined terms as 'Asian century' (Dams & Verbij, 2019, p. 30), and reassessments of 'Chindia' (James, 2019). These are just two re-emerging terms which mark the comprehensive shift of the nodes of gravity towards Asia and scholarly interest from across ASEM in this process. This article offers a brief introduction to smaller-scale developments in higher education and research with a particular focus on the Latvia-India ties as a constitutive part of the EU-India relations. Despite its compact scope, this two-way stream of interaction is relevant in terms of understanding more nuanced developments shaping the overall evolving ties across ASEM. Additionally, India is a good choice for further examination of student mobility patterns because its leading academic staff have earlier analysed the international higher education developments in the globalisation context (Sharma, 2016, pp. 258-259). India along with China are well known major sources of large volumes of internationally mobile students, which has led Chinese policymakers to view its outgoing students as "people-to-people ambassadors". It has encouraged European scholars to analyse this Chinese approach through the lens of the EU educational diplomacy and a student as 'a soft power projector' towards both sending and receiving countries (Bislev, 2017). Perhaps such a perspective holds the potential to be relevant also in the case of other groupings of international students, such as talented and ambitious Indians.

By summarising the latest higher education developments taking place in Riga, the capital of Latvia, this extended abstract offers a more nuanced picture of what bilateral developments are supporting the EU-India cooperation. The importance of bringing attention to specific locations supporting the EU-India ties lies in their capacity to raise the future generations of academics, policy-makers and opinion-leaders who would promote "shared values and understanding" (Joint Research Centre, n.d., p. 12; Becker et al., 2018, p. 23) and be better equipped to uphold the goals enshrined in the Joint Communication "Elements for an EU strategy on India" through their first-hand familiarity with the EU sector's relevant for their chosen profession and career.

Concluding remarks provide a good example of diverging trends, namely, if the macro-picture offered by the ASEM Sustainable Connectivity Map indicates rather modest connections in higher education between the EU and India, then, thanks to a steady rise of new collaborative ties and bigger inflows of students, in certain national settings the situation is quite the opposite. The importance of a continuous examination of such convergence or divergence between macro and micro trends is worth keeping an eye on not solely for the mere purpose of tracing the statistical fluctuations. It is also vital for a better grasp of the dynamics shaping the EU-India educational diplomacy, especially taking into consideration earlier acknowledgements among the experts working for the European institutions that

“traditional diplomacy is no longer the main channel by which states project their image abroad” and “EU’s influence in Asia is its attractiveness to students and researchers worldwide” (Vandewalle, 2015, p. 4).

India-Latvia Higher Education Ties

This extended abstract is presented in the aftermath of the conference “India-EU Engagements: A Decade in Reflection and Way Forward” held at the end of 2019 in Manipal, India. The main findings of the (forthcoming) article “The Ripple Effects of EU’s Science Diplomacy Towards India” were briefly presented with an emphasis on the valuable contribution the Manipal Centre for European Studies of the Manipal Academy of Higher Education is delivering in terms of strengthening the current limited student exchange between the EU and India. The data on student flows taken from the ASEM Sustainable Connectivity Map and complemented with some additional data sources demonstrated that, by and large, the next generations of Indians are gaining international academic exposure in an ‘Asian Century’ spirit. A lion’s share of Indian students is acquiring a familiarity with the Anglo-Saxon and Chinese academic tradition and higher education system. As the ASEM Sustainable Connectivity Map displays, the EU hosts some 10% of all Indian students studying abroad. Modest numbers of Indian students travel to the EU with the support of Erasmus+ Programme (Vandewalle, 2015, p. 15) and via the cooperation networks established by two Jean Monnet Centres of Excellence or national initiatives. Latvia is far from the top EU Member States on this list of most frequently chosen destinations. While macro-statistics paints a rather gloomy picture for the future of the India-EU strategic partnership, the micro-picture of certain EU national contexts offer a much more encouraging perspective.

Despite the limited connectivity shown by the ASEM Sustainable Connectivity Map of 164 Indian students studying in Latvia and one Latvian student studying in India (Joint Research Centre, 2019), the most recent statistics of specific EU Member States paint a much more dynamic picture. While the tiny statistics of one Latvian student studying in India has remained unchanged throughout the academic years of 2015/2016, 2016/2017, 2017/2018, 2018/2019 (Ministry of Human Resource Development, 2019), Latvia has experienced a steady rise of Indian student inflow. In the 2014/2015 academic year – 164, in the 2015/2016 academic year – 429, in the 2016/2017 academic year – 750, in the 2017/2018 academic year peaking to 1233 Indian students studying mostly at the Riga Technical University (518 students), Turība University (259 students), Information Systems Management Institute (181 students), but also Transport and Telecommunication Institute (77 students) and EKA University of Applied Sciences (54 students), Rīga Stradiņš University (44 students), Rezekne Academy of Technologies (39 students) and a list of other institutions hosting less than 20 Indian students each (Ministry of Education and Science, 2018, pp. 78, 81-86; Ministry of Foreign Affairs, 2018). The described pattern follows the overall tendency of Latvia to host an increasing number of international students who are mostly pursuing their studies in Riga. India forms one of the widest represented countries of origin (Leiškaine, Briede, & Lopatinskis, 2018, p. 6; Ministry of Education and Science, 2018, p. 78).

One of the explanations for such an increase in Latvia’s hosted Indian students is the earlier efforts in strengthening outreach activities. Besides the research and innovation section of the EU Delegation to India (Vandewalle, 2015, p. 9), several EU Member States or higher education and research institutions based in the EU Member States support accessibility of information about study opportunities in the EU. In the case of Latvia, a group of universities joined forces to promote the availability of information about study programmes in Latvia.

On 31 January 2014, the Study in Latvia Centre was established in Chennai by a consortium of Latvian higher education institutions with support of the Latvian Ministry of Education and Science (Nagarajan, 2014; Riga Technical University, 2014).

All in all, an increased familiarity of Indians with Latvia and its higher education is of importance not solely for the bilateral ties between Latvia and India, but also for promoting wider awareness and familiarity with those EU Member States which are not the traditionally prioritised partners for closer interaction. To clarify, earlier analysis state Germany, France and the United Kingdom as the primary interlocutors (Kugiel, 2019, p. 2). It should be added that international students who have chosen Latvian higher education institutions benefit from exposure to an intellectual environment where such public diplomacy elements as educational scholarships offered by other ASEM Partner Countries (namely, France, Germany, Japan, South Korea) are highly valued (Tabuns, 2019, p. 224). Thus, it is fair to argue that Riga offers a conducive environment for the further evolution of ASEM collaborative encounters.

Conclusions

The examination of EU-India and Latvia-India student exchange patterns remind about an earlier assessment of the partnership expressed by Damodaran (1985, p. 366): “The Indo-European relationship is at a reasonably high level, but by no means at the highest level; it is comprehensive, but not exclusive. Almost all individual European countries have much greater commitments to some other regions of the world and other individual countries than to India. This is a good thing.” It captures a balanced assessment and an overarching view on the EU-India relations as a far from a two-way or isolated process, but as ties which are shaped with due consideration of other orientations and opportunities that international exposure to various collaboration options and destinations offer. No matter what have been the fluctuations in statistics of student flows to one or the other study destination over the last years, certain long-term patterns captured more than 35 years ago by one of the most iconic Indian diplomatic and intellectual voices resonate with the current interactive patterns.

The steady and considerable increase of Indian students at the Latvian higher education institutions demonstrates that there is a considerable value in the earlier expressed intention to develop the ASEM Sustainable Connectivity Portal as a continuously updated data repository (Joint Research Centre, n.d., 35; Becker et al., 2018, p. 12). Subsequent inputs of more recent statistics would allow bringing the ASEM macro-picture up to speed with certain major shifts in quantitative landscape characterising some of the most dynamic EU national contexts, such as Latvia.

If Latvia or any other entity engaged in promoting EU-India educational diplomacy would aim at tailoring it as a component of a ‘SMART⁴ public diplomacy’ (Golan, 2014) or draft an earlier suggested long-term public diplomacy strategy (Tabuns, 2019, p. 230), then ASEM Sustainable Connectivity Portal with continuous data inputs might be a helpful reference point both in the drafting phase of new initiatives and the performance evaluation after their implementation.

⁴ Specific, Measurable, Achievable, Realistic, and Time-bound objectives.

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Implementation People-to-People Connectivity through SHARE Scholarship to strengthen ASEAN Identity

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The 2030 Agenda for Sustainable Development reflects the interconnected nature of current global challenges. This reveals the need for connectivity as a joint response to achieve the Agenda's goals. Connectivity and sustainability mutually reinforce each other, as so connectivity is largely driven by the social pillar of sustainability. In Asia and Europe, the Association of South East Asia Nations (ASEAN) and the European Union (EU) bring regional experience of creating a framework for connectivity but faces various challenges. Thus, to accomplish the systematic project of connectivity, ASEAN has moved towards a regional platform through public diplomacy under the ASEAN Community. There is the need to strengthen the "we-feeling", referred to as ASEAN identity in serving as a concerted effort in building a well-connected community of shared responsibilities.

ASEAN and EU as dialogue-partners created SHARE through multilateral diplomacy sessions and it was formulated based on the ASEAN Socio-cultural Community Blueprint 2025, the ASEAN Work Plan on Education 2016-2020 and the Kuala Lumpur Declaration on Higher Education of 2015. The project consists of three main components that is Policy Dialogues, ASEAN Qualifications Reference Frameworks and Quality Assurance, ASEAN Credit Transfer System (ACTS) and ASEAN-EU Credit Transfer Systems (AECTS) which are implemented through a scholarship. SHARE is a joint effort by ASEAN and the EU to strengthen Regional Cooperation in ASEAN. As stated by SHARE Project Leader from the British Council: "Diplomacy, generally is about building relations between countries and ideally for mutual benefits or in the worst case, to stop us going to war with different countries. So, that's what diplomacy is about. So, seeing education and culture and all these things, that is part of diplomacy, what it does is built trust between different countries or in this case different Regions" (G. Slaven, personal communication, July 19, 2018).

The EU provided 10 million euros of financial support towards ASEAN as their commitment in being a dialogue-partner and assisting countries in need. As stated by the EU Program Manager of Education and Culture: "Most importantly, this assistance is the European Union's commitment towards countries in need, especially as one of ASEAN's Dialogue Partners. Certainly, the European Union is very enthusiastic of this Programme. We are not implementing the Bologna-Process on ASEAN, but we provide technical inputs. Therefore, The EU is very happy and excited to wait for SHARE's results" (D. Nugroho, personal communication, July 3, 2018).

There are 33 Universities in ASEAN included in the SHARE Programme, such as the University of the Philippine, University of Indonesia, National University of Management Cambodia, National University of Laos, Universiti Kebangsaan Malaysia, University of Yangon, Chulalongkorn University and Viet Nam National University. So far, the SHARE programme has sent 400 students Intra-ASEAN. The scholarship includes school fees, living expenses, round-trip flights, visas, health insurance, textbooks and other study related expenses for one semester. SHARE will foster people-to-people connectivity in ASEAN through a deeper

promotion of social and cultural understanding Intra-ASEAN as well as increasing student mobility.

Stoeckel research on social interaction across individuals with different national backgrounds found the effectiveness of the inter-group interaction building a collective identity. The sample includes almost 1500 students at 38 German universities. Participants who studied abroad showed a significant increase in their identification with Europe. However, the longer the study duration, the weaker the identification. Three-wave panel data set used by Stoeckel allowed him to confirm the stability on identity change. Data shows that studying abroad leaves a stable imprint even months after the student returns to their own country and was not just a short-lived effect of their excitement on an adventurous journey. Contact with other international students proven to be significant in building a shared European identity, while contact solely with nationals of host country shows a different impact (Stoeckel, 2016). In contrast, Jonsson (2010) questioned the plausibility of Southeast Asian regional identity by 2020. On a state level, this might be achieved if there is a political will. However, to make ASEAN truly regional, the sense of belonging to a common identity must be “imagined” at the individual level. Identities are in a constant flux that must be negotiated: They are contested depending on political and socio-economic developments.

Acharya & Layug (2012) states that ASEAN Identity remains important in shaping political security, regionalism and international relations in the Asia-Pacific. Southeast Asians only need to work on its ASEAN cohesion, unity, and clear regional purpose of the trajectory of Asia-Pacific regionalism and its role in it. However, just as important, they must ensure Southeast Asian people sense of ownership, in its ongoing search for ASEAN Identity and its role in building Asia Pacific Community; if not, community building and regional identity projects will be satisficing but unsustainable.

The purpose of this research is to study the “how” in the implementation of people-to-people connectivity through SHARE scholarship program to strengthen ASEAN identity. Methodology used is qualitative research along with educational diplomacy concepts and common ingroup identity model. Data was gathered through in-depth interview with SHARE implementers and awardees allowing detailed information.

The main finding of this research is that SHARE has a role in strengthening people-to-people connectivity and thus, strengthen the ASEAN identity. It facilitates awardees in obtaining information on the host country and its society through direct-contacts. Information obtained, then it becomes an important component in generating a positive contact experience between awardees and their contact partners, hence an interpersonal relationship will be established. Interpersonal relationships established through people-to-people contact will become the main condition to strengthen ASEAN Identity. This research has shown ASEAN Identity as a secondary identity possessed by ASEAN people after their national identity. As the Director of ASEAN Community Affair stated: “ASEAN Identity is something that you or how a person view or associate themselves with the vision of ASEAN. That is ASEAN identity. To me, it is like, you could be Indonesia and ASEAN, and you could be Singaporean and ASEAN. It is not a zero sum. You can have both identity, and more and more people actually growing this.” (Y. Lee, personal communication, October 2, 2018)

ASEAN Identity is of high importance in a regional cooperation as it strengthens bilateral diplomacy between member states, as people-to-people connectivity does. ASEAN Identity will push ASEAN people to be more understanding of each other. It has been stated that ASEAN Identity is very important, but especially for younger generation; being able to see

themselves as a part of ASEAN Vision will be a positive contribution to future ASEAN market-forces.

Awardees that experience positive direct contact in their host countries claim to feel a stronger identification towards ASEAN. They felt the ASEAN Identity growing and take root in themselves. Thida explicitly identify herself as both Cambodian and ASEAN: "Re-adjust no, but I do act different. I just feel more mature. Going abroad doesn't make me forget who I am, and how to live in Cambodia. It just made... well just like ASEAN Identity, I am Cambodian but also ASEAN." (T. Sann, personal communication, October 14, 2018)

This shows the role of SHARE to strengthen ASEAN Identity through people-to-people connectivity. When students experience host country first hand, a sense of care will arise. The same thing was felt by Fernando as he senses the ASEAN Identity. While in Vietnam, Fernando lived in a dormitory with three students from Laos. After returning to Indonesia, Fernando began applying for work in other ASEAN member states.

Common Ingroup Identity Model (CIIM) developed from the theories of social identity such as Social Identity Theory and Self-Categorization Theory to intergroup behaviour based on the process of social categorization. CIIM explains in inter-group social interaction, contact conditions that accentuate a shared ingroup identity will improve the perception and attitude within individuals involved. Shift in the perception toward contact-counterpart from an outgroup to a more inclusive ingroup will then allow interpersonal relationship to cultivate (Gaertner, Rust, Dovidio, Bachman, & Anastasio, 1994). In this research, inter-group interaction is interaction between awardees and host nationals. Awardees will be the representation of their country and host nationals as the representation of host country.

Prior intergroup research has closely related "willingness to communicate" as a condition to shift perceptions and thus, cultivates interpersonal relationship. This condition is a behavioural manifestation of a shared-identity among individuals involved as the common ingroup identity they shared encourages a stronger desire to communicate (Pettigrew & Tropp, 2006). In SHARE, "willingness to communicate" reflected through awardees motivation in applying for the scholarships.

CIIM highlights the function of shared ingroup identity in shifting the cognitive between individuals involved on perceiving others (Gaertner & Dovidio, 2014). Previously, based on the motivation they had, it appeared awardees have acknowledged a shared ingroup identity among them and students or nationals in the host country. However, based on the results of this interview, the awardees had some negative perceptions of the host countries before direct contact was possible. This perception was obtained from media coverage. On top of that, lack of awardees insight or awareness in regards of the host countries also results in negative perceptions. Then, through the facilitation of SHARE, a positive cognitive shift occurred within the awardees. Thus, it cultivates a positive interpersonal relationship between the inter-group individuals involved.

To conclude, this research found out the explorative nature within the awardees supported them in the process of cultivating interpersonal relationship and hence strengthen the ASEAN Identity within them. Educational Diplomacy through SHARE is a way for awardees to see, recognize and interact directly with the host nationals; to foster a stronger sense of cares and allow the ASEAN Identity to grow and take roots. This research also supports the second condition of the Common Ingroup Identity categorisation happened within the awardees, a dual identity.

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The Filipino Diaspora: A comparative analysis of OFW Remittances from ASEAN and EU

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An Overseas Filipino Worker (OFW) is a person of Filipino origin who is temporary living outside the Philippines as a migrant worker. As of 2018, the Philippines Statistics Authority (2019) estimates that there are 2.3 million OFWs around the world, 96.2% of which have existing work contracts. OFWs contributed a total of 32 billion USD in 2018, most of which were sent home to the Philippines, through remittances. OFWs contribute to the economic growth of both the Philippines as the country of origin and the countries where they work. In a largely domestically driven economy like the Philippines, more remittances inflow just means more domestic demand, and increasing domestic demand induces more economic expansion. At the same time, OFWs who are professionals and highly skilled workers are employed in industries and economic activities that fuel the economic activities and contribute to the economic growth of the countries that they work in.

This paper analyses OFW activity within Asia and compares it to the activity within Europe. More specifically, it analyses OFW remittances from ASEAN and EU from the lens of supranational organizations that promoted an integrated economy from among member-states. The analysis includes implications for the Filipino workforce in light of significant geopolitical changes such as Brexit and ASEAN integration and corresponding implications for the Philippine economy.

This study utilizes secondary data available from the ASEM Sustainable Connectivity Portal. The analysis is also supplemented by data from other databases such as the Philippine Statistics Authority. OFW-specific data is retrieved from the Commission for Filipinos Overseas. This is corroborated with secondary qualitative data from the official reports of government agencies that monitor foreign migrant workers.

Figure 1 describes the distribution of OFW by country of destination for work. Middle Eastern countries continue to lead in the receipt of OFWs, followed by East Asian countries such as Japan, Taiwan and Hong Kong. Amongst other ASEAN countries, OFWs are mainly employed in Malaysia and Singapore. Europe represents one twelfth of OFWs. Unlike OFWs, majority of the stock of migrant Filipinos are based OECD countries – the United States, EU countries, and Australia (Asis, 2017)

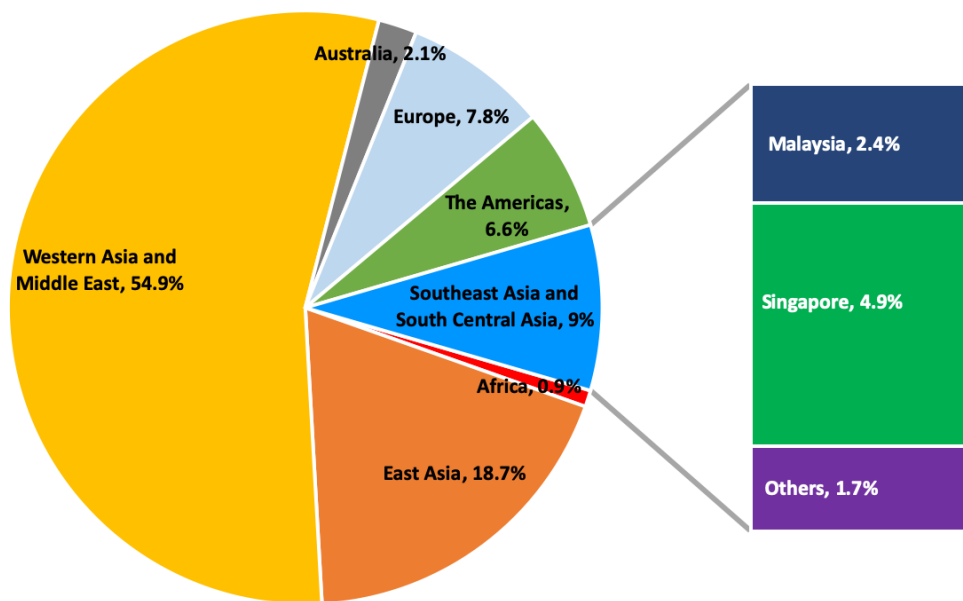


Figure 1: Distribution of OFWs by work abroad, 2018. Source: Philippine Statistics Authority (2019)

OFW activity is part of the economic and financial cluster of the ASEM Connectivity Score with personal remittance (received and paid) as the primary indicator. Figure 2 shows that personal remittances are the strongest indicator for economic connectivity for the Philippines while trade was the weakest. OFW remittances has reached US\$ 30.2 billion for the first eleven months of 2019 (Noble, 2019). In contrast, the trade deficit was US\$ 34.6 billion during the same period (INC, 2020).



Figure 2: Economic and financial scores for the Philippines. Source: ASEM Sustainable Connectivity Portal dataset (2018).

Amongst ASEAN member-states, the Philippines is third in personal remittances in terms of intensive connectivity given the country's 105 million population against the smaller size of Brunei (430 thousand) and Cambodia (16 million). However, in terms of extensive connectivity, the Philippines is responsible for the largest flows of remittances in ASEAN.

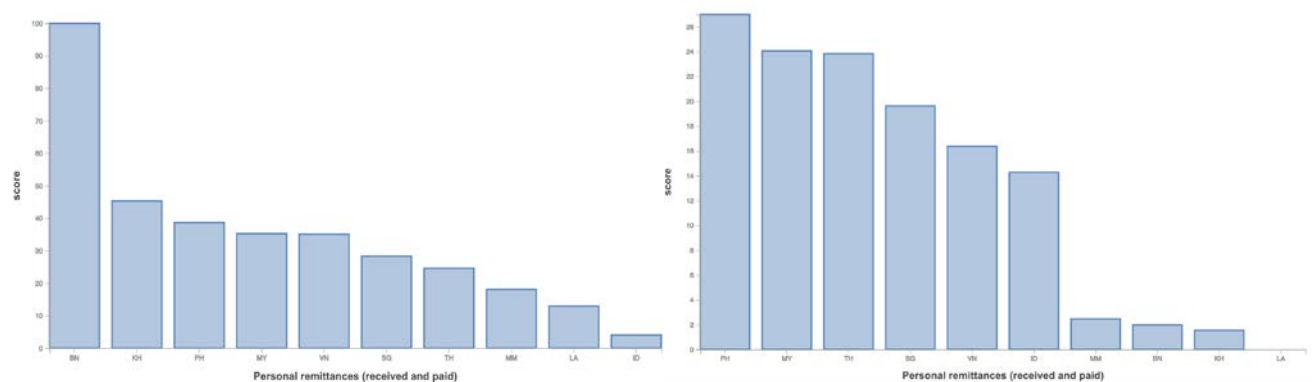


Figure 3: Personal remittances for ASEAN countries, intensive (left) and extensive (right). Source: ASEM Sustainable Connectivity Portal dataset (2018).

An analysis of OFW remittances in Figure 4 reveals that cash remittances make up the majority of personal remittances and both figures continue to grow on a year-to-year basis. OFW remittances contribute to 11% of the country's GDP. In contrast, the business process outsourcing, the largest industry sector in the Philippines, contributes to 9% of GDP.

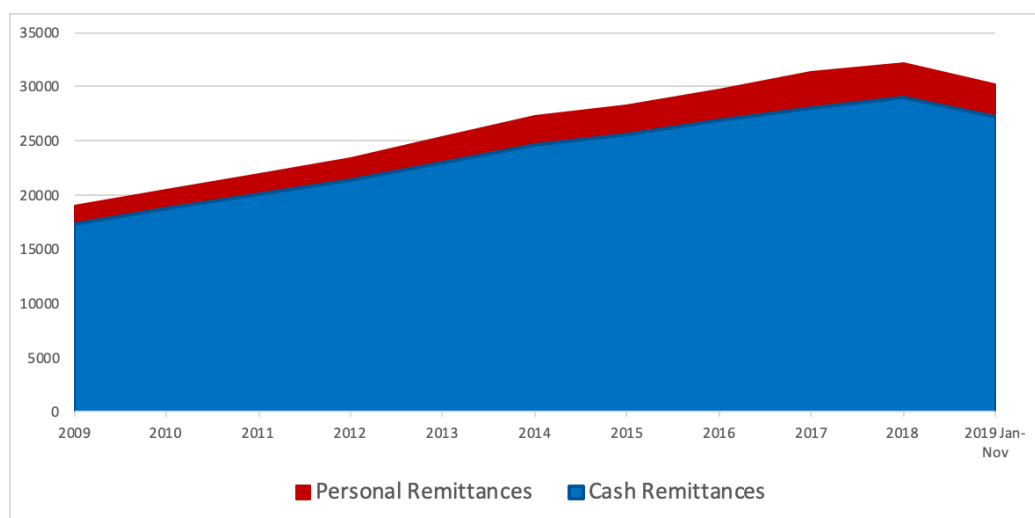


Figure 4: Personal and cash remittance of OFWs, million US\$, 2009-2019. Source: Bangko Sentral ng Pilipinas (2020).

Figure 5 disaggregates personal remittances inflow to Philippines by country of destination. Amongst Asia-Pacific countries, Malaysia makes the largest contribution to the inflow of remittances, which is intriguing given that there are more OFWs in Singapore than its neighbouring country. Remittances from Italy and the United Kingdom make up the largest inflow, but these are still smaller compared to the top Asia-Pacific countries. Given the importance of the UK, monitoring OFW activity in the region will be critical with Brexit looming on the horizon.

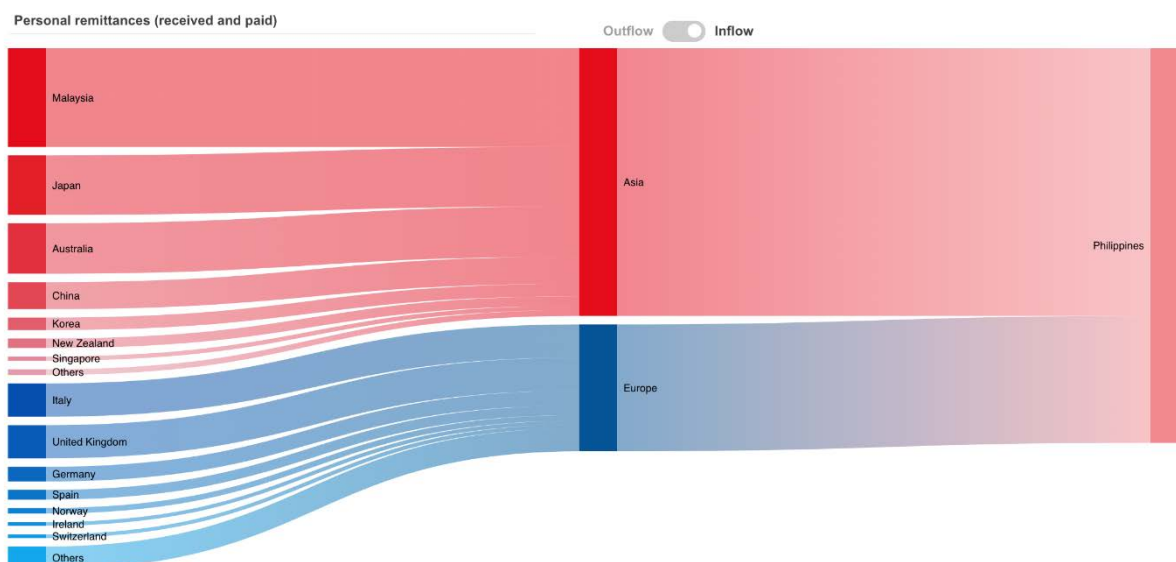


Figure 5: Personal remittances inflow to the Philippines. Source: ASEM Sustainable Connectivity Portal dataset (2018).

From a policy perspective, the paper also analyses the policy landscape in ASEAN and EU and identifies the enablers and barriers for Overseas. Furthermore, a closer look will be taken on the Philippine government's policies for migrant workers to identify gaps in the mechanisms to protect the welfare of citizens who choose to become overseas Filipino workers.

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Advancing of the sustainable connectivity through innovation: highlighting SDG9 and SDG17

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The aim of this paper is to understand the mechanisms through which accounting on the Sustainable Development Goals (SDG) 9 and SDG 17 contribute to transform European and Asian countries using statistical and machine learning models. All the SDGs can only be realized with strong global partnerships and cooperation. Economic activities, are being pressured to direct their actions towards sustainable performance, more specifically in its social and environmental facets. Countries can to deal with these pressures using collaborative efforts to share ideas and foster innovation. Sustainable development requires radical and systemic innovations. In this paper, we present results of a study conducted on the ASEM Sustainable Connectivity Portal dataset for Asian and European countries in order to examine the relationship between innovation and sustainable performance. Data analysis was carried out mainly through Cronbach's Alpha reliability analysis of scales, descriptive analysis of measures, and especially cluster analysis and analysis of variance (ANOVA). The main results categorise the countries into more sustainable, less sustainable and relatively sustainable, according to their performance profiles. The study also highlights the relationship between size of the country and its effect on the collaboration. The literature review as well the evidence suggests a greater relevance of the relationship between collaboration and sustainable performance. The study contributes to the advancement of the sustainable connectivity by highlighting the relationship between innovation and sustainable performance.

Towards Inclusive City through Tourism Development: Quality of Job and Participation

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Abstract

Considering the urgency of growing equality through one of the largest and most potential industries, tourism, leads to the context of how tourism contributes to inclusive growth. This research aims to investigate whether tourism-based development can lead to the inclusiveness of the city by modifying the conceptual framework of Tourism-Driven Inclusive Growth Diagnostic (TDIG-D) from Bakker (2018). The new conceptual framework does not only focus on proximate factors that influence the quantitative outcome of tourism-driven inclusive growth measurement but also other possible determinants of the growth process and the distribution of the outcome growth. The job quality reflects the factor that affects the growth and distribution of the outcome, while participation in planning and implementation represents the factor that influences the process to achieve inclusiveness through tourism development.

Keywords

Inclusive growth, inclusive tourism, inclusive city, job quality, participation

Introduction

Cities are facing more challenges as more rapid urbanization is predicted that 70% of the world population will live in an urban area (World Bank, 2018). Unpreparedness urbanization actors in facing economic and social competition are one of the core reasons for income gap, crime and social conflict, discrimination, urban pollution, and evidence that urbanization is not yet in the right path in providing equal living conditions for all citizens. Bringing up the equality issues as well as talking about inclusiveness. Making the city more inclusive has essential role to ensure the poor and vulnerable group in accessing all opportunities to improve their quality of life, take them out from poverty, and involve or engage in development process (World Bank, 2009; Klasen, 2010; Haan, 2013; Aoyagi & Ganelli, 2015; Kanbur & Rauniyar, 2009; Ali, 2007; Chou & Huque, 2016).

Making use effectively of inclusive cities must be applied in the potential sector, and it could be different between cities, regions, or even countries. Among those sectors, this study chose tourism as a potential sector especially for developing countries to generate economic growth. The tourism sector has generated 10.4% of all global economic activities and provides about 319 million jobs in 2018 (WWTC, 2019). In contrast, we cannot deny that the rapid tourism development also leads to environment and wildlife degradation, social issues, and some human-made disasters. Given those positive and negative impacts of the tourism industry on society, it is remaining the question of whether tourism development has a positive or negative sign to the inclusiveness of growth in the city.

From the previous studies, the determinations of inclusive growth are rarely focusing on specific sectors, such as the tourism sector. There is one conceptual framework which consists of tourism constraint to achieve inclusive growth proposed by Bakker (2018), but it did not cover all main principle of inclusive growth. In order to fill those gaps, this study proposes a new framework of Tourism Driven Inclusive Growth by developing the existing one, concerning not only in inclusive and productive employment but also in how they can help to reduce poverty and generate the community to participate or get involved in the development process. The poverty context is used to represent the outcome of tourism-driven inclusive growth, quantity and quality of the job will reflect the equal outcome distribution, and participation context will show whether the development process itself is inclusive or not. This framework is expected to become the guideline to reveal what is the factor that influences inclusive growth and help to arrange in which limitation the policy should address.

Methodology

This study was based on work performed by previous research related to tourism-driven inclusive growth or T-DIGD Framework. Tourism-Driven Inclusive Growth Diagnostics (T-DIGD) was made by adapting the Growth Diagnostics framework by Hausmann et al. (2005) which is figuring out the policy priorities by identifying the binding constraints on economic activity. T-DIGD framework consisted of constraints that influence the possibility of marginal group excludes from the tourism benefits. The existing framework was modified by constraints from various evidence of various cases. Collected references were discussed and built new insight into the new framework.

Discussion and Conclusion

According to Bakker's T-DIGD framework, inclusiveness of growth from tourism activities focus on availability and access of opportunities caused by tourism activities and its outcome both monetary and non-monetary, but the great sense of inclusive growth has not included yet. Overview for some previous research built the new T-DIGD framework which consisted of poverty reduction, equal distribution of opportunities and social involvement or participation. Tourism development which can create inclusive city is expected to distribute more opportunities to marginalized groups, such as poor people, than non-poor people (Ashley,2000; Scheyvens & Biddulph, 2018). The constraints which may cause the uneven access of the poor to the opportunities are different among individuals as different circumstance they are experiencing (Truong et al., 2014). Tourism impact on poverty reduction is also influenced by broad regulation, destination assets, and characteristics, institution structure, and type of tourism product (Winters et al., 2013).

As tourism development occurs, the real, direct, and general outcome that can be felt by the poor is an increase in income through higher numbers and more accessible job/employment opportunities. The importance of job/employment for building inclusive cities trough the tourism sector is not just the quantity but also the quality. Whether the jobs/employment provided by tourism development as 'decent' or 'good' job is expected to reveal which their limiting factors in achieving inclusive city are. The growth and access to job/employment opportunities may be influenced by the capacity of human resources, infrastructure, business environment, and how the policy or government positions tourism to generate productive job/employment (Bakker, 2018) while the quality itself covers satisfaction to the

job/employment such as on the wage, working hour, safety, and security of working place (Findlay et al., 2013; Drobic et al., 2010; Diaz- Chao et al., 2016; Esenaliev & Ferguson, 2019).

In order to ensure that the tourism development process itself is inclusive, the ways tourism generate their participation level were applied in the proposed framework. Same as the above ideas, making tourism can contribute to the inclusive city means to remove the limitation of the poor to participate in the tourism development process. Tosun (2000) categorized those challenges and limitations into three: operational, structural, and cultural limitations. Operational limitation focus on operational procedure which can influence the capacity of people to participate in tourism such as political and administrative system, how the information is distributed, and how people respond to the information (Tosun, 2000; Kim et al., 2014). Structural limitations are more about financial matters such as income level, elite dominant or power structure, and the roles of stakeholders who involves in the process, while cultural limitations can be defined as self-awareness and capacity to response the offered opportunities (Tosun, 2000; Mensah, 2017; Kim et al., 2014).

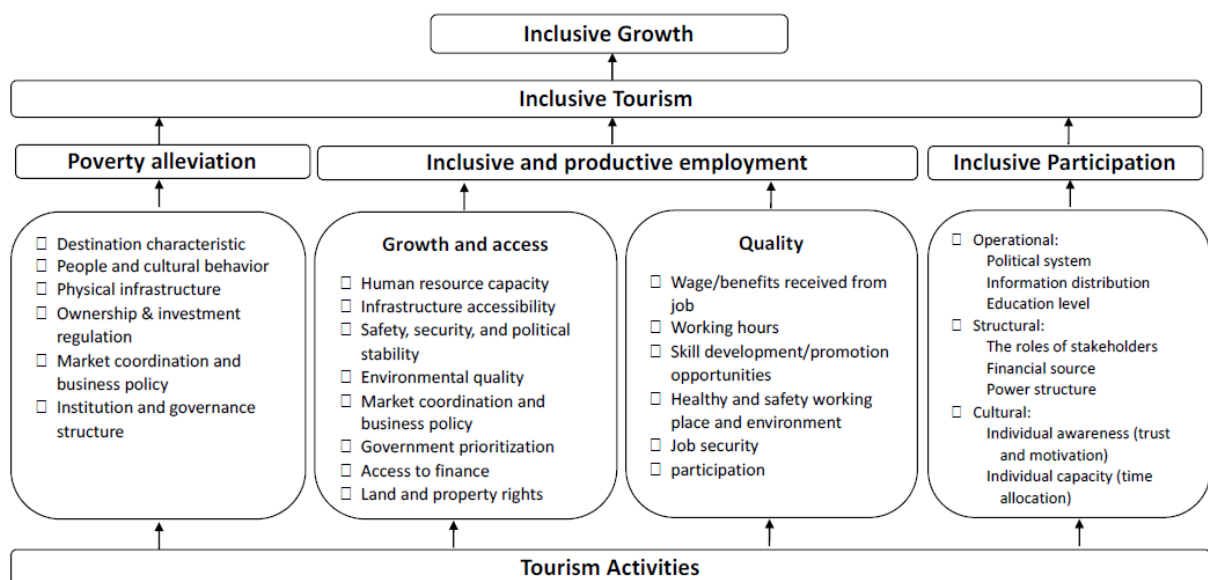


Figure 1: Modification of Tourism-Driven Inclusive Growth Diagnostic (T-DIGD) Framework.

Conclusion

The remaining question of whether the tourism industry can contribute to the inclusiveness of the city or not has led to the concept of the Tourism-Driven Inclusive Growth framework (T-DIGD). It consists of the constraints that can affect the exclusion of some vulnerable groups in the society in accessing the opportunities in job/employment, participation, and even benefits from tourism development. Implementation of this framework to the real case with appropriate qualitative and quantitative measurements will give a detailed mechanism of correlation between tourism and inclusive growth. This framework also can be one of the tools to drive tourism-based city development policies and further related research.

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Local Energy Markets

ASEAN EU cooperation: sharing best practices to implement regional energy interconnectivity

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The achievement and the preservation of the energy security condition - namely “the availability of energy at all times, in various forms, in sufficient quantities, and at affordable prices” (International Energy Agency, 2019) - represents one of the key factors in order to ensure and to support the economic growth, development and modernization of the countries in the global scenario.

Within the framework of the ASEAN-EU Plan of Action 2018-2022, ASEAN and EU have been engaged to enhance their energy cooperation, working together to have free access to energy reserves in the global markets as well as supporting common initiatives to combat climate change, to cut polluting emissions in order to promote a cleaner energy transition (ASEAN Official Website 2017).

We can observe that in the energy sphere ASEAN and EU energy share two relevant issues:

- a similar energy landscape, characterized by the depletion of existing hydrocarbon reserves, high energy demand and consequent rising imports, the need to diversify the energy mix necessary for the electricity production, mainly using renewable sources in order to meet the international commitments to cut emissions;
- ASEAN and EU share the same approach in terms of diversification of the energy mix and the development of a regional energy grid, mainly fuelled with renewable sources, which will allow them to produce “clean electricity” that it will be progressively allocated to satisfy rising domestic demand (Indeo, 2019).

At present ASEAN is the fifth largest economy in the world (if we conceive ASEAN as a single country) and one of the most dynamic and fastest growing economic regions: in the next years, ASEAN region will rise its energy demand to support this economic growth. As a matter of fact, according to IRENA & ACE’s comprehensive report (2016) the expected population's increase in the ASEAN region - from around 615 million in 2014 to 715 million by 2025 - will lead to a 4 percent annual growth in energy demand until 2025, amounting to a rise of 50 percent over 2014 level, and electricity demand will double between 2014 and 2025.

Hydrocarbons (oil, natural gas and coal) will cover most of this expected increase of the energy demand: this scenario will impose to ASEAN countries the urgent need to address and to rebalance two different issues and problems:

- with the exception of coal, the region has limited indigenous oil and natural gas supplies (Brunei Darussalam and Indonesia excluded): in order to satisfy the growing domestic demand ASEAN countries have to increase energy imports, exposing regional energy security to a condition of high vulnerability.
- these (imported) fossil fuels will further boost carbon dioxide (CO₂) emissions and exacerbate local air pollution, worsening the effects of the climate change in this is

highly vulnerable area, posing a particular threat to farmers and coastal communities especially in Vietnam's Mekong Delta.

In this context, renewable energy sources (RES) appear the best option to increase ASEAN and EU energy security through greater diversification of the energy mix and by reducing demand for imported fossil fuels.

EU policies to strengthen energy security are primarily focused on the geographic diversification of energy suppliers and import routes - mainly aimed to reduce the dependence on oil and gas imports from Russia - and the efforts to increase domestic production of renewable sources to produce clean electricity (European Commission, 2014). At present, the EU is the only major economic actor producing more than 50 percent of its electricity without greenhouse gas emissions, accounting for 28.5 percent renewable energy and 25.5 percent nuclear energy (Eurostat, 2019).

ASEAN countries have adopted the Plan of Action for Energy Cooperation (APAEC) 2016-2025, which includes the ambitious goal to achieve 23 percent renewable energy in total primary energy supply by 2025: the realization of the key objective implies a two-and-a-half-fold increase in the modern renewable energy share compared to 2014 (ASEAN Official Website 2017).

In addition to their commitment to increase RES production, both EU and ASEAN are engaged to implement ambitious regional energy grids, mainly fuelled with renewable sources: as a matter of fact, the project to create an ASEAN Power Grid follows the EU attempt to create an EU-Mediterranean electricity ring and the EU Northern electricity ring (involving Scandinavian and EU Northern countries), building regional interconnections and producing "clean electricity" through RES, mainly solar and wind (Indeo, 2019).

EU's goal to develop energy transport infrastructures, mainly the key cross-border interconnections between member states, overlaps with the leading idea to shape the ASEAN Economic Community which calls for a well-connected ASEAN to drive an integrated, competitive and resilient region also in the energy sphere.

The ASEAN Power Grid (APG) project has been conceived as an inclusive initiative aimed at realizing an integrated regional energy system. This project will become the centrepiece of the regional power architecture, encompassing all the 10 members of ASEAN.

It is expected to enhance electricity trade across regional borders, which would provide benefits to meet the rising energy demand with clean and sustainable electricity supplies delivered through integrated infrastructures.

The APG project is an interesting project of regional cooperation because it is conceived to combine the different renewable energy sources that ASEAN countries are able to produce (ASEAN Center for Energy, 2015). As a matter of fact, ASEAN region can benefit of a huge and differentiated renewable potential which can support the ambitious strategy to increase endogenous production of clean electricity. Lao is the leading ASEAN country about hydro-power potential, and at present this country exports electricity to Thailand, Vietnam, China, Cambodia and Myanmar. Moreover, solar power is widely diffused in the region (Vietnam, Thailand, Singapore and Malaysia) and appears as one of the most profitable sources, thanks to the very high strong irradiance which characterizes the area. Geothermal energy is another interesting option to increase RES production in Southeast Asia, considering the existing huge potential, which accounts for 25 percent of the world's geothermal generation capacity. Most of the regional capacity is located in the Philippines and Indonesia, which

could give a relevant contribution to implement this regional “clean energy” grid (International Energy Outlook, 2017).

The landscape of political cooperation and good relations which characterizes ASEAN region appear the main preconditions of the success in the implementation of the ASEAN Power Grid project, which will help these countries to diversify the energy mix, reducing the dependence on imports thanks to the distribution of regional-produced clean electricity.

In the EU case, a regional electricity grid has been successfully created only in Northern Europe - as the result of the fruitful cooperation among Nordic countries (Finland, Sweden, Denmark and Norway) able to produce clean electricity by the wind - while the instability scenario in North Africa (previously identified as a potential producer of clean electricity, mainly from solar due to the huge solar power potential of these semi-desertic land) has frozen all European projects to realize an integrated energy grid in the southern shore of the Mediterranean (Indeo, 2019)

Conclusions

Starting from a similar energy security scenario, the cooperation between ASEAN and EU in the energy sphere have to be mainly tailored to improve bilateral dialogue about common issues and to work together in the international scenario.

ASEAN and EU common goal to shift their energy system from hydrocarbons to renewable sources is not only linked to economic issues or ensuring security of supplies, but also reflects their mutual engagement to address climate change. As signatories of the Paris climate deal, ASEAN and EU have to align their positions in the international fora, pursuing a comprehensive approach to tackle the impact of climate change and promoting sustainable development, as a promising framework of enhanced cooperation.

In economic terms, the ASEAN region will need to invest \$27 billion annually in renewable energy capacity, a total of \$290 billion by 2025, in order to meet the 23 percent renewable energy goal: the EU must support this ambitious program, both in political and economic terms, given the relevant impact of this “clean” energy shift promoted by ASEAN working together to enhance the international visibility of their attempts and engagement to promote a decarbonisation process.

The convergence of strategic energy interests among ASEAN countries and their good-neighbourhood relations makes realistic the creation of a regional integrated power grid, which could be a reference model also for the EU, within which member countries appear more interested to preserve their own energy security condition rather than working together to achieve a shared and common goal.

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Local electricity market projects in China and the EU – A comparative perspective

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Background

Up to today, the electricity system in most parts of the world is characterised by a unidirectional power flow of electricity centrally generated in large, mainly fossil-fuel based power plants. While this supports capital accumulation and scale economics, it also leads to environmental and economic problems (Giotitsas, Pazaitis, & Kostakis, 2015). These issues include high costs of infrastructure, the vulnerability of the system reliability when the system is exposed to terrorist attacks or extreme weather events and market failure, such as monopolistic utilities and prices that fail to reflect local scarcity and surplus. With decreasing costs for renewable energy technologies and supporting policies in many countries around the globe, the share of electricity generated from renewable sources is growing rapidly. In addition to the centralised approach, more and more decentralised and distributive alternatives have emerged in recent years. Distributed electricity systems (DES) such as rooftop solar, distributed wind power or small biomass plants that generate energy close to where energy is consumed are extensions of the existing system. If more electricity is generated than needed, the distributed energy owners have different options on how to handle the electricity surplus. They can a) waste/curtail the electricity; b) store the electricity surplus; c) feed the electricity into the grid; or d) trade electricity in a local energy market, if this is permitted in the respective jurisdiction.

A local electricity market is an electricity exchange platform on the distribution level of the grid between interconnected participants, such as small-scale energy generators, consumers and prosumers (consumers who also generate electricity). When we think of a local electricity market, we can think of a software, rather than an analogue exchange platform. In the first step, electricity is generated, measured and logged into smart meters. In the next step, both generators and consumers send their bids (or calls) to the market platform. Supply and demand are matched according to the market mechanism. After the deal is made, the smart meters are updated. Due to the nature of electricity, market participants cannot track the specific electrons that are exchanged. The electricity can either be supplied by the main grid or from distributed storage.

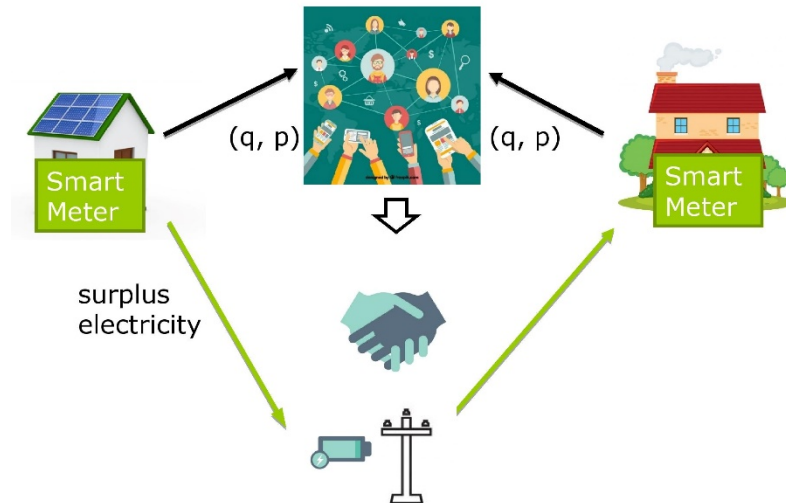


Figure 1: Simplified depiction of a local electricity market (LEM).

The increasing number of research papers on "local electricity markets" and "local energy markets" shows that the scientists' interest in the topic is increasing. One reason for this growing interest is that local electricity markets can give an incentive for participation in demand-response mechanism and therefore increase the much needed flexibility in the system. While there are many comparisons and analysis of local electricity markets in Europe (Mengelkamp, Diesing, & Weinhardt, 2019; Sousa, Soares, Pinson, & Moret, 2019), the concept is still quite new in China and not a lot of research has been done. Both, in the legislation of the European Union (EU) as well of the Peoples Republic of China, the term "local electricity market" is not mentioned in the above mentioned sense. However, similar concepts and pilot projects can be found in the two regions. In order to find similarities and differences between the implementation in the EU and in China, government publications from both regions were screened for concepts connected to the phenomenon "local electricity market".

Short overview of "Local electricity market" policies in the EU and in China

In the EU, the major energy market reforms are based on the three Electricity Directives, which were adopted by the EU Parliament and the Council in 1996, 2003 and 2009 (European Parliament and Council, 1996, 2003, 2009). These directives introduced a European electricity market and common rules for the internal electricity market, as well as the unbundling of distribution and transmission systems and consumer rights for the free choice of the provider. In the next Electricity Directive in 2018, the terms "active consumers" and "renewable self-consumers" were defined (European Parliament and Council, 2018). In 2019 with the "Clean Energy Package for all Europeans", the role of "active consumers" is strengthened again (European Commission, 2019). Although the implementation of the guidelines may differ in each of the EU member states, these laws now allow consumers to store, sell and consume their self-generated electricity. Consumers can also participate in demand mechanisms or energy efficiency programmes.

China's last round of market reforms started in 2015, with the "Deepening Reform of the Power Sector" ("Document No.9") (CCCPC & State Council, 2015). In addition to the market-based instruments, the "energy internet", China's version of the smart grid, is also highlighted. In 2017, the National Energy Agency (NEA) announced the implementation of market pilots for distributed energy (NEA, 2017). Details of what these markets could look like

are published and put up for discussion one year later (NEA, 2018). In 2019, a list of market pilots for decentralised energy was issued by the government (NDRC, 2019).

The concept of a “local electricity market” in the EU and in China

Table 1 shows an overview of the “local electricity market” concepts in the EU and in China.

Component	EU	China
Regulation	2018/2001/EC directive, Clean Energy Package for all Europeans	Outline of the pilot program for distributed power generation market trading, Distributed Generation Management Measures, List of the market-oriented trading pilots for distributed generation 2019
Concepts	Renewable energy community, citizens energy community, active consumer, renewable-self consumer	Distributed energy owner, trading pilots for distributed power generation
Participants	Renewable self-consumers, individually or through aggregator	Distributed energy owners, mostly commercial or industrial consumers
Market mechanisms	Sell through renewables power purchase agreements, electricity suppliers and peer-to-peer trading arrangements	3 options: 1) direct trade, 2) entrusted sales, and 3) sales to grid
Pilot projects	Many projects with different objectives, e.g. EMPOWER, P2P Smart Test, EcoGrid, NOBEL	26 pilot projects announced in 2019
Project developer	Cooperation of different stakeholders, often universities as driving force; cooperation of academia with industry partners, usually with government support	Government in the centre, in cooperation with industry and research institutions

Conclusion

Neither in EU legislation nor in Chinese legislation can we find the term “local electricity market” with the definition used in academic texts. Instead, we find the phenomenon described in other terms. While the EU's texts emphasize the role and rights of consumers, the focus in China is on technical regulations and the definition of market mechanisms. The two jurisdictions are alike in that a strategy is defined at the highest, central level, which is then implemented at the level of the member states (EU) or provinces (China). Nevertheless, the influence on the content differs considerably in the two regions. While in China a selection of market mechanisms is defined at the central level, the design of the market mechanisms in the EU is mostly at the project level. Moreover, in the EU, main participants are residential households, while in China, the focus lies on commercial and industrial enterprises.

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International (inter)connectivity via interconnectors? Gas and energy market ramifications

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Introduction

This paper looks at institutional aspects of economic cooperation in the energy sector, especially the interplay between the European Union (EU) energy law and the provisions of the Free Trade Agreement (FTA) entered into by and between the EU and Singapore. The so-called regulatory exemptions regarding interconnectors serve to exemplify the intricate nature of this interplay. As far as those exemptions are concerned, the research builds prevalently on the case law referred to in this extended abstract which is regrettably hardly more developed than academic literature (Szydło 2009, Däuper and Wüsthoff 2009, Talus 2013, Talus 2014).

Anticipating the unquestionable complexity of this field, I shall commence by clarifying the concept and importance of interconnectors, proceed to discuss axiological convergence and continuity between FTA and EU energy market regulations and conclude by pointing out disruptions in the continuity between FTA and EU market regulations.

Interconnectors as critical pieces of infrastructure in international trade

The definition of interconnectors under EU energy law differs with reference to energy and gas markets. From the energy market perspective legislation adopts strictly intra-EU optics whilst the gas market approach encompasses international considerations.

In either instance the interconnector acts as a gateway to the common market and is a key to the business of manufacturers and importers. The attempt to capture gas pipelines with third countries within the EU regulatory framework poses challenges from an international law viewpoint concerning the scope of EU territory and its territorial jurisdiction as well as the ascertainment of jurisdictional link vis-à-vis territorial reach of decision-making powers and practice of EU institutions and Member States.

Axiological convergence and continuity between the FTA and EU market regulations

In its chapter dedicated to the energy sector, the FTA focuses on removing or reducing tariffs nontariff and barriers as well as cooperating to foster regulatory convergence with or towards regional and international standards. According to Article 7.4 FTA both the EU and Singapore shall ensure that the terms, conditions and procedures for the connection and access to electricity transmission grids are transparent and do not discriminate against suppliers of the other Party. The FTA includes numerous other commitments to non-discrimination, i.a. in the field of export licensing procedures, customs laws and penalties imposed for a breach thereof. Notably, the parties to the FTA also agreed to avoid unnecessary or discriminatory burdens on economic operators. The language of the FTA resonates within Article XI:1 GATT 1994, which stipulates that no prohibitions or restrictions other than duties, taxes or other

charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained.

The principle of non-discrimination forms one of the cornerstones of the EU law; under *jurisprudence constante* it 'permeates' the legislation and application thereof. This principle manifests itself both in horizontal and vertical relations, i.e. respectively among market operators and between undertakings and the state (or the EU). Horizontal non-discrimination in the access to infrastructure is enshrined in Article 32 item (1) Gas Market Directive as well as Article 6 item (1) Energy Market Directive and cascaded into multiples other acts. General principles set out in the directives are complemented by i.a. regulations on the access to networks (Regulation 715/2009 and Regulation 2019/943) as well as network codes, especially establishing the rules of capacity allocation mechanisms. This non-discriminatory access to infrastructure enjoys duplicate protection under the EU law by means of public enforcement through regulatory measures and remedies addressing competition concerns, beside private enforcement thereof. The EU law also guarantees vertical non-discrimination in the adoption and execution of measures related to gas and energy markets (Article 3 items 1 and 2 Directive (EU) 2009/73/EC; Article 3 items 3-5 Directive (EU) 2019/944). EU rules on state aid and services of general economic interests (public service obligations) complement the aforesaid regulatory framework (Talus 2013).

There exist, however, measures under the EU law the application of which requires a great deal of caution from a viewpoint of international trade concerns. Those entail the certification of third country transmission system operator, third country investor scrutiny under Hydrocarbon Directive 94/22/EC, Foreign Direct Investment screening under Regulation (EU) 2019/452 and, last but not least, regulatory exemptions.

Disruptions in the continuity between FTA and EU market regulations

Regulatory exemptions under EU energy law (Article 36 Gas Market Directive, Article 64 Regulation 2019/943) result in a long-term waiver of the application of energy market rules including third party access with respect to i.a. interconnectors (Gökçe 2019). Their purpose is to overcome the risk pertinent to capital-intensive investments in the energy infrastructure and allow the investor to recoup its investment outlays incurred. The grant of such exemptions requires an examination of several market-related conditions regarding the distortion of competition and functioning of European market. Unlike in the gas industry, in the electricity market the regulatory exemptions are not premised over a lack of adverse impact on the security of supplies. Each decision of this nature requires an approval of the European Commission and, in the light of a recent General Court judgment (T-883/16), it has to be in line with the energy solidarity principle.

The regulatory exemptions normally encompass obligations, e.g. determine restrictions in booking the capacities (e.g. Article 3 Porto Empedocle LNG Terminal decision, point 71 of Shannon LNG Terminal decision) or impose a maximum import through „unregulated” capacities (e.g. OPAL Gas Pipeline initial decision of 2009).

This is clearly a doubled-edged sword in international trade as it either gives preferential treatment to the investor, limits their unbridled usage of their infrastructure or blocks non-discriminatory access to the installations for other market players. At least two disputes are now pending before the Court of Justice of the European Union regarding the application of these exemptions on the electricity market T-738/18 (refusal to grant the exemption) and on the gas market C-848/19 P (revisiting the conditions during the term of the exemption).

The latter concerns the OPAL Gas Pipeline. The background to this dispute offers ample exemplification of how complex and intertwined regulatory exemptions are (Pirani and Yafimava 2016, Yafimava 2017). Originally, under the initial decision of 2009 the utilization of the OPAL Gas Pipeline was subject to conditions intended to address concerns about market monopolization and security of supply yet not devoid of controversy (Szydło 2019, Däuper and Wüstehoff 2009). They were, however, challenged by the Russian Federation under the World Trade Organization regime. Those conditions were subsequently amended, prior to any determination by the WTO and for reasons beyond the international trade law concerns, bringing further upheaval. This time several controversies arose with respect to the functioning of the market and security of supply (Godzimirski 2018), leading to the annulment of the OPAL Gas Pipeline amendment decision of 2016. The General Court judgment is now under appeal.

As showcased in a dispute adjudicated by a WTO panel of the Dispute Settlement Body (WT/DS476/R, final report of 10 August 2018, the Appellate Body review pending), the nature of those exemptions and conditions imposed by the European Commission in decisions according them may give rise to discriminatory treatment and quantitative measures tantamount in their effects to quotas. In its final report the WTO panel found that ‘two challenged OPAL conditions, that is, the 50% capacity cap and 3 bcm/year gas release programme, are inconsistent with Article XI:1 of the GATT 1994’.

This, however, lacks direct effect within the EU. International agreements concluded by the EU become an integral part of the EU legal system (Case 181/73 Haegeman). The conclusion of the agreement makes it directly applicable. However, direct applicability does not equate direct effect. The determination of the latter requires a two-prong test, i.e. verification whether the ‘nature and the broad logic’ of the agreement does not preclude direct effect and the provisions thereof are ‘unconditional and sufficiently precise’ (Joined Cases C-659/13 and C-34/14 C & J Clark International). Agreements found to lack direct effect include the GATT (Joined Cases C-659/13 and C-34/14 C & J Clark International) (Cannizzaro, Palchetti and Wessel 2011, Leal-Arcas 2019). This position is likely to apply to the FTA too.

Those observations are relevant in particular in the context of Singapore’s investments in renewable energy generating installations (compare Article 7.3 (1) FTA) and LNG import traded via Singapore. Both spheres of economic cooperation contribute to the attainment of climate goals pursued by the EU and Singapore. EU law offers sufficient safeguards to accord the rights to Singaporean investors, yet certain measures need to be applied with a degree of caution.

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Policy Instruments for Sustainable Connectivity

The alignment of Chinese financing with the Paris Agreement: propaganda, aspiration or reality?

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Introduction: China, a key (f)actor of connectivity and climate governance

China has become a major player in infrastructure development, especially in Eurasia, as well as a key actor within the international climate change regime. This has been illustrated both by the Belt and Road Initiative (BRI) – the world's leading connectivity initiative – and the negotiations of the Paris Agreement and its implementation rulebook. In addition, the Chinese sponsored BRI, which already encompasses more than 120 countries and around 40% of the world's Gross Domestic Product (International Monetary Fund 2020), will play a fundamental role in framing future carbon trajectories and thus achieving or not the Paris Agreement 'well below 2 degrees Celsius' objectives (2DS) (Tsinghua Center for Finance and Development, 2019).

From this perspective it is not surprising that, at least at the rhetorical level, Chinese leaders and major development actors have called for the alignment of the BRI with the Paris Agreement. However, data on Chinese investment by different types of energy projects (Zhou *et al.*, 2018; Aminjonov *et al.*, 2019) and some reports on the behaviour of Chinese international contractors seem to question such alignment. This research uses both primary and secondary research, including semi-structured elite interviews with Chinese stakeholders and primary textual sources respectively to determine whether the alignment of Chinese infrastructure projects along the BRI with the climate change regime is merely rhetorical, a genuine aspiration or whether said alignment is in fact taking place.

Tackling climate change: A green regulatory ecosystem for Chinese investments

'Greening' the BRI and implementing the objectives of the Paris Agreement can build on a growing body of green policies for China's overseas and BRI investments, including the 2019 Green Investment Principles and the BRI International Green Development Coalition, one of whose thematic partnerships is devoted to Green Finance and Investment. Chinese policy and major commercial banks involved in the BRI – like the China Development Bank (CDB) and the Export-Import Bank of China (Exim) – have also displayed their commitment to tackle climate change and sustainability and have recently adopted green frameworks for investment (see Figure 1) while increasingly resorting to green financial tools like green bonds. In addition, some Chinese financing institutions, like the People's Bank of China and the Industrial and Commercial Bank of China, are proactive in leading world initiatives on green finance and climate change disclosure like the Network for Greening the Financial System and the Task Force on Climate-Related Financial Disclosures.



Figure 1: China's overseas and BRI green and climate policies. Source: Ren *et al.*, 2017, Sandalow, 2019, Ministry of Ecology and Environment of the People's Republic of China, 2017.

Nevertheless, existing high-level regulation has not overarching led to a change of paradigm on BRI projects. Fossil energies are still financed on a massive scale along the BRI (Figure 2), while green finance is mainly channelled towards China's domestic market (Figure 4).

An agnostic BRI that ignores the Paris Agreement, for now

Chinese projects have a dubious track record on environmental, social, and financial sustainability. Despite improvements on field practices and socio-environmental standards (Kirchherr *et al.*, 2017), the big picture remains ambivalent. The BRI is largely agnostic: It promotes both renewable energies and fossil fuels and sectors like coal still receive significant investments (Eder & Mardell, 2019).

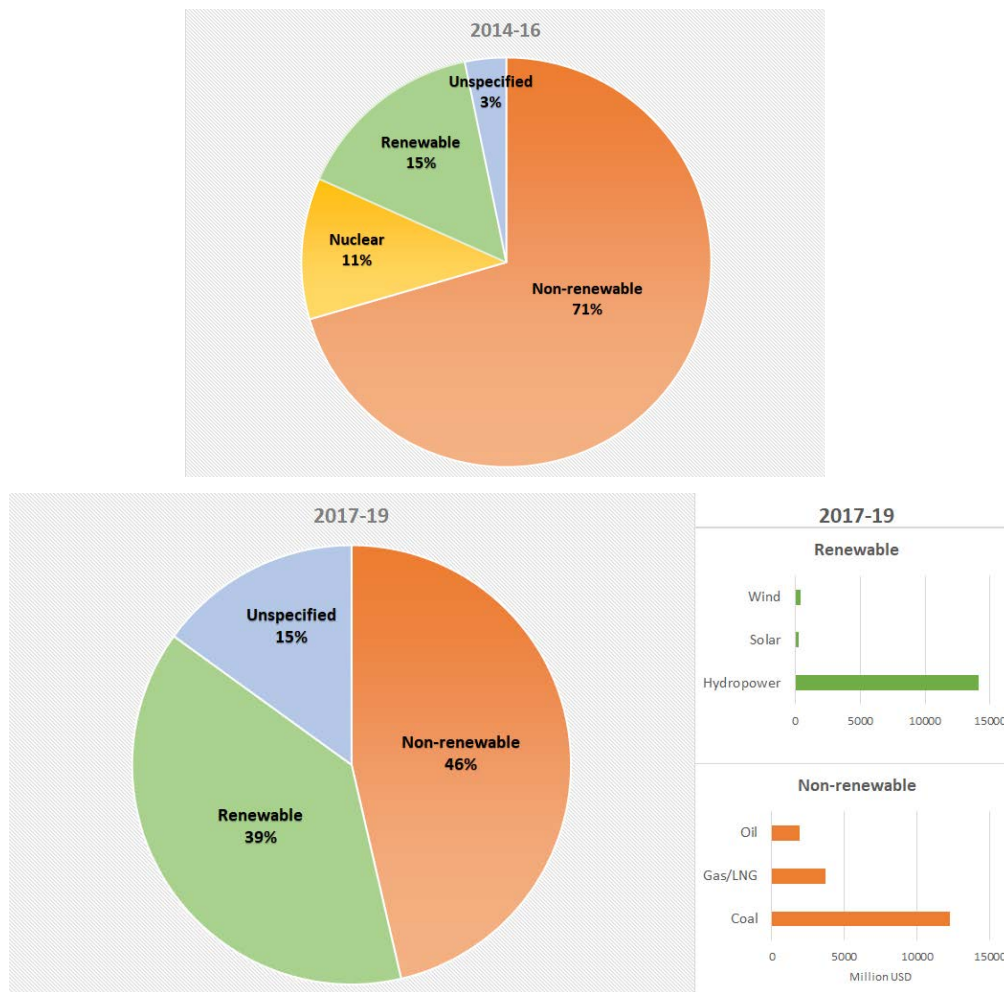


Figure 2: China's major policy banks' cumulative energy investments in BRI countries, by sector, 2008-19. Source: China Global Energy Finance Database.

Major policy banks – CDB and Exim – still channel most of their investments towards non-renewable sectors, mainly coal, although the share of non-renewables is decreasing towards a parity between renewable and non-renewable energies (see Figure 2). State-owned companies' preference for fossil fuels (Zhou *et al.*, 2018) is due to structural factors like a preference for large projects, prior experience in implementing these projects, higher regulatory predictability and easier access to finance. Hence, some countries might get locked-in high-emission trajectories for decades to come. In Pakistan, 75% of the new capacity generation built and financed by China is coal fired (Downs, 2019). In addition, this lock-in risk is heightened for BRI countries where the bulk of Chinese investments goes to non-renewables in sharp contrast with OECD countries which offer a more balanced picture (see Figure 3), arguably due to higher level of economic and environmental governance.

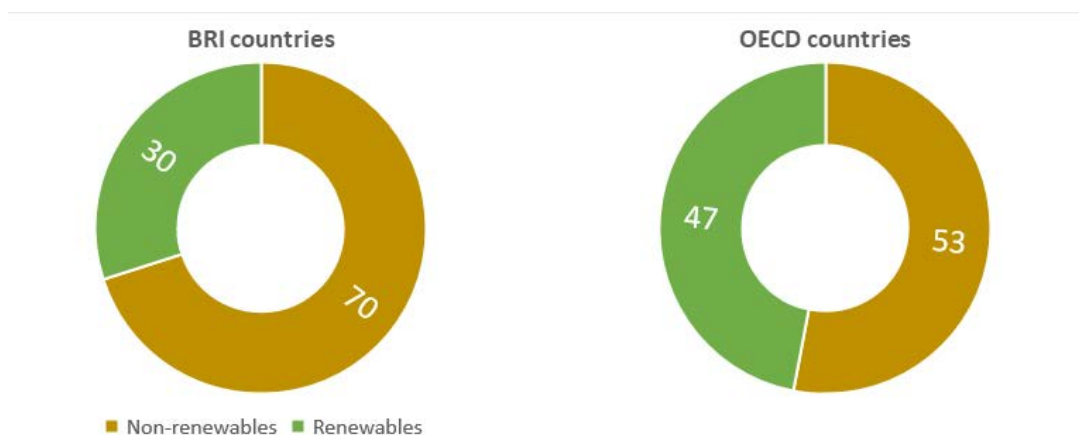


Figure 3: China's energy investments and construction contracts by sector, 2014-19, %. Source: The China Global Investment Tracker Database.

Recent advances in Green Finance are also limited. Chinese banks have displayed a series of Green frameworks aligned on international standards. But available data suggests that these initiatives remain exclusively aimed to the Chinese market and only a small share flows to overseas projects (see Figure 4).

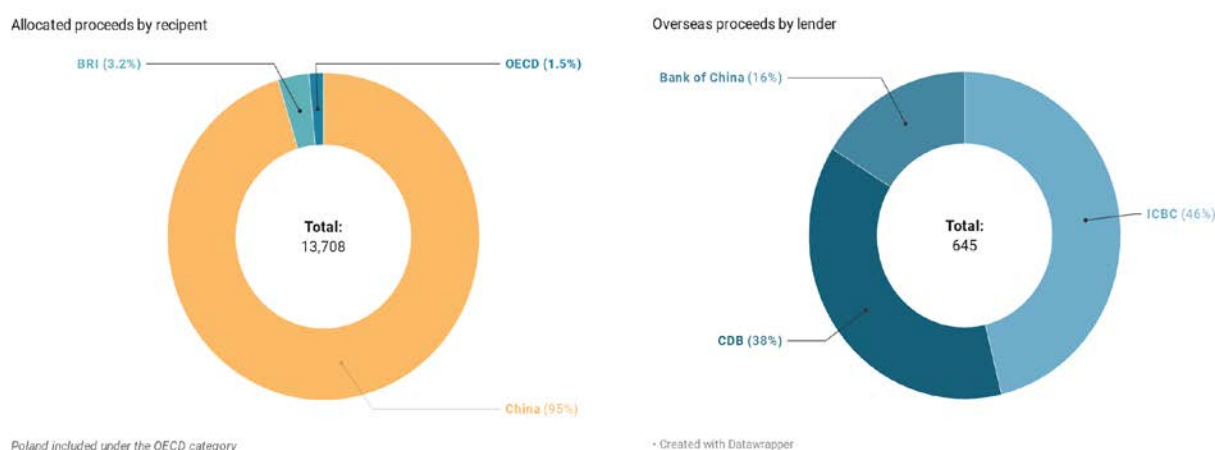


Figure 4: Geographical distribution of China's major offshore Green bonds, 2018, USD million. Source: Bank of China, 2019; CECEP consulting, 2018; China Construction Bank, 2019; China Development Bank, 2018; International and Commercial Bank of China, 2019.

Conclusions

This paper concludes that alignment of Chinese financing with the Paris Agreement remains an aspiration facing multiple challenges, but which also presents multiple opportunities for cooperation between different stakeholders along Eurasia. Achieving this aspiration and its widespread implementation is an urgent imperative to curb current patterns of infrastructure development that are clearly incompatible with the 2DS objectives (Tsinghua, 2019). Unfortunately, the data gathered in the interviews suggested that the current context is not particularly conducive to this end as the slowdown of the Chinese economy, even before the COVID-19, casts a shadow on China's domestic and international climate ambition, since it is prioritising pro-growth policies at the expense of sustainability.

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Partnership for Sustainability between Smallholders in Asia and Corporations in Europe

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Introduction

Sustainability certifications in global agricultural value chains require smallholders in producing countries to form and strengthen their farmers' organizations in order to increase the market access, where large-scale global corporations facilitate and monitor such access through an internal control system (ICS) established in the field. Sustainability certification schemes emerge in conjunction with growing concerns of environmental governance, especially among consumers in the coffee-buying countries. On one hand, efforts to democratize markets by increasing the role of civil society in regulating production and trade-related activities have grown rapidly. On the other hand, these sustainability certifications and standards could serve as new vehicles of corporate control over global food production, trade and consumption.

Efforts to improve community-cooperative governance structures in the producing regions also help with integration, as standards generally require establishment of farmers' organizations and locally adopted codes of conduct. Global buyers are interested in improving the control mechanisms that ensure product quality to meet both technical and non-economic requirements of coffee beans for the global market. Smallholder coffee farmers need to establish partnerships with global coffee corporations, not only to ensure market access and product quality to meet global requirements, but also to increase access for information, technical assistance, empowerment and other capacity building programs.

The study analyses the institutional dimensions of partnership for sustainability certifications between smallholder farmers in Asia and large-scale corporations in Europe and examines the impacts of partnerships on farm income Lampung Province, Sumatra- Indonesia. We conducted a farm-household survey by employing face-to-face interviews with a sample of 78 farm households in West Lampung District; 35 farmers were in a partnership and 43 were not; and of 93 farm households in Tanggamus District; 63 farmers were in a partnership and 30 were not. These households were selected using a cluster sampling method. The Nestle corporation's 4C certification scheme is dominant in Tanggamus and Ecom corporation's Rainforest Alliance (RFA) certification scheme is dominant in West Lampung. The field surveys were conducted in July and August of 2018. The semi-structured interviews for coffee traders, local leaders, and government officials were conducted in the period of August-October of 2018. By then, Nestle also started buying coffee from farmers in West Lampung. The partnership farmers were selected randomly within the cluster, using the lists provided by the ICS agents of these two companies. Non-partnership farmers were selected randomly using lists provided by the head of villages and the extension and ICS agents.

Analytical Frameworks

We focus our analysis on the impact of the partnerships for sustainability certifications in coffee value chains on farm income. This contributes to the knowledge on the transmission

of how sustainability certifications could improve market access for coffee, farm income for smallholder coffee growers and better crop diversification through the integration of multi-purpose tree species (MPTS). We performed the following three components in the econometric analysis:

- Probit model to estimate factors determining partnership participation. The regressors include household size, age and education of household head, dependency ratio, size of coffee farm, crop diversification or MPTS, size of total farm, ownership of motorcycle, car, and coffee processing unit, distance to rural cooperatives (KUBE) and distance to collector traders.
- Ordinary least square (OLS) model to estimate factors determining farm income. The regressors are the same as in the probit model above plus a dummy variable that distinguishes partnership and non-partnership farmers. We control for observable differences between partnership and non-partnership farmers, such as differences in farm size, education, and the availability of family labour. This model does not account for possible selection bias in contract participation. If unobservable characteristics is correlated with both the dependent variable (farm income) and a regressor (partnership participation), then the coefficient on that regressor will be biased and inconsistent (see Miyata et al., 2009).
- Treatment-effects model to correct the possible selection bias, which uses the participation probit model, calculates the inverse Mills ratio, and includes the ratio as a regressor in the income model. This is called Heckman selection-correction, where the Heckman procedures are used to produce unbiased and consistent estimates in the income model. This analysis is a maximum likelihood estimation in which all parameters for both models are estimated simultaneously, rather than as a two-step procedure.

Results and Discussion

Based on our field works, there are at least two forms of partnership for sustainability certifications found in the study sites in Lampung Province, namely: (a) sub-contract partnership and (b) general trading partnership. The sub-contract partnership between smallholder coffee farmers and Nestle Corporations is bound with a memorandum of understanding (MoU) and involves the third-party KUBE. The general-trading partnership is quite loose, involving smallholder farmers and Ecom Corporations, and occasionally collector traders (Figure 1).

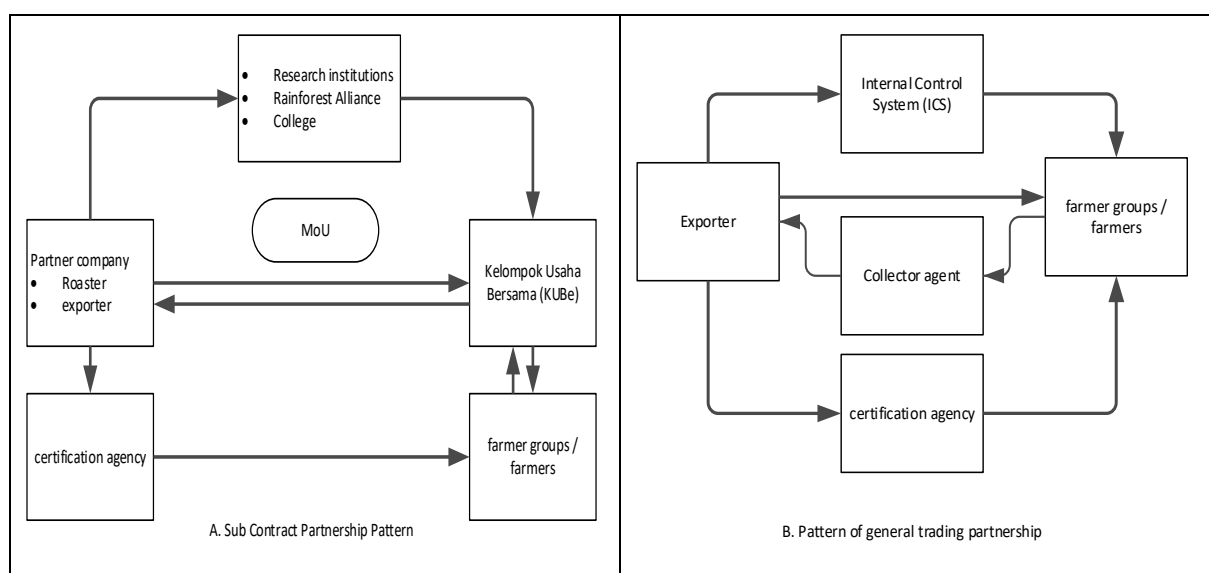


Figure 1. Two Forms of Partnerships for Sustainability Certifications in Lampung Province.

Smallholders joining the partnership perform significantly better than those of not joining, especially in coffee yield and farm-gate price. Coffee farms within or adjacent to protected forests generally have more MPTS than coffee farms in private or communal lands, as the Government has been closely monitoring the progress of sustainability principles in forest-resource management areas. The average land-holding size in West Lampung is 1.71 hectares for partnership farmers and 1.48 hectares for non-partnership farmers. In Tanggamus, the average land-holding size is larger, 2.22 hectares for partnership farmers and 2.15 hectares for non-partnership farmers. Not all farmers can afford to grow 400 MPTS per hectare in their parcel. Most coffee farmers in West Lampung (48.6 percent) only control 0.25 to 1.0 hectare, while most coffee farmers in Tanggamus (54 percent) control 1.1 to 2.0 hectares. Overall, the average farm-holding size is 2.18 hectares for partnership farmers and 2.07 hectares for non-partnership farmers in the study sites.

Farmers joining partnerships produce 744 kilogram per hectare, far higher than those not joining partnerships (620 kilogram per hectare). The coffee yield of partnership farmers is also higher than the national average, whereas the coffee yield of non-partnership farmers is lower than the national average. Partnership coffee farmers generate significantly higher farm income than those who do not join. Farm costs are significantly higher for non-partnership farmers and their farm income from both coffee and other agricultural products are lower. These results confirm previous studies that a higher farm-gate price and the additional premium price for contracts between smallholders and global corporations remain important determinants in the implementation of sustainability certifications (DeFries *et al.*, 2017; Glasbergen, 2018).

The probit model for partnership participation correctly predicts which coffee farms have a contract in 74.9% of the cases. Age and education of the household head, the land holding size of the coffee farm and distance to rural cooperatives-KUBE are significantly higher for partnership farmers, reflecting a more mature character in coffee production for partnership farmers. They have a higher level of education of the household head, larger family size and a larger coffee farm compared to that of non-partnership farmers. The distance to KUBE is a strong predictor of participation in the partnership for sustainability certifications. There is some selection in becoming a partnership coffee farmer or joining contract farming for sustainability certifications, but it is in terms of the household head's age, family size, size of

coffee holdings and proximity to rural cooperatives-KUBE, rather than the number of MPTS in the coffee farms.

The OLS model of farm income shows only 13 percent of the variance in farm income is explained by the variance of household characteristics and the partnership of sustainability certifications. The income of coffee farmers is positively affected by the proportion of productive family members and being a partnership farmer. Moreover, other regressors show no statistical significance in affecting the farm income of coffee farmers. The coefficient for the partnership variable of 3,754,036 means that being a partnership farmer increases farm income by Rp 3.75 million or \$ 269.70, which is a large premium.

The result of the treatment effects regression shows that at least one independent variable significantly influences the probability that a farmer will join a partnership for sustainability certifications. The variables that significantly affect income level are education of household head, family size, the proportion of productive family members, land holding size for coffee and agricultural land, and distance from the house to rural cooperatives- KUBE. The parameter ρ or the correlation between error terms in the selection and outcome equation is -0.93 and it is highly significant, implying that there is selection bias in the model. The coefficient on the partnership variable in this model (Rp 13.7 million) is higher than the contract coefficient in the OLS model (Rp 3.75 million), suggesting that farm income of partnership farmers is about Rp 13.7 million (or US\$ 985.24) higher than for non-partnership farmers. When the farmers were asked how their income had changed since they began the partnership, the majority reported that their income has increased.

Conclusions

The institutional arrangements of the partnership between smallholder coffee farmers and corporations are manifested by the effectiveness of ICS in implementing the sustainability certifications. The ICS and KUBE connect the incentive systems for both smallholders to perform well in meeting the standards of good agricultural practices (GAPs) and opportunities for coffee corporations in securing the supply of coffee beans and the quality requirements for the global markets.

There is some selection or self-selection of partnership farmers for sustainability certifications based on the following important factors: the age and education of the household head, land holding size of the coffee farm and the proximity or the distance from house to rural cooperatives-KUBE. The selection seems to be biased towards a more mature character in coffee production and towards relatively larger farmers, although land-holding size by "large coffee farmers" is relatively small, less than 4 hectares. The partnership farmers earn higher farm income than their neighbours who do not join a partnership, particularly due to the high number of productive family members aged 15-65. The treatment-effects regression model suggests that there is a selection bias caused by unobserved differences between partnership and non-partnership farmers, such as entrepreneurial skills, risk tolerance, or intelligence. Farmers joining the partnership expect to receive higher income and access to technical assistance and capacity building.

If the partnership for sustainability certifications raises income, how does it do so, through better farm-gate prices, higher yields, more crop diversifications or MPTS, better value chains, or some other mechanisms? Higher income from coffee among partnership farmers is mostly brought about by higher coffee yields and farm-gate prices. The farm cost components are higher among non-partnership farmers, mostly because of higher imputed

expenses for family labour. Total income from coffee farming among partnership farmers is significantly higher than that of non-partnership farmers.

The public policy should establish a clear legal framework with written codes of conduct and other necessary consensus provisions that benefit both smallholders and global coffee corporations. Moreover, the roles of ICSs initiated by global corporations in implementing sustainability certification schemes have somehow positively affected the trust level between smallholders and corporations. The study also calls for further research on the transaction costs of joining a partnership for sustainability certifications in coffee value chains. Such a comprehensive analysis will reveal the efficiency level of coffee value chains; hence the likelihood that the welfare of smallholder coffee farmers will improve. Nevertheless, one should note that the sophistication of partnership rules, contracts and regulations might be quite specific by crop, geographic characteristics and value systems among the smallholders and global corporations.

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Strengthening connectivity to design special pilot zone for paludiculture development

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Introduction

Peatland is an important ecosystem in sustainable development, particularly in the forestry sector. It involves multiple ecosystem services for the livelihood of the people and plays a vital role in stabilising water flows, preventing devastating peat fires, enriching soil nutrients and providing clean water and carbon storage for climate change mitigation (Bonn et al., 2016). Indonesia has the fourth largest peatland in the world. About 5.8 Mha of peatlands is under business permits for industrial and palm oil plantations (Murdiyarso et al., 2011). The often hastily planned, large-scale developments in peatlands are generally publicly justified as being essential for poverty reduction. However, many of these developments have several negative socio-economic and environmental impacts. Many development schemes by the government and private sector have been accused of trespassing on customary (*adat*) rights. As a result of peat fires and smog, local communities are affected by high rates of respiratory diseases, loss of crops, negative impacts on transport and tourism and loss of natural resources (Silvius & Diemont, 2007). These situations have led to poverty for the communities around peatland. Therefore, Indonesia has a role to be a good example for sustainable peatland management that pays attention to local economy and environmental protection.

Following Government Regulation No. 71/2014 about peatland protection and management, the Peatland Restoration Agency (BRG) was established in 2016 to restore degraded peatlands in seven priority provinces. One of the restoration activities is the revitalisation of the livelihood of the people surrounding peatland in order to reduce their pressures on the area. Until 2018, BRG has implemented 213 units of livelihood support for the communities surrounding peatland (PRIMS, 2019). However, studies in Riau, South Sumatra and Central Kalimantan found that many of those units were not delivered to communities whose livelihood rests on peatland. Our previous study found that many livelihood supports were instead delivered to community groups that are closed with the head of village. Therefore, BRG activities have not yet succeeded in revitalising the livelihood of the people who depend on peatland (Kartodihardjo et al., 2018; KPRGSS, 2018). This study aims to explore another option or strategy to revitalise the livelihood of the people surrounding peatland—using the concept of special pilot economic zone, based on sustainable management of peatland ecosystem—globally.

Conceptual framework and methodology

Special Economic Zone (SEZ) is a zone or area that has excellent geo-economics and geo-strategy to accommodate economic activities. The development of SEZ focuses on the strategy of business collaboration (Farole & Akinci, 2011). Four characteristics defined the SEZ concept: (1) geographically delineated area, usually physically secured; (2) having a single management or administration; (3) offering benefits for investors physically within the zone; and (4) having a separate customs area (duty-free benefits) and streamlined procedures (UNCTAD, 2019).

There are several types of SEZ, and among these types is the special pilot (economic) zone (SPEZ). This study explores a particular model for SEZ that pays attention to small-medium scale business activities. We found that SPEZ can be a solution for sustainable economic zone. Changes on international trade rules and growing international business interest in corporate socio-environmental responsibility mean that SEZ management agencies have an opportunity to explore investment promotion strategies that relate to social, environmental and governance performance. SPEZ has been adapted to sustainable management of ecosystem in the case of coastal ecosystem-based management (Nobre & Ferreira, 2009).

On the basis of the SPEZ concept, this study draws on qualitative and quantitative data from literature reviews, document review (policy documents, project reports), interviews with key stakeholders, direct observation in the field and the meetings related to the topic of the research. Interviews were conducted with key stakeholders such as peat experts, policymakers, NGOs, concession holders and communities around peatlands in the case study areas. This research utilises the case study of peatland management in Riau, South Sumatra and Central Kalimantan, three provinces with large areas of peatlands and the prioritised areas by the stakeholders for sustainable peatland management.

Data analysis utilises an interpretative approach to multiple forms of data collected (Creswell & Creswell, 2017). Multiple data from different sources were organised to prepare the structure of the evidence. These data was organised through transcription, scanning materials and typing up filed notes to understand the general sense of the evidence. Later, for a more detailed analysis, a coding process was undertaken to generate a description of the situation and themes for analysis based on the SPEZ framework used in this study.

Result and discussion

We found that the concept of the special pilot economic zone (SPEZ) has the potential to be a strategy for revitalizing the livelihoods of the people surrounding peatland area. This livelihood revitalization can be accomplished in two ways; (1) By transforming traditional cultivation into a more sustainable process; and/or (2) By finding an alternative livelihood outside the peatland. The SPEZ on peatland provides an opportunity to develop a sustainable bioeconomy for communities on peatlands. These ways contribute to reduce anthropogenic pressures on the peatland ecosystem.

Planning an SPEZ on peatland must be started by; 1. Preparing peatland spatial planning (based on landscape approach) that can lead to the legal determination of a particular area as an SPEZ. This phase will provide a clean and clear border and the legal power for the implementation of the SPEZ. 2. The selection of the SPEZ location must be followed with field observation to derive biophysical information of the peatland. This information is important to determine peatland suitability for cultivation (Figure 1).

After the selection of the SPEZ location, five phases of implementation can be carried out. 1. Identification of target group, local paludiculture species, and alternative livelihoods around peatlands. 2. Analysing the value chain, market demand, and cost-benefit analysis of identified species and alternative livelihoods. 3. Conducting natural capital accounting on natural resources related to selected species and livelihoods. 4. Preparing social and business innovation to develop institutional arrangements and business models that combine paludiculture species and/or with alternative livelihoods. This can be done through cooperation of multiple stakeholders such as communities, local governments, NGOs, and concession holders in the area. This partnership will support increasing market creation of peatland products, e.g., supporting exporting products or trading across (peatland) regions. 5.

Strengthening the capacity of local stakeholders such as the community to self-govern in the SPEZ. It includes technical capacity, knowledge, and management skills.

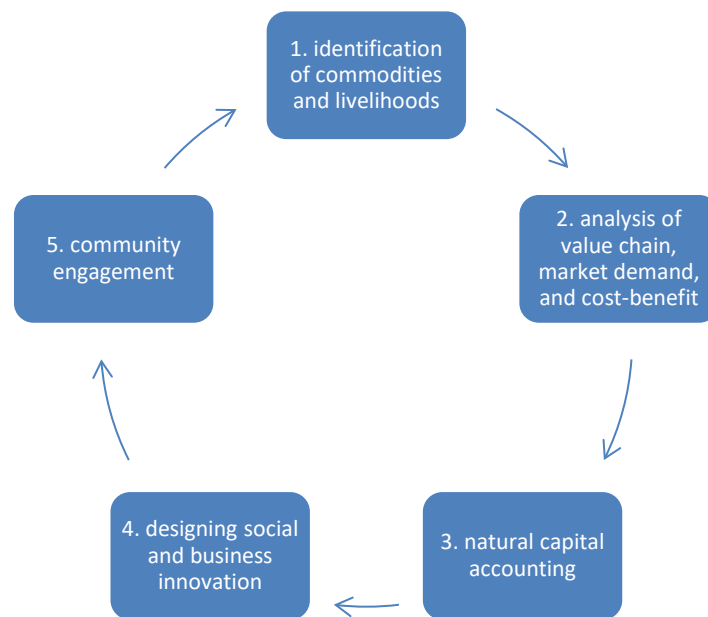


Figure 1: Strategy to design a special pilot zone for bioeconomy on peatlands.

This study suggests that stakeholders including policymakers to test the SPEZ concept as integrated part of the peatland restoration activities, with landscape approach. These strategies are found to have challenges and opportunities in South Sumatra, Riau and Central Kalimantan province (Figure 2), especially in terms of regulation for land permit, institutional arrangement, market chain for peat products, remuneration of external benefits, and perception and capacity of community for cultivation on peat. The SPEZ framework can also be applicable to concession holders on peatland and to other tropical countries that have peatland restoration agendas.

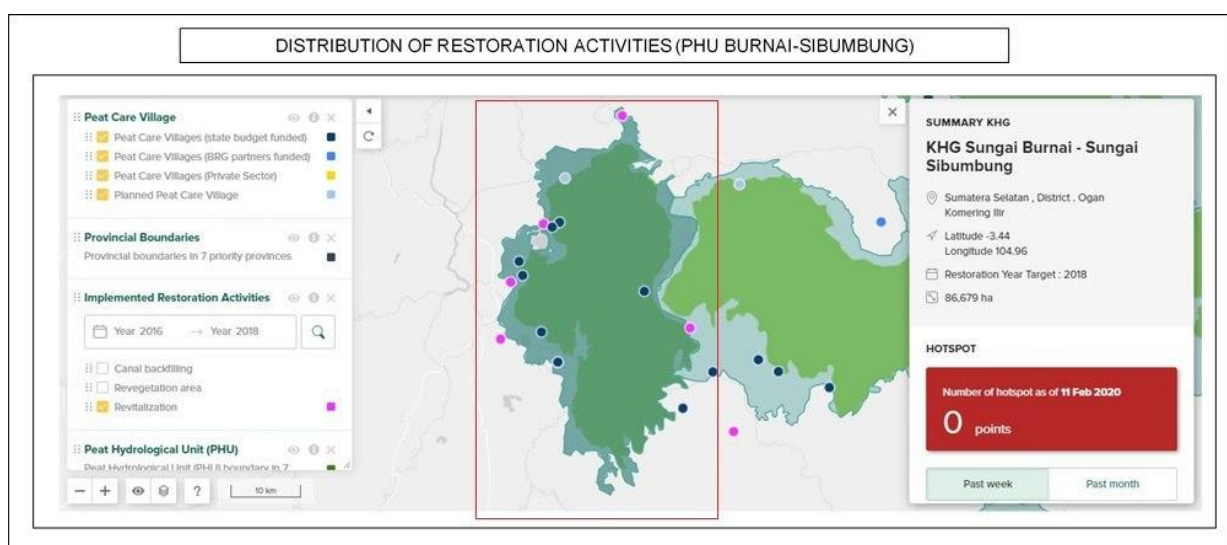


Figure 2: Potential SPEZ can be linked to existing restoration activities in a peatland ecosystem, e.g. in KHG Sungai Bunai – Sungai Sibumbang in South Sumatra Province (Source: PRIMIS).

To deal with various challenges that arise when implementing the SPEZ on peatland, an opportunity can be taken from building connectivity with international stakeholders that have more experience on planning and implementing sustainable peatland management and SPEZ. The partnership can be done by having business collaboration on peatland areas in Indonesia, particularly through paludiculture practices. Connectivity with European countries has the potential to support the SPEZ on peatland. The paludiculture concept comes from northern European countries like Germany. Peatland development in Indonesia is highly influenced by the Netherlands through projects and advocacy through its NGO, Wetlands International. According to the ASEM Sustainable Connectivity Portal, research connection between Germany and the Netherlands is the top second, with more than 8000 collaborations. The research related to peatlands, specifically on paludiculture development, thus can relate to Indonesia, where Germany has done intensive bi-lateral cooperation, mainly through the GIZ (Gesellschaft für Internationale Zusammenarbeit) for climate action. Germany has experienced paludiculture development for about 30 years, from the production and utilization of suitable species, the use of green harvesting machines, measuring ecosystem services and agri-environmental costs, the legal recognition for providing subsidies, stakeholder (farmers or land owners) involvement, and increasing economic viability through integration with bioenergy production. With this experience, there is potential to strengthen the further connectivity between Germany, Indonesia, and the Netherlands to accelerate the development of the SPEZ of paludiculture on peatland in Indonesia.

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Emissions embodied in international trade in the Asia-Europe context

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Global climate change is one of the biggest challenges to the global economy in the twenty-first century. To address it properly, a combination of mitigation and adaptation strategies is required. While the responsibility for adaptation lies primarily with national governments, mitigation is one of the key fields of international cooperation. The Paris Agreement that came into force in November 2016 substituted the Kyoto Protocol as a key document that provides a framework for coordination of national policies regarding climate change including greenhouse gas (GHG) emissions reduction (UN, 2015). 187 Parties have ratified Paris Agreement.

One important issue of international cooperation is how to define which country is responsible for emissions. In order to fulfil commitments under international agreements (the Kyoto Protocol and the Paris Agreement), countries prepare national inventories containing information about the emissions that take place “within national territory and offshore areas over which the country has jurisdiction” (IPCC, 2006). This approach is the most transparent and feasible but has some drawbacks. First of all, it does not address international trade flows. Meanwhile, around 30% of global CO₂ emissions are released during the production of internationally traded goods (Sato, 2014). Therefore, an increase in the consumption of carbon-intensive goods in one country may not lead to an increase in its emissions, but will contribute to an increase in emissions in other countries who are suppliers of carbon-intensive products (this phenomenon is called ‘carbon leakage’) (Aichele and Felbermayr, 2015; Makarov, 2018).

Most of the carbon-intensive trade flows are directed from leading emerging to developed economies (Table 1). China, Russia and India are three major exporters of emissions embodied in trade. This makes them key countries in political discussion about carbon leakage. These countries are also especially vulnerable to various barriers at international markets which are discussed in the West as a means to address carbon leakage. For instance, the European Green Deal in the EU supposes the implementation of border carbon taxes in order to address carbon leakage (European Commission, 2019). Similar initiatives are also discussed in US (Economists’ Statement, 2019).

Table 1: Production-based, consumption-based emissions and emissions embodied in net exports in OECD and BRICS in 2015. Source: Author's calculations based on OECD data.

Country	Production-based emissions		Consumption-based emissions		Net exports of emissions	
	Mt	% of world	Mt	% of world	Mt	% of national emissions
OECD, total	12 204.2	37.8%	13 781.2	42.7%	-1 581.1	-13.0%
United States	5 020.0	15.6%	5 794.5	18.0%	-785.3	-15.6%
Canada	556.4	1.7%	547.9	1.7%	9.8	1.8%
France	311.9	1.0%	445.0	1.4%	-131.6	-42.2%
Germany	765.7	2.4%	853.4	2.6%	-84.6	-11.0%
Italy	346.8	1.1%	423.0	1.3%	-75.8	-21.9%
Japan	1 202.3	3.7%	1 361.0	4.2%	-158.2	-13.2%
Spain	263.3	0.8%	293.8	0.9%	-32.1	-12.2%
Sweden	43.8	0.1%	70.2	0.2%	-26.2	-59.9%
United Kingdom	430.8	1.3%	575.8	1.8%	-142.5	-33.1%
BRICS, total	13 687.5	42.4%	11 853.1	36.7%	1 841.0	13.5%
China	9 280.8	28.8%	7 977.9	24.7%	1 308.8	14.1%
India	2 043.4	6.3%	1 918.8	5.9%	124.2	6.1%
Russia	1 487.6	4.6%	1 167.5	3.6%	320.7	21.6%

Though border carbon taxation is a powerful tool for preventing carbon leakage and for stimulating emissions reduction by 'reluctant' countries (Branger and Quirion, 2014; Condon and Ignaciuk, 2016), it could lead to economic losses in both the exporting and importing economies. Moreover, this practice could easily be used as an excuse for protectionism—an especially dangerous risk given the growth of populism worldwide, the weakening of the WTO and the ongoing trade wars. It is technically very difficult to determine whether countries would introduce border carbon taxes to protect the climate or to advance protectionist and nationalist agendas. For this reason, the victims of border carbon taxes would view such actions as illegitimate. Thus, the introduction of border carbon taxation would inevitably decrease the level of trust in the international system and provoke new conflicts beyond the many that already exist in international trade.

For leading economies exporting emissions embodied in trade, such as China, Russia and India, the important objective is to find the responses to border carbon taxation in the EU and potentially in US. One possible option is the shift towards 'consumption-based' approach to emissions accounting. It considers emissions that are caused by production of goods consumed in a country (including emissions from domestic final consumption and those caused abroad by the production of its imports) (Davis and Caldeira, 2010). If this approach is used, a large amount of production-based emissions that take place within China, Russia and India would be considered consumption-based emissions of Western economies. The important issues of responsibility for emissions embodied in trade should be raised here, for example, who should take responsibility: an exporter or an importer (Liu et al., 2013). However, delving deeper into this discussion is beyond the scope of this article. Much more important is the focus on consumption-based emissions itself, which unlike that of production-based ones creates a different system of incentives: instead of secondary issues like the location of

carbon-intensive production, it helps concentrating on the real reason of growing emissions – i.e. the rise of consumption (Makarov, 2018).

In practical terms, this focus gives access to a broader set of climate policy instruments that were not available under a pure production-based approach:

First, while production-based emissions accounting determines the focus of climate policies to be on the supply-side technology solutions (energy efficiency, development of renewables etc.), consumption-based accounting increases the significance of demand-side channels for mitigating climate change. These channels include strategies aimed at changes in consumption behaviour, lifestyles, infrastructure and service provision (Creutzig et al., 2018). These solutions have never been popular in the Western economies as they challenge conventional patterns of consumption behaviour. However, the leading emerging economies that are moving from low to middle and high incomes in fossil-fuel constrained world need the different growth models, and demand-side instruments are of prime importance. For instance, they are especially necessary in the context of Belt and Road initiative: infrastructure projects that would be built within this initiative will determine the dynamics of regional emissions for decades.

Second, consumption-based emissions accounting would give such countries as China, Russia and India a chance to adopt fiscally progressive climate policies. Conventional climate policy instruments of developed countries like carbon taxes, emissions trading systems and subsidies for renewables are all regressive. The major burden of low-carbon transition lies therefore on poorer people who pay larger shares of their incomes for dirtier goods which become more expensive as a result of regulation. This policy framework faces numerous contradictions even in the West (e.g. yellow vests in France) and is totally inapplicable in the leading emerging economies countries with their high inequality. Consumption-based accounting of emissions and the focus on demand-side climate policies make it possible to use more flexible climate policy instruments, which primarily address the excessive consumption of wealthier parts of population (Chancel and Piketty, 2015). Simply speaking, they may help transform carbon tax to the tax on consumption of carbon-intensive final goods. This policy framework is progressive and prevents contradictions between the goals of climate change mitigation and poverty/inequality reduction that is crucial for emerging economies (Grigoryev et al., 2020). It would further make it possible to launch inclusive low-carbon transition.

The move towards consumption-based emissions accounting is not an easy task. It is a paradigm shift that requires the coordination of multiple actors and strong political will. The conventional regulation of production-based emissions is backed by a 30-year history of an international climate change regime, and the rich experience of climate policies in Western countries. However, these thirty years have also revealed great limitations. The economic development of the largest emerging economies will determine the future of the planet, and the stakes are too high to base their climate policies on the models coming from the past.

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Transport Connectivity

The Eurasian Landbridge: Implications of linking East Asian and Europe by rail

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Introduction

The paper documents the development of overland rail transport links between the European Union (EU) and East Asia and analyses the consequences of the increased connectivity.

Development 2011-19⁵

Between 1500 and 2010 trade between East Asia and Europe was dominated by maritime transport. Physical rail links existed but they were uncompetitive with sea freight, especially after the container revolution, when EU-Asia trade grew rapidly. The situation started to change in 2011 when rail services were established between western China and Europe (starting with Chengdu-Łódź and Chongqing-Duisburg).⁶ Since then, services have improved dramatically with regular services connecting a large number of China-EU city pairs and the annual number of containers travelling by rail is heading for a million in 2020.

An important initial driver of EU-China rail services was the efforts by car and electronics companies to link their European and Asian value chains into Eurasian value chains (Pomfret, 2019a). As rail services became more frequent and regular, freight forwarders provided new services (e.g. part container loads, refrigerated containers, multimodal connections) with a greater variety of destinations.⁷ This broadened the range of potential customers who were willing to pay more than sea freight for faster more reliable transport but unwilling to pay for air freight (Table 1). The rapid growth indicates substantial demand.

5 This paper develops and updates arguments contained in online papers at: <https://voxeu.org/article/eurasian-landbridge-linking-regional-value-chains> and <https://voxeu.org/article/eurasian-landbridge-and-chinas-belt-and-road-initiative>. For more in-depth analysis, see Pomfret (2020, chapter 3).

6 Typically cited numbers for journeys along the Landbridge (e.g. at <https://www.mordorintelligence.com/industry-reports/china-europe-rail-freight-transport-market>) are 17 (in 2011), 42 (2012), 80 (2013), 308 (2014), 815 (2015), 1,702 (2016), 3,673 (2017) and 6,363 (2018). Numbers are not necessarily balanced in both directions, but on the most frequent route between Duisburg and Chongqing of the 1,442 trains 728 were from the EU and 714 from China in 2018.

7 Eastern European countries (especially the Czech Republic, Hungary, Poland and Slovakia) have been active GVC participants and also increasingly important connecting cities to China (Pomfret and Sourdin, 2018). Łódź quickly established itself as the Eastern European hub for EU-China rail freight (Jakóbowski et al., 2018).

Table 1: A comparison of the shipping cost, in USD per container, and time in days for goods transported between China and Europe (Jakóbowski et al., 2018, 69).⁸

	Shanghai-Gdynia		Chengdu-Warsaw		Shanghai-Rotterdam	
	Cost	Time	Cost	Time	Cost	Time
Air	37,000	5-9	37,000	5-9	37,000	5-9
Rail	4,500	19	5,000	15	5,000	18
Sea	2,600	37-42	4,500	43-50	2,200	27-37

The number of city pairs providing freight services has increased rapidly, especially since 2015. The process has been essentially market-driven (Pomfret, 2019b). As more cities offer services, some successfully and others not, it is hard to keep track of numbers but in both Europe and China over fifty cities are Landbridge termini. The most reliable volume data are those from the Eurasian Rail Alliance (Table 2), which reports growth from 46,000 containers in 2015 to 280,500 in 2018 and extrapolating the rough doubling each year they predict a million containers will be transported in 2020.⁹

Table 2: Volume of Traffic on China-EU-China Container Trains, 2015-18 (UTLC website – www.utlc.com).¹⁰

Year	Number of twenty-foot equivalent containers (TEUs)
2015	46,000
2016	104,500
2017	175,800
2018	280,500

In Europe, indicators of the increased salience of the rail Landbridge include the holding of an annual Silk Road Summit attended by hundreds of logistics service providers (the 3rd in November 2019 was in Venlo, Netherlands) and the EU Commission engaging in how to relate the EU-China service, and the BRI Belt, to the Trans-European Transport Network (TEN-T) as a top priority in 2020 (Walton, 2019). The Commission's interest can be traced back to the 2007-12 RETRACK project which aimed to induce a modal shift of freight traffic to rail; RETRACK's focus was on developing a high-quality commercially sustainable rail freight corridor from the North Sea to the Black Sea (Rotterdam-Constanza), but it also considered prospects for establishing "Eurasian land-bridges" to China.¹¹ Connectivity via Russia to China has always had a strategic dimension and EU Commission policy is within the framework of the European Union Global Strategy (2016).¹²

For China, the rail Landbridge has been related to President Xi's flagship foreign policy, the Belt and Road Initiative (BRI), that was announced in 2013 and officially launched in 2017. However, the first trains preceded the BRI, and much of the activity has been driven by local

⁸ All such numbers are approximations, but this table indicates: (1) the prohibitive cost of air transport for all but very high value-weight or time sensitive items, (2) rail is more expensive than sea but the gap narrows if places are further from seaports (e.g. Chengdu-Warsaw), and (3) rail is faster than sea, with more predictable arrival time.

⁹ These numbers remain small compared to maritime freight. A single ship can carry 20,000 containers. No more than 5% of the value of all freight between Europe and Asia goes by rail (European Commission, 2018, 3). However, goods for which rail is preferred tend to be higher value and more tech-intensive than the bulk goods transported by sea.

¹⁰ The Eurasian Rail Alliance (UTLC) was founded by Belarus, Kazakhstan and Russia in 2014 to provide services for container block trains running between China and Europe.

¹¹ The RETRACK final report (van Rooijen et al., 2012) view that the TransSiberian was the most immediately relevant route and routes via Kazakhstan had the best longer-term potential, while the TRACECA corridor was the least likely to flourish, has proven correct.

¹² The TEN-T, including guidelines for the development of a Trans-European Rail Network, dates from July 1996 (Decision No 1692/96/EC). However, extension to eastern Europe was slow and, despite statements of intent to look east in 2011, only in 2017 were Eastern Partnership states included. The Joint Communication on Connecting Europe and Asia (European Commission, 2018) recognizes the significance of looking east and includes specific proposals.

governments in China rather than at the national level. Local authorities have offered substantial subsidies for freight on trains from their city that are difficult to document with any precision. The central government has imposed a cap of 30% on subsidies in 2020 (Chu, 2019) and the subsidies are eventually to be discontinued (Jakóbowski et al. 2018, 25). Given the non-transparency, it is impossible to estimate the impact of terminating subsidies, but a consensus among users is that most of the services will continue to be profitable without subsidies.

Prospects

Improved connectivity will intensify the economic links between EU members and China. Although routes along the Landbridge are currently point-to-point, the prospects for economic development in countries along the route (e.g. Central Asia) are good, and this would strengthen those countries' economic links to the EU. There are also prospects for physical reintegration of a geographically regionalized Eurasian continent, as Iran and Southeast Asia are brought into the rail network.¹³ Such developments are often situated within China's Belt and Road Initiative as a political challenge, but it is important to recognize the solid economic foundations, as rail offers a competitive service in terms of reliability that is faster than sea and cheaper than air. As a minor point, the development of alternative rail routes is potentially important for maritime countries such as Australia as Indian Ocean ports (Bandar Abbas, Chabahar, Gwadar) and many Southeast Asian ports are linked to the Eurasian rail network.

Central Asian links are primarily through Kazakhstan to Russia and Europe (Pomfret, 2019c, 266-71). Kazakhstan is also the bridge via Turkmenistan to Iran and for transit to Uzbekistan, e.g. the Korea-Lianyungang-Tashkent service that goes on to the GM factory (ex-Daewoo) in Andijan. Kazakhstan was an early BRI partner, linking its own Nurlı Zhol infrastructure program to the BRI.¹⁴ Especially since Mirziyoyev became president in 2016, Uzbekistan has been keen to increase its transit role, especially by linking to Kashi in China via the Kyrgyz Republic, which would shorten the rail route from China to Iran and the Middle East. However, the Kyrgyz government is concerned that the most direct route, which passes through sparsely populated territory, will bring little benefit to the country and may lead to debt dependence (Hurley et al, 2018).

The Southeast Asian countries have envisaged that the 2015 ASEAN Master Plan for Connectivity will be consistent with the BRI and benefit from financing from the Asian Infrastructure Investment Bank. Most obviously, the Singapore-Bangkok-Kunming rail link would connect the Chinese rail network to major ocean ports. Constriction of railways from China to ports in Myanmar (and, further east along the China-Pakistan Economic Corridor, a railway from Kashi to Gwadar) will similarly strengthen these infrastructure links. In all cases, however, progress has been slow as resistance to Chinese-funded infrastructure investment has been encountered in transit countries (e.g. Malaysia) as well as in least-developed ASEAN countries (Myanmar and Laos).¹⁵

¹³ Prospects for overland connections with South Asia are limited by geography and by political disagreements. Pakistan is being linked to China via the China-Pakistan Economic Corridor but the geographical challenges of crossing the Himalayas are substantial. Poor India-Pakistan relations and the security situation in Afghanistan inhibit East-West links.

¹⁴ The Nurlı Zhol programme for 2015-19 was announced in 2014; 3,000 kilometres of national roads were built and reconstructed, 15,000 kilometres of regional and district roads repaired, 1,400 kilometres of new railways commissioned, six airport runways modernised, the capacity of Kazakh-Chinese border terminals increased to 40 million tonnes per year and the capacity of the port infrastructure on the Caspian Sea increased from 17.5 million to 27 million tonnes per year (Yergaliyeva, 2019). The programme has been extended to 2020-25. See also, Belgibayev & Zhang (2016).

¹⁵ Korea and Japan have connectivity programs (Korea's 2013 Eurasia Initiative and 2015 Eurasia Express rail project) or partnerships (the EU-Japan Connectivity Partnership announced in September 2019) that potentially involve improved transport links to the

Looking further ahead the prospect of a high-speed rail link is not implausible given the speed with which China's domestic high-speed rail link has been developed and the generally favourable terrain through which Landbridge routes pass.

Conclusions

Economic prospects for continued development of the Eurasian Landbridge are positive. The rail option is attractive to traders with high-value goods for which the savings in time-in-transit over maritime transport and more assured delivery times justify paying a higher price. If the price gap can be further reduced by efficiency gains and by scaling-up, then rail's advantage will increase. Improved connectivity will strengthen economic links between Europe and China (and potentially intermediate countries too), especially in the creation of Eurasian value chains.¹⁶

All of this is tied to ongoing willingness of the EU, China and transit countries to continue to facilitate the international rail service. The current mainlines through Kazakhstan, Russia and Belarus work well for Łódź or Duisburg, but for Slovakia, or Hungary faster routes via Ukraine are constrained by the state of Russia-Ukraine relations. The alternative southern route via Iran and Turkey could be even better for South-eastern Europe. Any route can be disrupted by a single non-cooperating transit country whether seeking higher transit fees or in political dispute, although transit countries have strong financial incentives not to be disruptive in order to earn the transit fees.¹⁷

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EU, although they are light on details and it is unclear whether they are intended to be complementary or competitive to the BRI. Korea's direct rail link to Europe passes over a rail bridge in the sliver of Korean territory at the mouth of the Tumen River and then joins Russia's TransSiberian railway, although there is also a sea-rail connection via Lianyungang.

¹⁶ Market integration has been a driving force of long-term economic development as local markets became regional and then national and international. The GVC phenomenon observed since the 1980s has rarely included truly global value chains but rather involved three main regional value chains centred on East Asia, Europe and North America (Baldwin, 2016; Johnson & Noguera, 2017; UNIDO, 2018, 3-4), although some GVCs (e.g. the Boeing 787) are already global.

¹⁷ According to an Asian Development Bank source, Kazakhstan earned over one billion US dollars in transit fees in 2015 (Pomfret, 2019c, 267).

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Climate-Neutral Maritime Connectivity between Europe and Asia

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Introduction

Shipping between Europe and Asia is a powerful factor of interconnectedness and interdependence, as some 98% of the volume of commodities transported between Europe and Asia is carried through the seas and oceans that connect the two continents. At the same time, shipping accounts for 2.6% of global greenhouse gases (GHG) on an annual basis and is not included in most national climate commitments. A study cited by the International Maritime Organization (IMO) states that over 570,000 premature deaths will be prevented between 2020 and 2025 by the introduction of the tighter guidelines.¹⁸

Short-Term: IMO Requirements for Low-Sulphur Fuels

This is why the IMO is pressing ahead with setting tougher targets for reduced GHG emissions in a phased process up to 2050 (Figure 1). Starting from January 2020, shipping companies have had to stop using fuels with a sulphur content above 0.5%, compared to the previous 3.5% ceiling. They can now burn very low-sulphur fuel oil (VLSFO) or marine gas oil (MGO) - or install emissions-cleaning devices, known as scrubbers, to continue using high-sulphur fuel oil (HSFO). Another option ship owners are looking at is liquefied natural gas (LNG) as a relatively cleaner fuel.

¹⁸ Jonathan Saul, 'Factbox: IMO 2020 - a major shake-up for oil and shipping', Reuters, 17 May 2019, <https://www.reuters.com/article/us-imo-shipping-factbox/factbox-imo-2020-a-major-shake-up-for-oil-and-shipping-idUSKCN1SN2BX>.

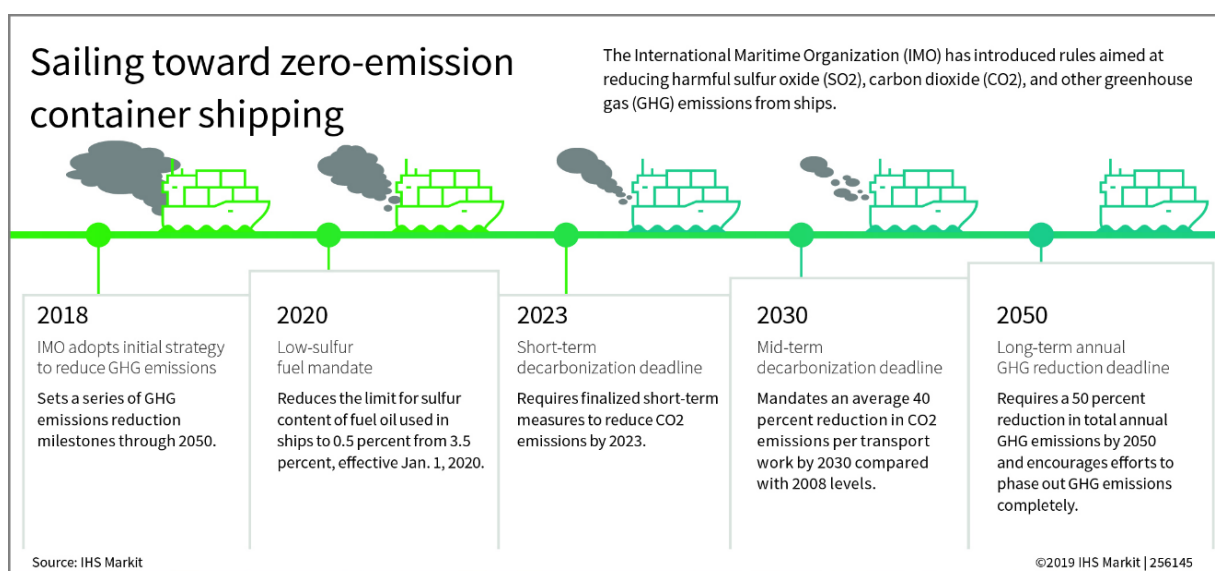


Figure 1: International Maritime Organization process to reduce greenhouse gas emissions. Source: HIS Markit, 2019.

Surely, there are numerous challenges ahead. The 2020 sulphur cap is a true game changer for the shipping industry on a global scale. The drop of sulphur limits for marine fuels is forcing most ship operators to switch from burning HSFO to new 0.5% sulphur blends. There are estimates that at current crude oil prices the bunker industry may need no less than \$4 billion as working capital to meet the higher fuel bills in 2020 alone.¹⁹ As a result, the bunker fuel industry is increasingly seeing credit availability as one of its biggest problems, with fuel bills set to rise significantly as a result of stricter emissions controls. In addition, to the extent that these costs are passed on to shippers, traders and ultimately consumers and the broader economy, it is not unreasonable to expect an increase in working capital requirements across the entire shipping sector.

Another industry struggling to adapt to IMO 2020 has been the world's refineries. Given the continued reduction in fuel oil demand for power, and the 0.5% sulphur specification, the next wave of upgrading is already under way. Yet, it is expected that that out of the 700-odd refineries in the world that used to provide HSFO until recently, some 200 may go out of business – and some of them are in Europe and Asia.

One of the major issues at this stage is whether there will be enough quantities of compliant fuel across the globe. While major fuel bunkering ports, such as Singapore, Fujairah in the United Arab Emirates or Rotterdam in the Netherlands, are expected to have compliant-fuel supplies, analysts and shipping firms point to concerns over what happens at smaller ports.

Yet another serious issue is the choice of compliant fuel, depending on its cost. VLSFO prices have soared with the introduction of the IMO-2020 global sulphur cap. For instance, in Singapore prices rose more than 20% in January 2020.²⁰ Many ship operators appear to be committed to the transition to a low-sulphur age, but there is no agreement on the best way to do this. For many of them the question is: shall we use low-sulphur oil or shall we scrub? Or perhaps turn to liquefied natural gas (LNG)? And how are banks going to ascertain which

¹⁹ Jack Jordan and Tom Washington, 'Bunker industry faces \$2-4 billion IMO 2020 credit squeeze', Greek Energy Forum, 1 November 2019,

<https://greekenergyforum.com/publications/ac/opinions/ar/204-bunker-industry-faces-2-4-billion-imo-2020-credit-squeeze>.

²⁰ Marcus Hand, 'Maersk to hike bunker surcharges on soaring VLSFO prices', 23 January 2020, Seatrade Maritime, <https://www.seatrade-maritime.com/bunkering/maersk-hike-bunker-surcharges-soaring-vlsfo-prices>.

company is 'green' and qualifies for a loan? Are there sufficient skills behind the bank counter to decide which technology is acceptable and climate-compliant?²¹

The truth is that none of the technologies currently available is ideal. Thus, there are concerns that some blends of the new VLSFO emit higher levels of black carbon than the heavy marine oil they are meant to replace.²² Although LNG contains less carbon per unit of energy than conventional marine fuels, it may not deliver the emissions reductions demanded by the IMO's initial GHG strategy and using it might actually worsen shipping's climate impacts.²³ And, of course, there are political considerations, too. For instance, presidential candidates in the American 2020 elections may be tempted to run on a platform that exempts the US from IMO 2020, which may prove to be a huge vote winner, once the costs of the new rules become apparent to a wider public. Given the global nature of the shipping industry, political developments in the western hemisphere can easily affect maritime connectivity between Europe and Asia.

Long-Term: The Way Ahead

It is important to note that the significant investments needed to decarbonise shipping can only be expected to take place if a long-term and commercially viable business case is made. Technological developments alone, as important as they are, are not enough - the right mix would have to include both technological innovation and appropriate policies at the same time.

The Global Maritime Forum has recently presented its report on the level of investment required to decarbonise the shipping sector. The scale of cumulative investment needed between 2030 and 2050 to achieve the IMO target of reducing carbon emissions by at least 50% by 2050, is between \$1 trillion and 1.4 trillion, or on average between \$50 billion and \$70 billion annually for 20 years. If shipping was to fully decarbonize by 2050, this would require extra investments of approximately \$400 billion over 20 years, thus raising the total amount needed by an extra \$500 billion.²⁴

No doubt, these are daunting figures, but they should not be seen as intimidating, if viewed as part of the global effort to address the climate emergency. The entire financial sector is looking for green investments more than ever, as governments, asset managers, and the public pile on the pressure over climate change. Notably, demand for green bonds currently far exceeds supply and this can be seen as a 'niche' by banks.²⁵

Investment needs can be broken down into two main areas: (i) ship-related investments, which include engines, on-board storage and ship-based energy efficiency technologies, and (ii) land-based investments, which cover fuel production, storage and bunkering infrastructure. The biggest share of investment, to the tune of 87%, is needed in land-based

21 Michael Grey, 'Viewpoint: Virtuous lending', Lloyd's List, 20 June 2019, <https://lloydslist.maritimeintelligence.informa.com/LL1127980/Viewpoint-Virtuous-lending>.

22 Greg Knowler, 'IMO to review black carbon fuel emissions concerns', JOC.com, 28 January 2020, https://www.joc.com/maritime-news/imo-review-black-carbon-fuel-emissions-concerns_20200128.html?utm_source=Eloqua&utm_medium=email&utm_campaign=CL_JOC%20Daily%201%2F29%2F20%20_PC9156_e-production_E-53854_TF_0129_0617.

23 Nikita Pavlenko, Bryan Comer, Yuanrong Zhou, Nigel Clark, Dan Rutherford, 'The climate implications of using LNG as a marine fuel', International Council on Clean Transportation, Working Paper 2020-02, p. 19, <https://www.stand.earth/publication/climate-implications-using-lng-marine-fuel>.

24 Johannah Christensen, 'How decarbonizing shipping could unlock a global energy transition', Global Maritime Fund, 23 January 2020, <https://www.globalmaritimeforum.org/news/how-decarbonizing-shipping-could-unlock-a-global-energy-transition>.

25 'Shipping's green \$ltn is a profitable investment, not a cost', Splash 247.com, 30 January 2020, <https://splash247.com/shippings-green-ltrn-is-a-profitable-investment-not-a-cost/>.

infrastructure and production facilities for low-carbon fuels, while only 13 % of the investment needed relates to the ships themselves.²⁶

But how can necessary resources be mobilised and brought together? An encouraging example to consider relates to the so-called Poseidon Principles. This initiative²⁷ aims to align the shipping portfolios of signatory banks with the IMO's emission reduction targets. The four Poseidon Principles (assessment of climate alignment, accountability, enforcement and transparency) are designed to impel ship owners to make at least a 50% reduction in greenhouse gases by 2050 and to help financial institutions in managing critical investment risks.

At present, signatories of the Poseidon Principles represent around \$140bn in loans to international shipping - about 30% of the total global ship finance portfolio. So far, 16 financial institutions have signed up to the initiative and it is expected that the number of lenders will reach 25 by the end of the year. The list of signatories includes BNP Paribas, Credit Suisse, ABN Amro, Amsterdam Trade Bank, Crédit Agricole, CIB, Crédit Industriel et Commercial, Danish Ship Finance, Danske Bank, DNB, DVB, Export Credit Norway, ING, Nordea, Société Générale, and Sparebanken Vest. Notably, Asian lenders, such as China's ICBC, are also reported to have expressed interest in the Poseidon Principles.²⁸

Ultimately, the shipping industry will have to move towards a climate-neutral mode of operation. To ensure everyone does their part, the shipping community and all stakeholders will need a strong set of policies to drive and manage the transition. It is up to the IMO and Member States to make sure comprehensive measures are put in place. These could include a carbon price mechanism where emitters pay and the money collected is then redistributed for research, development and deployment of clean shipping technologies. Not least of all, there should be meaningful arrangements in support of less developed countries and small island states between Europe and Asia, if this process is to be inclusive and sustainable.

26 Randall Krantz, Kasper Søgaaard, Dr Tristan Smith, 'The scale of investment needed to decarbonize international shipping', Global Maritime Forum, 20 January 2020, <https://www.globalmaritimeforum.org/news/the-scale-of-investment-needed-to-decarbonize-international-shipping/>

27 <https://www.poseidonprinciples.org/#home>.

28 Nidaa Bakhsh, 'More banks pledge to align shipping lending to climate goals', Lloyd's List, 22 January 2020, <https://lloydslist.maritimeintelligence.informa.com/LL1130744/More-banks-pledge-to-align-shipping-lending-to-climate-goals>.

China's Investment in EU Ports: Assessing Geo-Economic Implications of the BRI in Maritime Europe

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Abstract

This paper examines the implications of China's investment in the port capacity of two groups of European Union (EU) member states, in order to assess whether, how and to what extent a geo-economic shift from Central- Western Europe to the Eastern Mediterranean region is taking place. Firstly, this study focuses on the impact of the growing presence of Beijing's state-owned enterprises (SOEs) and the Belt and Road Initiative (BRI) on the Eastern Mediterranean region, where Chinese investment in Greek and Italian maritime infrastructure plays a key role for upgrading the geo-economic significance of the area. On the other hand, maritime hubs of Central-Western EU countries – namely Belgium, Germany and the Netherlands – are likely to suffer a decreasing role within, and because of, China's geo-economic strategy and the impact of the BRI in Europe. Notwithstanding Chinese investment in these countries' ports is notable, Eastern Mediterranean hubs are gaining increasing salience for international logistic connectivity within the framework of the BRI. Given China's importance for global maritime trade and logistics, such processes are to affect more broadly the role of Europe's Central-Western and South-Eastern ports as regional container hubs. Against this backdrop, this study also emphasizes how the unfolding of divergent trajectories between the two groups of EU member states will contribute to the polarization of the European politics. In fact, whereas Central-Western EU countries– and EU institutions – are increasingly taking a cautious, or even suspicious, posture *vis-à-vis* China, South-Eastern member states seem eager to engage China as an international partner for infrastructure development.

Research Background

In the past decade, Sino-European relations have gained unprecedented momentum in the field of infrastructure connectivity. Chinese investment in the European infrastructure capacity has become a crucial dimension of China's relationship with the EU and its member states, particularly after the unveiling of the BRI in 2013. Chinese SOEs have played a crucial role within EU infrastructures. EU ports, particularly, have become key targets of Chinese investment; data show that Beijing's companies have acquired some 10 percent of the EU container maritime logistic capacity (Pandya & Tagliapietra, 2018). In 2008, China's shipping SOE COSCO obtained a concession for the operation of two piers at Piraeus, Greece's main port; in 2016, the company won a tender call and acquired a 67 percent share of the Piraeus Port Authority (PPA), becoming the majority shareholder of the main container hub in Greece (Pallis & Vaggelas, 2016). COSCO's investment in Piraeus is of crucial importance as it established private control over a public authority with Beijing's direct involvement. Piraeus became the world's fastest growing container hub after COSCO's investment pushed the port container throughput from 880,000 twenty-foot equivalent units (TEU) in 2010 to 3,36 million TEU in 2015. In Mediterranean Europe, Italy is also drawing closer to China as an infrastructure

and connectivity partner. In March 2019, the signing of a Memorandum of Understanding (MoU) on the BRI between Beijing and Rome paved the way for further involvement of Chinese SOEs in the Italian infrastructure system, especially in the North Adriatic port of Trieste and, to a lesser degree, in Ravenna and Venice. Furthermore, Italy was the only G7 country to partake in the BRI Forum held in Beijing in May 2017, a move that signalled significant political interest towards Beijing's connectivity projects.

The past decade has also been a phase of critical challenges for the EU. The unfolding of the global financial crisis in 2008, and most importantly the debt crisis of 2010-2011, affected the EU cohesion and had a dramatic impact on the Union, where some member states have suffered harshly from the economic downturn. China's growing interest in the European infrastructure came timely as a source of much needed investment for some EU countries. Whereas Greece's concession over Piraeus represents the most prominent case in point, other countries seem to be increasingly turning to China as a partner for infrastructure development, as Italy's growing interest in the BRI demonstrates. However, countries in Central-Western Europe such as Belgium, Germany and the Netherlands, pursue a careful, yet healthy, relationship with Beijing, welcoming a limited presence of Chinese SOEs in their infrastructure capacity (Gaspers & Lang, 2016; Linden, 2018). Importantly, these countries play a crucial role for global maritime trade and logistics. Belgian, Dutch and German ports have historically represented leading European hubs for maritime commerce, enjoying cutting-edge infrastructure technology and geographical proximity to the largest industrialized and exporting countries in the continent. Against this backdrop, China's growing interest in Eastern Mediterranean ports is likely to impact first and foremost on the commercial and logistic attractiveness of maritime hubs located in Central-Western Europe.

In this scenario, China's shareholding of the EU infrastructure capacity has been addressed from two different perspectives. On the one hand, scholars, along with a number of European political and institutional representatives, have warned against the risk that the EU might undergo loosening political cohesion due to China's investment focusing on specific countries and the ensuing consolidation of Beijing's political influence therein (Casarini, 2016; Le Corre & Sepulchre, 2016; O'Dea, 2019). Others have gone so far as to warn about the security implications of China's presence in European ports, as Piraeus has recently hosted Chinese military vessels. On the other hand, Chinese authorities reassure that Chinese investment is driven by a cooperative logic, which is to result in a "win-win" scenario, a dimension extensively emphasized in publications and official documents related to the BRI (NDRC, Ministry of Foreign Affairs & Ministry of Commerce of the PRC, 2015). More broadly, seen from this perspective, Chinese interest in EU infrastructures is driven by commercial concerns, as Beijing's investment aims to boost international connectivity, making shipping routes between China and Europe increasingly functional. Consequently, Chinese authorities suggest that Europe's commercial interests will also benefit from Beijing's investment.

Research Methodology

This study compares a group of ports located in Belgium, Germany and the Netherlands, with Italian ports in the North Adriatic Sea and Piraeus, in order to assess whether, and to what extent, Eastern Mediterranean ports are growing more attractive, in commercial and logistic terms, *vis-à-vis* maritime hubs in Central-Western Europe. In this context, this study assesses whether infrastructure development in Eastern Mediterranean ports, fuelled by Beijing's investment, is pushing a growing number of economic actors to relocate their distribution and logistic hubs from Central-Western Europe to the Eastern Mediterranean.

Against this backdrop, this paper also takes into account EU screening mechanisms on incoming foreign investments, in order to understand to what extent stricter public scrutiny has actually limited China's infrastructure investment, and how such regulations have impacted on port infrastructure development in the national contexts of these EU member states.

Chinese Investment in EU Ports: Ongoing Trends and Prospective Implications

This research assesses the significance of the Eastern Mediterranean as a strategic juncture for reducing shipping times and costs between China and the European markets. In Eastern Europe, China invested in railways and land infrastructures to foster overland connectivity. In addition, the enlargement of the Suez Canal in 2015 enhanced the strategic importance of the area for international commerce. Maritime routes from Shanghai – China's main port – to the North Adriatic Sea stretch over 8,600 miles, whereas the shortest route from Shanghai to Hamburg requires 11,000 miles of navigation (Casarini, 2016). Under these circumstances, Piraeus acquired enormous importance for Chinese logistical business. In addition, the Italian port of Trieste has drawn great interest from China, as it is located in a strategic position for maritime connections between Central-Eastern Europe and East Asia, revealing great potential for reducing shipping lengths and costs between the two regions. In this area, Chinese SOEs, along with the Italian Ministry of Infrastructure and the Ministry of Foreign Affairs, have provided financial support for the development of the North Adriatic ports forming the Five-Port Alliance (Casarini, 2016)²⁹. In this scenario, a growing number of companies have come to view the area as a strategic logistic juncture. Some multinational corporations are choosing Eastern Mediterranean ports, particularly Piraeus, as their main distribution hubs; other companies are relocating their distribution centres and core commercial activities from other areas of Europe to the region. In 2012, Hewlett Packard (HP) relocated its European distribution hub from Rotterdam to Piraeus (Van der Putten & Meijnders, 2015). The move was motivated by Piraeus' strategic position for shortening shipping times and reducing transportation costs between Asian and European markets (Van der Putten & Meijnders, 2015). Huawei, Hyundai and ZTE have also chosen Piraeus as their European distribution hub (Van der Putten 2014; Van der Putten & Meijnders, 2015). Greece and Italy welcome Chinese SOEs and seem to consider Beijing's interest and investment as an opportunity to boost infrastructure development. In a context of prolonged economic stagnation, Athens and Rome seem to view Beijing as a supportive partner for infrastructure development.

In the EU, Belgium, Germany and the Netherlands have also attracted relevant shares of Chinese infrastructure investment. Antwerp, Hamburg and Rotterdam are among the most important container hubs in Europe and the world; Rotterdam, particularly, represents the busiest European hub, and one of the main world ports in terms of container volume. Despite China's investment in these ports is notable, however, public infrastructure management in Central-Western EU countries has generally allowed only minority shares to Beijing's SOEs, whereas in no case port authorities have been taken over by private companies³⁰. From this perspective, this study considers the relative openness to foreign private investment, along with the retention of public control over port authorities, the key characteristics of the EU *Central-Western paradigm* of port development. However, port infrastructure development in the Eastern Mediterranean provides tangible challenges for the leading role of Belgian,

²⁹ The Five-Port Alliance involves Italy's Ravenna, Trieste and Venice, Slovenia's Koper, and Croatia's Fiume.

³⁰ Zeebrugge represents a partial exception, as COSCO's shareholding in the port amounts to 85 percent. However, Zeebrugge port authority remained under public control.

German and Dutch ports in the European context. Whereas Beijing's focus on the Eastern Mediterranean is seen as an opportunity by Athens and Rome, resulting in growing political convergence between the two countries and China, governments of Central-Western Europe, and EU institutions, have taken a more cautious approach *vis-à-vis* Beijing. Tellingly, EU leaders have come to consider China as "A cooperation partner [...] an economic competitor [...] and a *systemic rival*."³¹ Against this backdrop, this research sees China's growing presence in Greek and Italian infrastructures as a potential trigger of further political divide within the EU.

Conclusion

This research emphasizes how China's infrastructure proactivity in the EU is triggering crucial processes on the geo-economic ground. China's growing attention to the Eastern Mediterranean region is fostering the area's development into the maritime core of the EU infrastructure system, making it the BRI's main network of port facilities in Europe. To date, observers have focused on the implications of China's investment in EU infrastructures either as a driver of a North-South political divide (Casarini, 2015) or in terms of security implications for Europe (O'Dea, 2019). The former group underlines that the most tangible consequences of China's investment in the EU infrastructure is likely to result in growing polarization between member states eager to attract Chinese SOEs, on the one hand, and countries maintaining a cautious approach, on the other. The second group points to the risk of a debt trap with Beijing, and the possibility that European ports under Chinese SOEs' control may be employed as dual-use facilities – i.e. serving both military and security purposes – by Beijing. Employing a different analytical perspective, this study focuses on the growing importance of the Eastern Mediterranean as a crucial geo-economic implication of China's investment for the European port capacity. Located at a strategic juncture for shortening Euro-Asian shipping routes and reducing navigation costs, with ongoing improvements of the Mediterranean Sea-Red Sea-Indian Ocean maritime connections through the Suez Canal, and with EU countries such as Greece and Italy eager to attract Beijing's SOEs, the Eastern Mediterranean holds full potential to emerge as the core maritime region of China's BRI in Europe. Against this backdrop, this research investigates how the BRI impacts on other maritime areas of the continent, as sustained infrastructure development fuelled by China's investment makes Eastern Mediterranean ports increasingly attractive as commercial and distribution hubs for multinational companies. In this scenario, this study suggests that European maritime hubs in Belgium, Germany and the Netherlands are likely to undergo a dwindling role within the framework of the BRI and the Euro-Asian maritime connectivity.

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³¹ This description is reported in "EU-China – A Strategic Outlook," released by the European Commission and the High Representative of the Union for Foreign Affairs and Security Policy in March 2019 (<https://ec.europa.eu/commission/sites/beta-political/files/communication-eu-china-a-strategic-outlook.pdf>) (Emphasis added).

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Air transport connectivity between Asia and Europe

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Introduction

On June 7, 2016, the 28 European Union (EU) Transport Ministers authorized the European Commission to start negotiations for EU-level aviation agreements with the Association of Southeast Asian Nations (ASEAN). The EU-ASEAN Comprehensive Air Transport Agreement (CATA) will be the first block-to-block agreement at such a scale and will cover a wide range of areas of gradual regulatory convergence: market access, safety, security, air traffic management, social, consumer and environmental protection, fair competition etc. For the EU, agreement shall mean a creation of 1.2 billion passenger aviation market (Hololei, 2019). As of August 2019, eight rounds of CATA negotiations have been conducted (ASEAN Secretariat, 2019) but -by the time of writing- the agreement is still pending.

An analysis from Tan (2015) reveals three areas where the agreement can take place. First, we might expect that EU-ASEAN CATA would provide a fully relaxed or an unlimited market access in the form of direct, non-stop flights between the two regions operated by airlines designated by both EU and ASEAN sides in term of capacity, frequency and aircraft type. Second, the agreement could also go beyond liberalizing 3rd and 4th freedoms flights (i.e. direct and non-stop flights as mentioned in the first area), to relax 5th freedom operations as well. This means that EU carriers can have intermediate stops with traffic rights in a third region, e.g. Middle East or India as well as beyond-ASEAN rights, e.g. to Australia, New Zealand and the Pacific. Conversely, ASEAN carriers could secure similar rights somewhere in India or Middle East *en-route* to the EU as well as beyond EU rights, e.g. to the Americas. Finally, we can expect that the agreement would lift restrictions on code-sharing that exist in the current air services agreements between the respective states, i.e. both sides carriers, EU and ASEAN, can begin to code-share freely on trunk routes as well as on each other's regional and domestic networks.

In the meantime, in April 2016, finally all ASEAN member states ratified the 2010 MAFLPAS (2010 Multilateral Agreement for the Full Liberalization of Passenger Air Services) that signifies the completion of the first phase of the ASEAN Single Aviation Market (ASAM). According to Lee, J.W (2018) the 2010 MALFPAS consists of two protocols. Protocol I allows unlimited 3rd and 4th freedoms between all cities whilst protocol II allows unlimited 5th freedom between all cities except capital-capital-capital.

Procedural parts

We analyse the existing situation and potential impacts on airline and airport competition using detailed data and Origin- Destination and at flight level. The network efficiency of air transport routes can be expressed as the share of trips that use a direct connection from origin and destination, as opposed to trips that require two or more connecting flights. Analysing this indicator at airport, country and airline levels reveals continuously changing

airline network strategies that range from hierarchical hub-and-spoke structures to simple point-to-point connections. While the largest growth in air transport activity is currently within national markets (especially China, India and Indonesia), a buoyant regional market in East and Southeast Asia is already visible. The long-distance market between Asia and Europa is still relatively limited (Figure 1), but CATA will probably change the balance among the hub airports serving the market, allowing new regional and global players to enter.

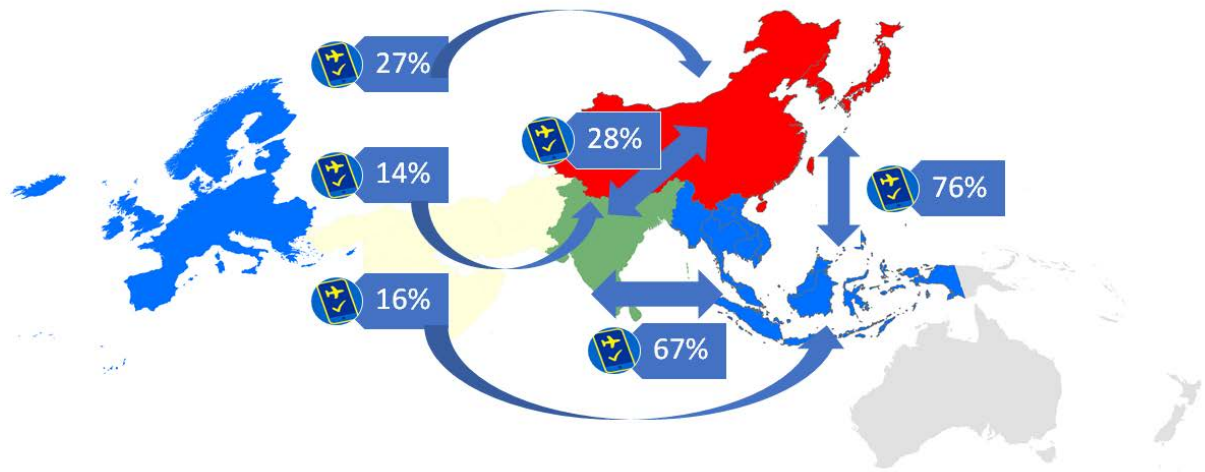


Figure 1: Share of EU – ASIA passenger trips served by direct connections.

Expected type of impacts

We might expect several impacts of CATA as described in the following paragraphs.

First, an unlimited market access in the form of direct, non-stop flights between the two regions, in other words full 3rd and 4th freedom rights operated by airlines designated by both EU and ASEAN sides in term of capacity, frequency and aircraft type should result in an increasing competition at hub-to-hub operations between the two regions as shown by the decreasing HHI index. As market access limitation is eliminated by CATA, more ASEAN and EU airlines shall enter to the existing hub-to-hub operation and we can expect a reduction in the average travel cost in this operation type. The inclusion of more ASEAN and EU players' shares would also mean a reduction in the share of players from Gulf, Middle East and Turkish regions that currently hold the most important shares of the EU-ASEAN air corridors. Finally, facing an increasing competition at the hub-to-hub operation, we might expect more agreements between airlines from both sides for joint venture operations that shall allow competing players on a particular hub-to-hub route to cooperate and engage in joint marketing and revenue-sharing.

Second, unlimited 5th freedom operations where EU and ASEAN carriers can have intermediate stops and beyond EU/ASEAN regions with traffic rights in a third region shall increase the 'point-to-point', 'behind', and 'beyond' shares in ASEAN and EU regions. Additional flights using the 5th freedom are expected to strengthen the position of both EU and ASEAN airports, creating additional demand that in turn can help build the critical mass for new connections. From the airlines' perspective, experience in other open markets suggests that alliances between EU and ASEAN airlines will be in a better position to exploit the new opportunities.

Aviation is both the reflection and the driver of the communication and contact between EU and ASEAN. Liberalization helps in improving connectivity and provides a safety valve for the various geopolitical risks that affect both regions.

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Aerotropolis: At what cost, to whom? An analysis of social and environmental impacts of New Yogyakarta International Airport (NYIA) project, Indonesia

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Introduction

Aerotropolis is defined as an area centred on a major airport and surrounded by development of non-aviation infrastructures, integrated transportation, and service facilities, which is functioned to gain economic benefit (Cyrek & Weltrowska-jęch, 2013; Kasarda & Appold, 2014). Following the idea of aerotropolis, New Yogyakarta International Airport (NYIA) was initiated as a strategic infrastructure project listed in Masterplan for Acceleration and Expansion of Indonesia's Economic Development (MP3EI) (Coordinating Ministry of Economic Affairs, 2011). Originally, MP3EI was an ambitious program that served as a starting point to transform Indonesia to be one of developed countries in the world by 2025. The masterplan divides Indonesia into six main economic corridors, which are Sumatra, Java, Kalimantan, Sulawesi, Bali-Nusa Tenggara, Papua-Nusa Tenggara, Papua-Maluku Islands (Coordinating Ministry of Economic Affairs, 2011). Figure 1 illustrates the map of economic corridors of Indonesia.

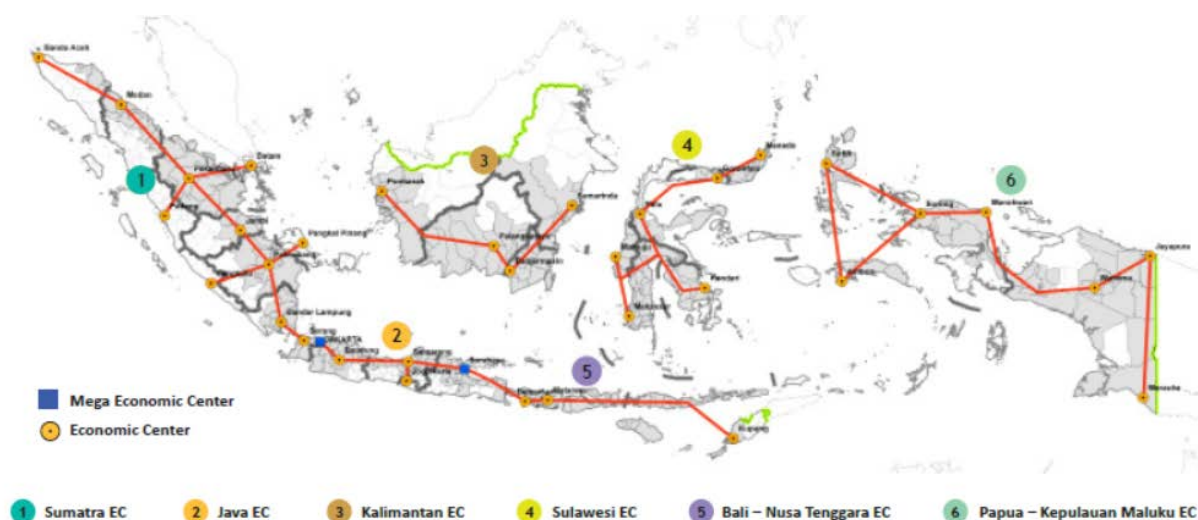


Figure 1: Map of Indonesia economic corridor. Source: Coordinating Ministry for Economic Affairs (2011).

Located in Kulon Progo district, Special Region of Yogyakarta province, Indonesia, the establishment of NYIA is anticipated to strongly promote MP3EI's mission in preparing city of Yogyakarta as part of economic centres in Java corridor and tourism centres in the country (Coordinating Ministry of Economic Affairs, 2011, Widiyanto, 2017). This project was expected to be finished by April 2019 (Indonesia, 2017).

Apart from its crucial position in national development planning, the establishment of NYIA brings different layers of issues. The objective to transform productive land into airport led to refusal from local people because they are strongly dependent on the land to earn money (Muryanto, 2018; BPS Statistics of Kulon Progo Regency, 2018). Furthermore, this infrastructure development also sparks concerns about the environment since there was an issue with the delay in its environmental permit (Muryanto, 2017).

This research aims to analyse the driving forces behind the development of aerotropolis as well as the social and environmental impacts of the project in the region. A field work to Yogyakarta, Indonesia was performed between 29 January and 9 March 2019. At that time, the NYIA project was still under construction. The approach of this research is a qualitative case study that uses multiple methods: interview, focus group, direct observation, and documents review. In total, thirteen semi-structured interviews have been executed, which consist of a group interview with six participants and twelve individual interviews. The participants of interviews were selected based on their involvement in the case of NYIA establishment. In practice, volunteers in the field, local non-government organisations, researchers, government officials, and local people were selected as interviewees by implementing snowball sampling. For the local people, this research only focused on people who live in Glagah and Palihan village, because according to Angkasa Pura I (2017), these two villages are the most affected villages from airport construction with 1237 and 1139 plotted lands each that will be used for the sake of NYIA construction.

Social and environmental impacts

The establishment of the airport leads the local people in NYIA development area to endure four major detrimental issues. The first one is displacement, which caused separation of local people into two groups: people who agreed with the displacement and people who disagreed. In the struggle to secure their land, issue of exclusion, oppression, and violence treatment were experienced by people who disagreed to be displaced. As a result of the displacement from their own land, the people were relocated in the areas that have been determined by Angkasa Pura (a state-owned company that has an authority to control airport management in Indonesia). In this process, people still needed to pay for the land as well as for the cost of building construction. The process also leads to social changes since the current neighbourhood transforms into a more urban area, which cannot be cultivated. The third impact is poor compensation. Again, there is a treatment gap experienced by the local people. The compensation money was smoothly received by people who agreed to be relocated. In contrast, people whose land refused to be appraised only received a little amount of money in the end, which was not enough to support their families. The last impacts are loss of livelihoods and identity. When this research was performed, people who agreed to be displaced were still waiting for the responsibility of Angkasa Pura to give them new jobs as promised before the construction started. In reality, the promising effort did not entirely work because the local people of Kulon Progo were not selected to work in the project. A different story comes from people who opposed to be displaced since the beginning. In this regard, this group of people believed that their identity as farmers who supposed to have land that can by far support their families without having to work to other people were not acknowledged by Angkasa Pura. This is because the latter perceived that the land clearing process was over by exchanging the land with money.

Apart from social impacts, environmental concern arises as the magnet of NYIA started working. The result of the field work indicates that the concept of aerotropolis, which will be

implemented in NYIA might lead to higher water exploitation for areas around the airport. This refers to the fact that besides airport operation itself, bigger amounts of water will be required to support other facilities in the aerotropolis area. Moreover, the establishment of NYIA also brings up the issue about shoreline change due to the location of NYIA which is widely considered to be a vulnerable landform with respect to natural disasters. The urbanization of the airport area, which causes more people to come, will possibly exacerbate the current severe condition of Kulon Progo.

Discussions

Pushpanathan (2010) argue that infrastructure development is considered as an important factor in stimulating economic recovery in the Association of Southeast Asian Nations (ASEAN) countries after the 2008 global crisis. Therefore, in 2010, the Masterplan of ASEAN connectivity (MPAC) was initiated by ASEAN leaders. The formation of MPAC itself is the part of a roadmap for the ASEAN Economic Community (AEC) in 2015 (Almekinders et al., 2015). In principle, MPAC aims to promote integrated intra-ASEAN trade and ultimate improvement of connectivity between ASEAN and global market (Pushpanathan, 2010; Gunawan, 2017). In Indonesia, the MPAC was synergized with MP3EI (Gunawan, 2017). Looking at the order, NYIA is established to promote Yogyakarta as a centre of economy in the Java corridor. In MP3EI, this corridor is responsible to become centre of industries and services (Coordinating Ministry of Economic Affairs, 2011). From here, it can be observed that NYIA development is supposed to promote industries and services as what has been mandated for Java corridor. Pointing out to the local to global relations, the aerotropolis of NYIA will likely help fostering export activity of Yogyakarta's key commodities so that they can be traded in the global market. In terms of services, aerotropolis is likely to invite more people to come as well as more investors to invest in hotels or restaurants to support this sector.

Furthermore, practice of neoliberalism can be clearly seen through the leadership of the government of Indonesia. In order to drive economic growth, the government of Indonesia enables foreign investors to invest in NYIA establishment through public private partnership mechanism. As a leader of Indonesia, President Widodo shows another neoliberalism practice by his maneuver to adapt NYIA establishment in the National Medium-Term Development. The president also seems to have political reason since he urged to finish the airport in the same moment as presidential election by issuing Presidential Decree Number 98/2017, which specifically aims to accelerate construction of NYIA project so that it can be finished by April 2019 (Indonesia, 2017).

Conclusions

The explanation above reflects sustainability science issue because there are local to global relations, which imply that aerotropolis is developed to eventually serve the global economy. This case also demonstrates the importance of sustainable development goals, namely SDG11 about sustainable cities and communities, where development planning must guarantee positive relations between economic, social and environment as well as inclusivity for people to participate in urban practice (United Nations, 2019a). Besides that, SDG10 about reducing inequality is a fundamental direction for the case of aerotropolis of NYIA because it ensures proportionate chance for people to reach equality by enhancing justice through relevant policies and regulations (United Nations, 2019b).

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Can Open Skies Agreement Make the Sustainable Development Regime of EU-Asia Civil Aviation Market? Game Theory Analysis on the Exploratory Studies of EU-China Open Skies Agreement Negotiations

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Keywords

EU-Asia Civil Aviation, Regime Making, Game Theory, EU-China, Open Skies Agreement Negotiation, Sustainable Development

Introduction

The ultimate ambition of the paper is to explore whether EU can be the new international new regime maker by initiating the liberalism through its effort to negotiate, contract as well as sustainably adjust the agreements with third countries based on the externalization of Normative Power Europe. Or China will play a more important role in international regime making by using its Regional Multilateralism, Normative Power China, under the One Belt One Road Grand National Strategy to deal with EU's liberalism. Can the EU's liberalism or China's regional multilateralism be winning the battle of regime making?

Statement of Ambitions

The core aim of the project is to assess EU's hegemonic powers in international civil aviation which was originally proposed as the future research direction by Kassim and Stevens (2010). The rise of the European Union (EU) as an international actor in civil aviation over the past decade has been a transformative development. As a supranational body within a historically state-centric order, its emergence has been as remarkable as it has been disruptive. The EU has forced existing organizations, as well as governments, to recognize it as an actor and to acknowledge its influence. The impression for much of the past decade has been that its powers would continue to expand inexorably.

As a putative new hegemon (Dobson 2007, Stainiland 2008), the EU introduced multilateralism as the new currency of international civil aviation. It established the Single European Aviation Market. It gained the power and authority in 2002 to represent EU member states in civil aviation agreement negotiations by the historic European Court of Justice's ruling on Open Skies Cases, signed Open Skies Agreements with US and Canada to open a new era of international civil aviation history, and implemented a civil aviation strategy to sign the Open Skies Agreements with all major civil aviation nations in the world. It also initiated a proposal for global environmental protection to ensure the sustainable development of civil aviation. Moreover, following earlier interventions in safety and security,

the European Parliament adopted a measure on EU Passenger Name Records in order to address safety and security issues of civil aviation as recently as April 2016.

The EU's rise and expanding influence have been remarkable, and apparently inexorable, but the defeat in ICAO of an EU-backed proposal on environmental protection prompted the thought that the EU's power is not absolute. The aim of this project is to assess EU's influence in aviation by examining its capacity for re-writing the rules in international economic regulation, namely the international civil aviation regime making rules.

The Background of International Civil Aviation Regimes' Makings

Since 1944, international civil aviation has been governed by a state-centric order, characterized by US leadership and an embedded bilateralism. Under the Chicago Convention, the International Civil Aviation Organization was founded as the UN's civil aviation chapter. The Chicago Convention defines civil aviation rights in terms of state sovereignty, and subsequently these rights were traded through bilateral negotiations between nations. Due to the fact that the US's civil aviation power was the strongest in the world after the Second World War, US built a global civil aviation regime under its leadership on the bilateral principle. Through the deregulation of US aviation industry and the adoption of new aviation foreign policy, US was the unquestioned hegemon of international civil aviation.

Although Chicago Convention opened a new page for international aviation by clearly defining the air sovereignties of individual countries as well as outlining various aviation freedoms, the ICAO was successful in standard-setting and a forum for cooperation in technical issues, but had limited operational capacities due to the original institution setting, power structure as well as its decision making procedures. The EU has emerged as a new power in international civil aviation. It has changed the rules of international civil aviation economic regulation, international civil aviation environmental policy as well as international civil aviation safety and security policy.

The EU has introduced a form of multilateralism through its imposition of a new type of air services agreement, which it has substituted for bilateral accords. The signing of EU-US Open Skies Agreement appeared to signal its status as a new hegemonic power. It has also successfully signed similar agreements under the umbrellas of EU's Neighbourhood Policy as well as EU's Mediterranean Policy with its neighbours. It has signed (been working on signing) Open Skies Agreements with other major civil aviation powers. The EU has not only been active in international economic regulation. It has also attempted to raise global environment protection standards. Following the extra-territorial implementation of its rules on noise emissions, it sought to promote its Emission Trading System more globally. ICAO not only accepted to put the environmental protection measurements for discussion, but also set up the environmental protection group of ICAO, more importantly ICAO has finally agreed to set up the international civil aviation standards by 2020 which marked another victory of EU in international civil aviation politics. In terms of the safety and security issues, after long interactions between European Parliament, European Commission and European Council, the Passenger Name Records was adopted by the European Parliament to tackle the issues of civil aviation safety and security after terrorist attacks in Europe. There is also therefore momentum for EU to promote its safety and security measurements to be the international standards. Although the EU is not and cannot be a member state of International Civil Aviation Organization (ICAO), it has nevertheless succeeded in exerted major international influence.

Case Study on EU-China Open Skies Agreement Negotiation

The research will be done through case studies on finding out whether EU or China or maybe both in different contexts can make the new international civil aviation regimes between Europe and Asia to help the sustainable development of the EU-Asia Civil Aviation.

China has been very ambitious to boost civil aviation industry by merging state-owned airlines to increase capacities, building airports to enable possibilities. If EU can successfully sign the Civil Aviation Agreement with China, it shows very clear that EU has been the new hegemon of international civil aviation as EU succeeds to persuade China to follow EU's multilateralism as the international principle.

It should be noted that China has promoted the Belt and Road Initiative in the whole world since 2013, it is mainly for the economic booming by making the regimes of Belt and Road Region under China's leadership. Belt and Road Civil Aviation Region is one of the top targets that China is hoping to finalize after getting the Asia Infrastructure Investment Bank established. Therefore China has promised to invest 50 Billion RMB (9 Billion Euro) at the Belt and Road Region countries to help their civil aviation industries. In 2018, EU also proposed the strategy to connect Asia and Europe which has been in the early stage of the making.

As the EU and China all have ambitions to connect Europe and Asia, it is definitely worth researching whether EU and China will cooperate or compete or cooperate for the regime making. It is worth researching because EU and China have extremely different approaches on the civil aviation regime making, while EU is targeting on the selected major civil aviation countries in Asia, China has included all countries in the Belt and Road Region in consideration.

Research Method of Game Theory Analysis

Game Theory analysis will be used as the method to explore, whether EU or China can make new model of international regimes as new regime maker in the world. The four-game theory scenarios between China and EU's rational interactions will be exposed, while the four payoffs of China and EU's each within four different contexts of EU and China's rational behaviour patterns will be compared vertically and horizontally. More importantly the flows between four game theory interaction scenarios will be analysed to figure out the pros and cons in line with the gains and losses during the flows to identify the most stable scenario for the two parties to have the agreements signed, through which building the new international regime can be regarded as the fruit produced by the interplays between EU's liberalism and China's regional multilateralism initiated by the One Belt One Road National Grand Strategy of China.

Game Theory is the best tool for exploratory studies on international negotiations as the feature of the game theory is to forecast the strategic decision-making procedures based on the forecasting of different players' actions based on the rational way of thinking.

Conceptual Framework for Analysis

Figure 1 presents the conceptual framework for analysis, which is based on Game Theory and Regimes Theory findings. The conceptual framework shows the possible strategies of the EU and the third countries based on the ideologies and values.

Figure 1: Conceptual Framework showing Two Way Interactions between EU and Third Countries on their Open Skies Agreement Negotiation Options.

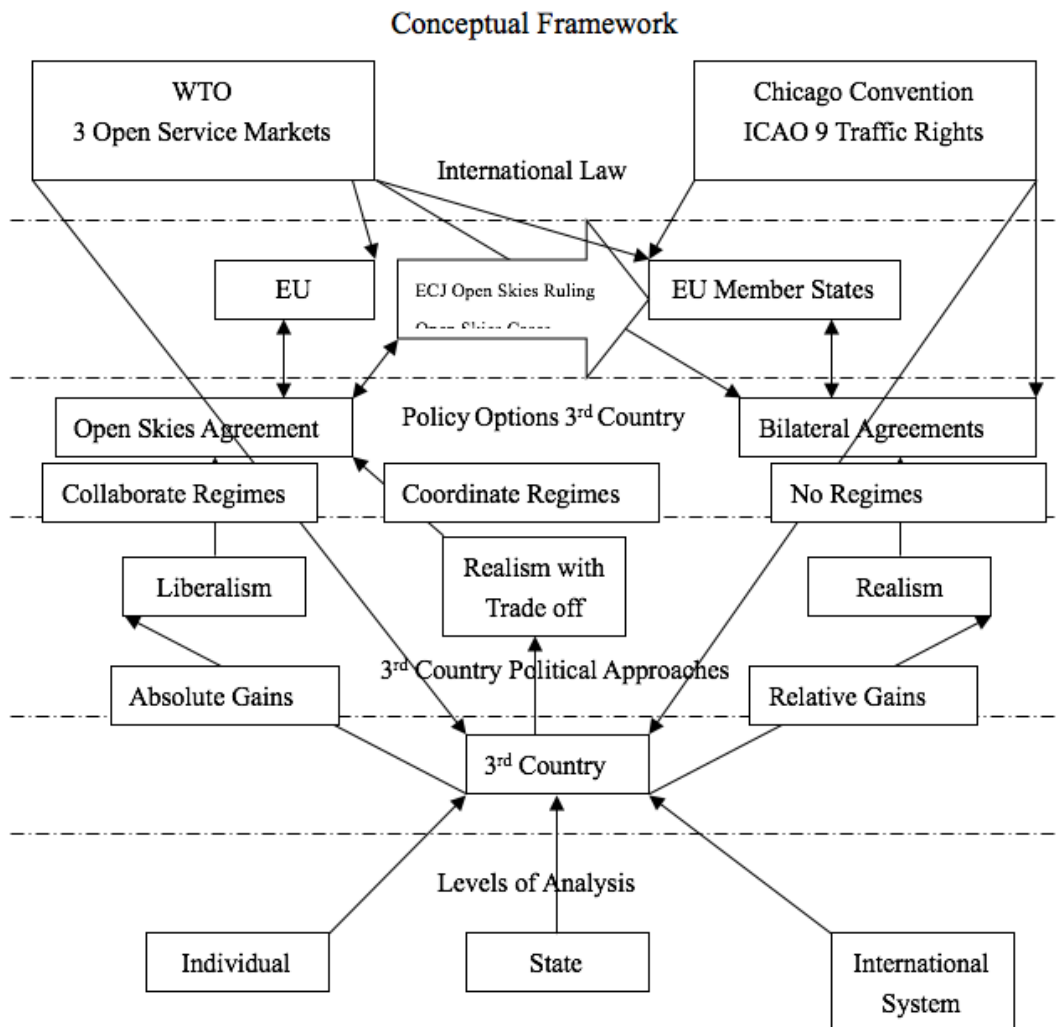


Table 2 EU-China Open Skies Agreement Negotiation Payoff Scenario

	EU		
		Friendly	Cold
	Friendly	C1 E1 common benefits(Open Skies) in conflict with each other(5 th or 7 th or 8 th and 9 th), collaborate regime	C2 E2 to avoid certain result (no regime) but they have conflicts (5 th , 7 th , 8 th or 9 th , both parties has same rights or not). Regimes will be made to coordinate
China	Cold	C3 E3 to avoid certain result (no regime) but they have conflicts (5 th , 7 th , 8 th or 9 th , both parties has same rights or not). Regimes will be made to coordinate	Scenario 4 China approaches EU member states and US if EU is cold to China, UK-China Open Skies Agreement after Brexit C4 E4, No Regime

Note: The research is only the strategic scenario analysis between EU and China (third country), not the action analysis which may require different game theory analysis models.

Conclusion

The research finds out that the EU and China all have potentials of being the new international regime maker with the ideology of liberalism or regional multilateralism. But it is very important for the EU and China to use the right strategy at the right time for getting the best payoffs from the rounds of negotiations. If the EU and China as well as other Asian countries will be all rational during the whole process of Open Skies Agreement negotiations, the EU-Asia civil aviation market's sustainable development is very possible to be made. Needless to say, if the EU or China are not very rational during the negotiation process, their regime making process will fail because they cannot attract European and Asian countries to be members of their regimes.

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Political Connectivity

An inquiry into synergies and tensions between the EU's Connectivity Strategy and China's BRI

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The EU and China are global economic key actors with a profound impact on transeurasian connectivity. Both like to posit themselves as proponents of a multilateral global order, international trade and environmental sustainability - embedded in a narrative of win-win cooperation. In order to guide investments, both China and the EU have recently pronounced their own visions for sustainable development on the transeurasian continent - the Belt and Road Initiative by China, which was launched by China as early as 2013, and the EU's Connectivity Strategy to connect Europe Asia by the EU, launched in September 2018. While both visions focus on infrastructure, transport, energy and digitalization, the EU's Connectivity Strategy is emphasizing sustainable, comprehensive and rules-based, while China's BRI stresses the win-win cooperation brought about by the Chinese state-led investment model going global. Upon close examination both concepts differ dramatically in terms of 1. strategic vision, 2. geographic scope, 3. development methodology and 4. available resources. Based on these fundamental differences, this paper is going to examine whether and to what extent political-institutional dialogue and cooperation is feasible between the EU's Connectivity Strategy and China's BRI. The EU's connectivity strategy is undoubtedly an important answer to China's BRI that allows the EU to engage transeurasian connectivity and to shape it in its own image. The question of political-institutional dialogue and cooperation remains a crucial one however in order to maximize benefits and reduce tensions between both initiatives. Increased connectivity has been identified by both the EU and China as one of the main aspects for boosting trade and sustaining economic growth and the geopolitical dimension of trade and connectivity is at the centre of this question. Synergies and tensions between the EU's Connectivity Strategy and China's BRI have to be made explicit in order to facilitate a form of dialogue and engagement that contributes to a shared vision of sustainable connectivity.

Asia Europe Connectivity: Converging the Regulatory Standards and Sustainable Financing

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Asia, Europe and Africa are getting interlinked through pan regional connectivity initiatives. Asia is leading the narrative on connectivity in which the Masterplan on ASEAN Connectivity (MPAC), Belt and Road Initiative (BRI), Asia Africa Growth Corridor (AAGC), and Asia–Europe Meeting (ASEM) – all connectivity plans aim to deepen Asia's economic dynamism and extend it to trans-regional partners. As a significant partner of Asia, EU has put in place building blocks towards an EU Strategy on Connecting Europe and Asia with concrete policy proposals and initiatives, including through interoperable transport, energy and digital networks. The EU-Asia connectivity strategy aims for sustainable, comprehensive and rules-based connectivity.

The challenge is how to ensure greater synergy among the connectivity initiatives in the region which can result in inclusive and sustainable development, increase social well-being of people and deepens trust among partners. A roadmap for developing synergy among the connectivity plans and measures must therefore be an important policy agenda.

'Connectivity' has always existed but use of connectivity as a concept for determining development strategies and influencing international relations is recent. ASEAN is generally credited with popularising the term 'connectivity' leading to its MPAC, which was adopted in Ha Noi in 2011. The ASEAN approach to connectivity uses the context of community building and well-connected ASEAN that will contribute towards a more competitive and resilient ASEAN community. The MPAC 2025 broadens this vision to achieve a seamlessly and comprehensively connected and integrated ASEAN.

The AAGC aims to facilitate and enhance economic growth in Asia and Africa through the development of institutional and human resource capacity, connecting institutions and people, facilitating trade and improving technology and infrastructure of the two continents. The AAGC is aligned with Agenda 2030 and provides green projects with priority funding and implementation.

The BRI proposed by China aims to promote connectivity among the Asian, European, and African continents and their adjacent seas. It aims to establish and strengthen partnerships among the countries along the Belt and Road and realise diversified, independent, balanced, and sustainable development in these countries. BRI is backed by strong financial resources commitments from China and decision making on infrastructure projects is based on bilateral agreements with other governments.

The EU Strategy on Connecting Europe and Asia lays out concrete policy proposals and initiatives to improve connections between Europe and Asia, including through interoperable transport, energy and digital networks. The approach to connectivity with Asia is sustainable, comprehensive and rules based. Establishing partnerships for connectivity based on commonly agreed rules and standards and contributing to address the sizeable investment gaps through improved mobilisation of financial resources and strengthened international partnerships are its important features.

The Asia Europe Meeting (ASEM) connectivity differs from the infrastructure connotations of the BRI and the developmental and capacity-building contours of the AAGC. ASEM is a multilateral platform of 51 countries in Asia and Europe with both formal and informal institutions, and connectivity related activities are the most visible face of this group, as they runs across all three pillars: political, economic, and socio-cultural.

In a global milieu, the connectivity plans are competing for space, resources, influence and results. Seeking convergence among competing connectivity plans may be a desirable policy objective but it is based on the notion that all connectivity plans have similar objectives. The contours of the MPAC, AAGC and BRI are different in terms of their origins partnerships, resources and the political and economic priorities of the promoters. Putting the strength of different connectivity plans behind globally agreed development goals and global governance mechanisms, however, can create commonality of purpose and synergy among the different connectivity plans.

The transformational changes in global governance, international relations, aspirations of young demography, technological connectivity and future of work are driving the current discourse on connectivity. For this reason, free and open Indo Pacific, ASEAN-India connectivity, AAGC, BRI, EU-Asia connectivity are seeking greater emphasis on governance, standards, transparency, and accountability. The ADBI has helped to further this objective by providing the estimated costs for infrastructure in Asia (\$ 26 trillion till 2030) which includes climate adaptation and mitigation costs.

Primarily, financing of connectivity plans, transparency in project preparation and accountability in project execution are important global concerns emerging from the implementation of connectivity plan. The example of BRI is important as it has drawn the global attention towards issues of planning and project design, financing and debt sustainability, territorial integrity and people's choices. Controversies in Pakistan, Sri Lanka, Maldives, Laos, Montenegro relate to debt sustainability and underline the disconnect between connectivity plan and development strategy.

Finding the global standards for connectivity projects and activities is difficult but not impossible. The global development programmes and impetus for multilateralism can provide the way to create greater interlinkages between connectivity plans through governments, and regional and multilateral institutions. The Bretton Woods framework monitored monetary institutions for fostering peace and building growth in the post war years. Similarly, with connectivity as the new international strategy for growth, it is essential that global governance should reach and monitor its various aspects and actors. It is already evident in MPAC, AAGC and EU-Asia connectivity that triangular and multilateral cooperation for connectivity are producing more inclusive and sustainable plans due to greater oversight of project preparation processes and plan outcomes.

The practical aspects of trans-regional connectivity call for a unified or common regime for the carriage of goods and people across continents. Technical specifications, safety management frameworks, social and economic well-being of workers in the sector, competition policy, customs cooperation are some important beyond the border issues that require agreed standards and regulations, especially in rail and road transport. Air and sea connectivity have international rules but require calibration around new collaborations and routes. Digital connectivity is embedded in most plans but promoting a peaceful, secure and open ICT environment, including data protection requires coherent regulatory approach as well as policies and incentives to bridge the digital divide. Clearly, the synergy in different connectivity plans is incumbent on common rules and standards.

The challenge is to find the imperative for global standards and governance rules for connectivity plans. This can be drawn from the broad commitment to put people and their prosperity at core of connectivity programmes. Employing good governance and accountability as drivers, the plans must work towards the goals of sustainable development and inclusive growth. When connectivity plans converge with regional, national, and global development priorities, monitoring of plans will likely become easier. Finally, the monitoring and regulatory mechanisms must ensure that connectivity plans are not used as a foil for regional leadership. Nor can they be planned to export the debt problems in promoter country or group of countries. Policy makers are working towards global standards for contemporary issues of taxation, digital finance, internet, data ownership and transfer, artificial intelligence etcetera. Global consensus around climate change, sustainable development goals, multilateralism and global trade is also being renewed. It is only logical that global (and regional) mechanisms for monitoring and regulation of connectivity plans should ensure that these plans enhance economic and social well-being among people and create trust among partners. The Asia Europe Meeting can be a solid platform to raise the efforts among Asian and European partners to set the global standards and regulations around infrastructure for connectivity and for the sustainable financing of connectivity plans.

EU and ASEAN Cooperation on Sustainable Development: towards an alignment of regional actions plans?

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Objectives

The objective of this paper is to discuss and compare the EU and ASEAN sustainable development action plans and its implementation. Furthermore, it examines different cooperation and dialogue instruments that have emerged in the pursuit of sustainable development. Lastly, it assesses to what extent these instruments improve the effectiveness of the application of actions plans and sustainable development law.

Keywords

Sustainable Development — International Environmental Law — Action Plan — Comparative Law — Cooperation — Soft Law — Political Instruments

Introduction

Despite the crisis in the global economy, politics, and social-environment between the developed countries and the developing countries, sustainable development law is a potential instrument that can manage to resolve disputes between industrialized countries and developing countries and reconcile economic development with environmental matters.

Consolidation of sustainable development law that was undertaken by the Stockholm Conference in 1972 and the Rio Conference in 1992 has also had an impact on social and environmental justice. Indeed, it promotes a double synergy between the protection of the environment, economic development, and State action. The recognition of sustainable development by the international community represents a significant change to the current legal system guaranteed by consistency, rationality, autonomy and structured in hierarchical layers.

However, the emergence of sustainable development in international law and its recognition raised concern, questions, and controversy about its legal prospect, sophisticated governance and structural limits due to the proliferation of sustainable development standards and the growing number of complex institutions. Furthermore, differing practices — e.g., action plans and strategies — between the EU and ASEAN point to the need to consider whether there is a genuine joint will of both regions to create a new paradigm that can reconcile environment protection with economic development.

Thus, raising the question of whether the EU and ASEAN new dialogue and cooperation instruments of dialogue could strengthen the implementation and effectiveness of their regional action program for sustainable development.

To address the issue, this paper provides, first, a comparative perspective and an analysis of different EU and ASEAN regional action programs dealing with sustainable development in order to build on points of convergence and reduce points of divergence (1). Second, it examines the EU and ASEAN Strategic Dialogue and Cooperation instrument in order to assess whether these instruments contribute to a greater effectiveness of the application of action plans and sustainable development law (2).

The European Union and ASEAN Action Plans in a comparative perspective

The EU and ASEAN play an important role in the application and the effectiveness of international law related to sustainable development by establishing regional actions plans which are consistent with 2015 Sustainable Development Goals (SDGs), Agenda 21 and regional strategies (e.g. Göteborg Declaration, 15-16 June 2001 and ASEAN Vision 2025).

The EU and ASEAN both developed multi-annual action plans to guarantee the protection of the environment and sustainable development. Among various actions plans, the EU have so far seven Environmental Action Programme. Through the EU example, ASEAN also established suitable actions plans to the local needs such as ASEAN Sub-regional Environmental Programme (ASEPs I, II, III et IV) and Programme on nature conservation and terrestrial ecosystems. EU and ASEAN actions plans have three common priority objectives that are interconnected: greater effort to protect the environment, supporting economic growth and reducing threat hanging over human health and human well-being. Those three common objectives are a common ground between the EU and ASEAN.

Action plans and strategies are soft law instruments that can be used as preparatory work for binding legislative acts. Besides, these non-binding instruments encourage the EU and ASEAN to work toward common goals such as sustainable development and the protection of the environment.

Furthermore, environmental action plans contribute to the improvement of the implementation and the effectiveness of economic and social policies and regulations. For example, sustainable use and management of natural resources reduce loss of natural capital. Improving the resilience of the natural capital leads to positive effect on human health and well-being. Since it has promoted innovation and the protection of natural resources, climate change adaptation and mitigation measures improve the resilience of the EU and ASEAN economy and society.

Although the positions of EU and ASEAN converge on three main objectives, their priority areas and methods of implementation and enforcement diverge thoroughly. The effective implementation of the action plans relies on the capacity of the region to keep it homogeneous and compliant. Therefore, the implementation of ASEAN action plans is less effective than those in the EU. That is mostly due to the absence of a centralized institution with coercive measures and compliance procedures.

Moreover, both regions choose different priority areas and thematic strategy adapted to the context of the region and society. For example, on one hand, ASEP I, II and III have six priority areas such as environmental education, urban environment, industries and environment, environmental management, marine environment, conservation of nature and earth ecosystem. On the other hand, the EU 6th EAP (2002-2012) and 7th EAP (2014-2020) focus on climate change, nature and biodiversity, environment and health, management of natural resources, waste, green economy with specific objectives for 2020. The 6th EAP have a list of

future legislative measures that can be adopted for the period of 2002-2012 whereas ASEP measures are soft law and are not binding.

In the light of these differences and low effective implementation of the action plans, the strategic dialogue is key to hold EU-ASEAN relation on track, to promote mutual understanding and to enhance the effectiveness of the action plans.

The European Union and ASEAN Strategic Dialogue and Cooperation Instruments: toward a greater effectiveness of the application of actions plans and sustainable development law

The EU and ASEAN constantly sought ways of improving their economic and commercial cooperation and dialogue. They consistently attached great importance to political and institutional cooperation which is a more traditional type of intergovernmental cooperation. Since the conference of Rio (1992), the EU and ASEAN have developed cooperation and Strategic Dialogue covering environmental protection and sustainable development. The EU and ASEAN engage an informal and regular dialogue on the issue of integrating gradually environmental consideration into other policies, such as economic development and trade, and plans or programmes.

Beyond dialogue, sharing of experience and information, good practice and capacity building facilitate the conciliation of the action programs, strengthen the implementation of sustainable development practice and the solving of the dispute. Strengthening regional cooperation and different action programs could contribute to innovation hence give satisfaction to States.

For example, Asia Europe Meeting (ASEM), ASEAN-UE Ministerial Meeting (AEMM) and Regional EU-ASEAN Dialogue instrument (READI) are innovative dialogue instruments which should substantially be used to reinforce and to enhance relationships between EU and ASEAN through a more comprehensive and balanced agenda on sustainable development, especially in the environment and education sectors, justice and poverty alleviation. In addition, those instruments enable EU and ASEAN to focus strongly on the implementation of sustainable development projects rather than meeting. Projects have been implemented such as Trans-Eurasia Information Network (2010) established by ASEM, several seminars on clean energy and climate change. Besides, READY funded eleven action plans to support ASEAN integration such as the ASEAN Center for Biodiversity in 2010. Funding provided by the EU can be used to support sustainable development action plan, ASEAN integration, education and environmental projects, programmes and sectors.

Despite the reinforcement of the dialogue and the EU-ASEAN relation, efforts must be continued, particularly in the area of protection of the environment in order to have a harmonized action plan or strategies. Indeed, the EU and ASEAN are faced with the same environmental problems such as pollution, biodiversity, forestry, fisheries, hence, despite vicissitudes, they must pursue the cooperation in those areas and find new solutions to open new horizons for mutual understanding thanks to their Strategic Dialogue.

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The Dark Side of Connectivity: Authoritarian Image Management & Extraterritorial Repression

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Introduction³²

Authoritarian states try to present a positive image of themselves abroad (Dukalskis, 2018; Brazys and Dukalskis, 2019). They invest in foreign-facing media, hire public relations firms, and showcase their successes to elite and popular foreign audiences. On its own this may be innocuous “soft power” or “public diplomacy”. However, there is also a darker side to these efforts. Authoritarian states try to obscure or censor bad news about their governments and often discredit their critics abroad. In extreme cases authoritarian states intimidate, physically attack, or even murder their (self-)exiled opponents overseas. Extraterritorial repression of this sort is facilitated by political, economic, and cultural connectivity.

Connectivity that is truly sustainable must acknowledge and come to terms with modes of coercive political connectivity such as extraterritorial repression (for scholarship in this area, see among others: Adamson, 2020; Glasius, 2018; Cooley & Heathershaw, 2017; Moss, 2016; Lewis, 2015). States target political opponents abroad in order to blunt the ability of external political critics to influence domestic politics. Silencing critics abroad is part of a strategy to drive a wedge between external and internal activists so that they cannot effectively work together. Perhaps most importantly, targeting challengers abroad is important because it undermines their ability to garner the funds and attention necessary to pursue their goals. The international advocacy sphere can be considered a market, with groups that wish to challenge governments needing to present themselves and their goals as appealing and in line with the aims of funders able to support them (Bob, 2005). The effectiveness of these efforts depends a great deal on the international standing of the group itself. If a government can keep its challengers out of the international spotlight or undermine their credibility, they can keep activist causes off the international agenda, thus limiting pressure that rebounds back on the government.

This presentation maps the extraterritorial repression of the world’s authoritarian states. It uses a newly constructed and in-progress events database called the Authoritarian Actions Abroad Database (AAAD), which includes instances of authoritarian states attempting to threaten, threaten the family of, arrest or detain, extradite, physically attack, and/or assassinate their citizens abroad between 1991 and 2019.

Constructing the AAAD

More details are available from the author, and will be published in book form, but in sum the AAAD contains publicly available information regarding attempts by authoritarian states to repress (self-)exiles abroad from 1991 through 2019. The database was inspired in part by the Exeter Central Asian Political Exiles Database (CAPE) (Heathershaw and Furstenberg, 2019) as well as related work on political exiles featured in Cooley and Heathershaw, 2017: 187-219) and the conceptual work found in Glasius (2018). The countries included in the database

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are based on those defined as authoritarian in the Geddes, Wright, and Frantz (2014) “authoritarian spells” typology after 1991 and for the relevant years. Some adjustments were made for states that had become authoritarian after the GWF coding finished or for cases omitted from the GWF data for other reasons, such as population size. Other regime data gathering efforts were used as guidance in these cases (e.g. Wahman, et al., 2013). Because authoritarian actions abroad of the sort this project is tracking are usually secretive by nature, it is likely that for each case recorded there are many more that will never be publicly reported or verified. This data is just a glimpse into a dark area of connectivity.

Searching was done using a three-stage process. First, where similar databases existed, their content was used given that researchers had already gathered the information and made it public. Second, Google news and Google search terms were utilized in order to identify a population of news articles and reports that contain information about the actions of authoritarian leaders against exiles abroad. For each search term, the first 10 to 20 Google pages were examined and a population of relevant articles were gathered and then re-examined for data extraction. The search terms were designed to cast a wide net and therefore required readers to determine the relevance of each article. Third, given the possibility of recency bias in Google news search terms, Nexis Advance UK was mined with a focus on earlier years in the timespan using similar search terms as those from the Google news and Google search procedures.

Information from credible NGOs, international watchdog groups, and credible journalistic sources were sought. Where news articles were found, attempts to corroborate each incident were made. Often, multiple news sources report on the same event. Ultimately, if corroborated, the incident was included in the database. If uncorroborated but the source is a credible well-known organization, then the source was included in the database. Authoritarian actions abroad are often inherently secretive – indeed they are usually designed as such – and so in cases where responsibility was not always clear the coding team discussed the case and used its best judgement to determine whether the case should be included or excluded. The database was cross-checked and validated by the coding team to ensure inter-coder reliability.

Full definitions and caveats are available from the author, but in terms of targets, the AAAD categorizes journalists, activists, opposition figures, former government officials, and other citizens. In terms of actions against targets, it covers the following: threatened, family threatened, arrested/detained, attacked, attempted extradition, extradited, abducted, and assassinated. On the latter, attempts are also included, as is an indicator of how clear it is that state agents perpetrated the assassination. The perpetrators of authoritarian actions abroad are not always clear. This is by design. Authoritarian governments often use “thugs for hire” to intimidate or attack dissidents domestically. Ong (2018) identifies three conditions in which the use of thugs is particularly likely: when the actions are illegal or unpopular, when the state wants to evade responsibility, and when states have weak capacity where they are operating. Taking actions against critics abroad satisfies all three of these conditions. This means that the location of responsibility for authoritarian actions abroad is made inherently difficult. There are undoubtedly cases in the AAAD where responsibility is misattributed, but nothing systematic is suspected. Regardless, this should not preclude attempts to gather such data.

Overview of Findings

Tables 1 through 4 give a brief overview of the data. The search procedures detailed above yielded 994 discrete cases of authoritarian actions abroad, some of which involved more than one person (i.e. when a group of exiles was targeted at once). Table 1 shows the states that most frequently appear in the AAAD as instigators of authoritarian actions, with Uzbekistan, North Korea, China, Turkey, and Tajikistan the five most frequent violators. This data highlights the importance of transnational repressive campaigns, as many of the Uzbekistan cases stem from the aftermath of people fleeing after the Andijan massacre in 2005, many of China's cases involve the extraterritorial side of the post-2014 crackdown in Xinjiang, and Turkey's cases are dominated by the post-coup attempt purges and crackdowns after 2016. Table 2 shows that citizens and activists are the two most frequent targets. The prevalence of activists and journalists – together constituting nearly half of the cases – suggests the importance of image management as a motivator for authoritarian actions abroad. Table 3 shows the most frequent actions. Of particular relevance for connectivity is Table 4, which shows select data on the locations in which authoritarian actions took place. Over 28% of cases involve European states (including Turkey and Ukraine), suggesting that European connectivity does come at a cost for some exiles of repressive states. Russia is the most frequent target state with 205 cases, which largely stems from its security connectivity with Central Asian states and the cooperation that affords in terms of extradition procedures.

Table 1: Top 10 Countries in the AAAD (N=994)

Country	Total	Percentage
Uzbekistan	189	19.01%
North Korea	156	15.69%
China	139	13.98%
Turkey	89	8.95%
Tajikistan	60	6.04%
Russia	44	4.43%
Syria	43	4.33%
Iran	48	4.83%
Rwanda	30	3.02%
Thailand	29	2.92%

Table 2: AAAD categorised by target

Target	Total	Percentage
Citizen	398	40.04%
Activist	351	35.31%
Journalist	134	13.48%
Former gov official	70	7.04%
Opposition	41	4.12%
Total	994	100.00%

Table 3: AAAD categorised by action

Action	Total	Percentage
Arrested/detained	191	19.22%
Threatened	179	18.01%
Extradition Attempt	160	16.10%
Extradited	156	15.69%
Family threatened	153	15.39%
Abducted	54	5.43%
Assassination	44	4.43%
Assassination Attempt	26	2.62%
Attacked	22	2.21%
Abduction Attempt	9	0.91%
Total	994	100.00%

Table 4: Select European states as targets

Country	Total	Percentage
Turkey	60	6.04%
UK	59	5.94%
Germany	34	3.42%
France	30	3.02%
Ukraine	20	2.01%
Sweden	18	1.81%
Switzerland	7	0.70%
Other EU states	58	5.84%
Europe in total	286	28.77%

Conclusions

While openness and connectivity can be used by activists and others to push for political change across borders, it can also be used by states to silence political threats abroad. For (self-)exiles who rely on the protection of borders to shield them from authoritarian states, connectivity brings challenges and hazards.

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Paving the road to peace and prosperity? A framework for understanding the conflict impact of infrastructure initiatives

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The political dimension of infrastructure has recently emerged as a topic of great academic and practical interest, mainly as a result of China's much-discussed Belt and Road Initiative (BRI) and competing proposals advanced by actors like the US, EU, Japan and Russia. Much of this attention has focused on the geopolitical consequences of the BRI, and for good reason. From the beginning, it was conceived of as a "national strategy" serving multiple economic and political aims, among them the restoration of China to a position of centrality in world politics (Swaine 2015). Analyses have covered angles ranging from its impact on reshaping international trade flows, its role in boosting Chinese soft power and agency in global governance, or how related investments could result in moving recipient countries into Beijing's political orbit (e.g. Huang 2016).

However, a major aspect that has been largely overlooked is the potential impact of infrastructure on conflict settings and dynamics. This angle urgently warrants further study, since many of the investments envisioned under the BRI and its competitors are intended for highly fragile regions that had been underserved by existing infrastructure funding - often because this fragility is a warning flag to investors. Under the BRI alone, an estimated 60 billion has been earmarked for the China-Pakistan Economic Corridor (CPEC; MPDR/NDRC 2017); a similar project in Myanmar, which is in an early planning phase, could even exceed this figure. Other countries with high actual or projected investments include Nigeria, Angola and Sri Lanka (AEI 2020). All of these countries are currently mired in, or recovering from, serious internal strife, sometimes at the level of full-blown civil wars in regions traversed by the new transport corridors.

Where the link between conflict and infrastructure has been considered previously, it has usually come in two forms: first, by treating conflict as an external risk to projects and analyzing its impact on overall viability (Araya et al. 2013, Schwartz and Halkyard 2006); or second, by promoting the overall developmental effects of infrastructure and arguing that this can help to build lasting peace (e.g. Anand 2005). However, there are reasons to believe that the interplay between infrastructure and conflict dynamics is far more complex than either of these narrow angles suggest. Infrastructure has a potential to deeply transform conflict environments, and not necessarily for the better: as will be shown, increased inequality, environmental degradation, corruption and human rights abuses are among the adverse effects that need to be considered and anticipated. This has major implications for project implementation, and a great deal of care is required to avoid causing or exacerbating conflicts.

³³ Early conference draft, please do not cite or copy. The author can be contacted at abb@aspr.ac.at

Infrastructure and conflict: a framework

The term "infrastructure" encompasses an extremely broad category of items, ranging from connectivity solutions to power grids and municipal sewage systems. It is also a practically ubiquitous element of human civilization, shaping, enabling or constraining a wide variety of behaviours and thus making for an extremely complex relationship with conflict dynamics. The many potential interactions will be broken down here in two sets that tell very different stories: one of infrastructure as a driver of progress, peace and prosperity; and one covering the flipside of strife caused by inequality, corruption and environmental degradation. The effects of any real-life implementation will likely contain elements of both, but dividing them by this line helps to explain both the attractiveness which infrastructure holds to conflict societies, as well as problematic factors to be targeted by mitigation measures.

Table 1: Potential positive and negative impacts of infrastructure on conflict dynamics.

Positive	Negative
Jumpstarting economic activity, alleviating poverty and inequality	Corruption, misappropriation and waste of public funds
Statebuilding and strengthening national cohesion	Differential provision that only benefits selected areas or groups
Enabling better governance, services and control of contested territory	Environmental degradation and development-induced displacement
Symbolizing modernity and creating expectations of progress	Facilitation of repressive methods, securitization and militarization
	Transnational conflicts over financing and resource access

Accordingly, when it comes to conflicts, infrastructure projects need to be accompanied by a political strategy to realize their positive effects and mitigate against negative ones. However, the world's most prominent currently active infrastructure-building initiative, China's Belt and Road, follows a decidedly different approach. In promoting the BRI and China's overall contribution to conflict-affected states, Chinese officials have expressed their faith that its developmental effects will bring about peace (Xinhua 2017), while also reiterating their country's long-standing commitment to the norm of political noninterference. How the latter is implemented in practice has changed a lot in recent years, but it still encompasses a robust commitment not to pursue the political transformation of other regimes, the mutual recognition of sovereignty, a preference for dealing with international relations at the governmental level, and leaving only very limited possibilities for interventions in the affairs of other states (Hirono et al. 2019). Accordingly, the BRI looks set to emerge as a crucial test case infrastructure-related effects on conflict settings, and one that is inspired by a very different approach to its political dimension. The following section represents a very rough first take at the available evidence for how this is playing out.

Peace and prosperity through the 'Belt and Road'?

Figure 1 plots total Chinese infrastructure investments to BRI countries against state fragility. Data on the former was obtained from AEI's China Global Investment Tracker (CGIT; AEI 2020), by first limiting the scope to Chinese construction investments in BRI member states across four relevant sectors (transport, energy, utilities and telecom). The plotted number is the sum total of all such investments in a country since it joined the BRI. This may include

projects already agreed prior to the onset of the BRI, but due to the vague, open nature of the initiative and the rhetoric surrounding it, is arguably the most reasonable criterion for inclusion.

Data on state fragility was obtained from the State Fragility Index (SFI) compiled by the Fund for Peace, by taking the yearly composite index scores for each BRI member since the time of joining and averaging them. The SFI is an aggregate of several political, economic and social dimensions and exhibits relatively little variation over such short time periods, but this average was used for greater precision.

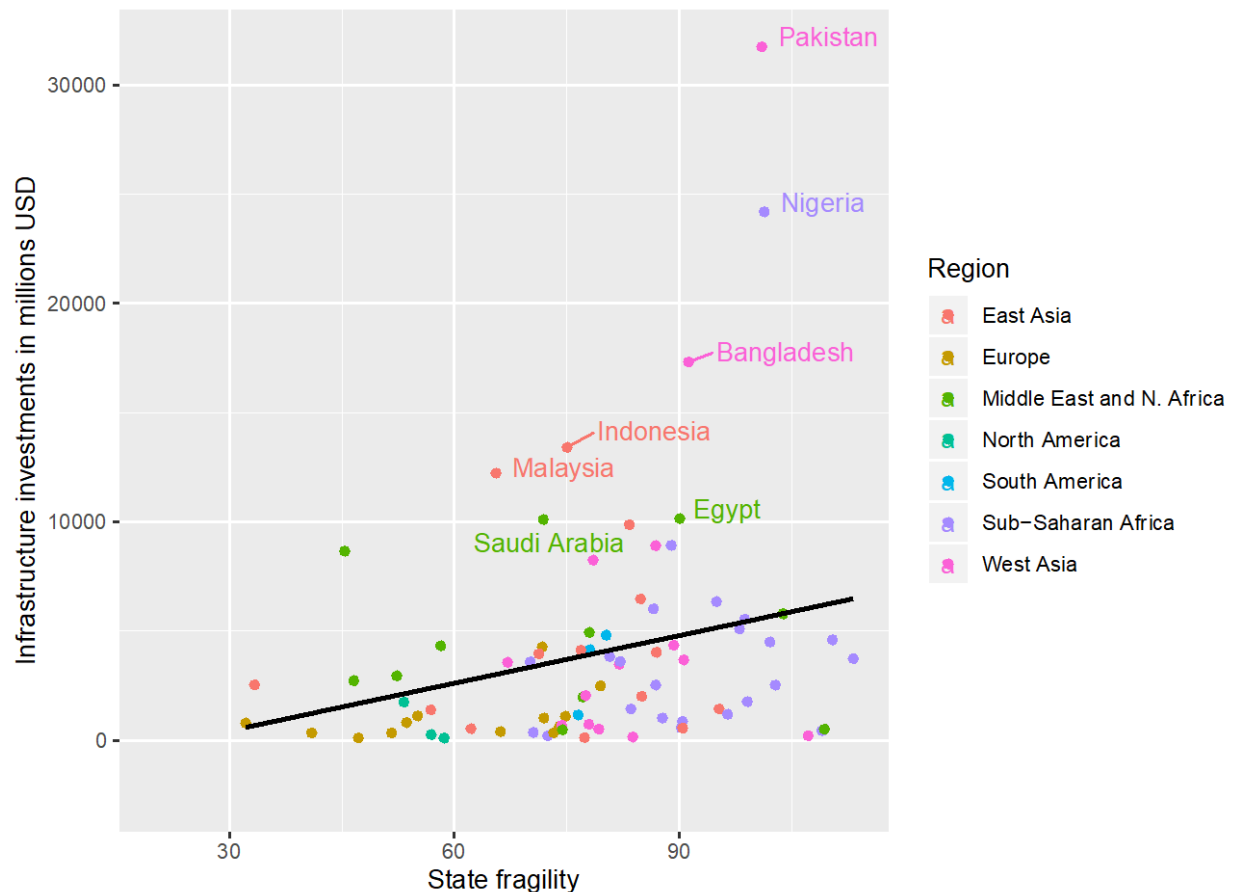


Figure 1: Chinese infrastructure investments under the BRI by recipient state fragility.

Figure 1 sketches the overall bivariate correlation, an estimate of the linear relationship provided by the regression line, and labels cases that have attracted particularly high investments (more than 10 billion USD in total). As these indicators show, Chinese infrastructure investments under the BRI are clearly skewed towards high-risk environments. Indeed, just 17 of the observed 86 countries would qualify as „sustainable“ or „stable“ using the SFI’s ranking system, and investments are heavily concentrated in especially unstable states like Pakistan and Nigeria. Purely from a risk management viewpoint, this appears counterproductive: infrastructure investments have very long amortization periods, and are highly vulnerable to wartime destruction as well as lesser political risks like expropriation. Accordingly, we would expect capital to flock to environments that exhibit long-term stability, but the opposite is clearly the case for the BRI.

Some of this is by design - after all, the BRI was specifically intended to alleviate an unmet demand for infrastructure across developing countries in Asia and Africa that had at least been partially caused by their often unattractive risk profiles (Deloitte 2019). There is an element of path dependence, too: the BRI built on decades of prior Chinese engagement with many of its members, often centred around natural resource extraction to fuel China's booming economy. As an industrial latecomer, these often had to be acquired in fragile states where Western corporations feared to tread (Alden and Alves 2009). Another reason can be found in the BRI's perception as a geopolitical project designed to further Chinese global influence, which caused the US and many of its allies to abstain from participation and discourage it in others. This opposition removed many of the world's wealthiest and most stable nations from the pool of potential members, leaving it skewed towards more fragile countries.

Table 2 presents a breakdown of BRI infrastructure investments in three separate groups of countries - those with a low fragility score (indicating high stability) of less than 60, a medium one between 60 and 90, and a high one of over 90. It also features two key control variables, overall GDP and population.

Table 2: Key metrics of states grouped by fragility.

	State fragility, grouped		
	low (N=15)	medium (N=44)	high (N=22)
Share of total infrastructure investments	8.8%	49.7%	41.5%
Share of GDP	14.2%	72.4%	13.3%
Share of population	2.5%	67.8%	29.7%

Again, it is immediately evident that less than a tenth of these investments went to stable countries. The largest category representing medium-stability countries accounts for almost half of the total, while the most at-risk group attracted 41.5%. This is highly notable, considering that the latter group represents just over a quarter of the cases, about a third of their population, and most strikingly a seventh of their combined GDP. In other words, the size of potential national markets accessed by the BRI does not seem to justify the clustering of investments in risky environments. This finding is also confirmed by a very simple linear model assessing the relationship between a state's fragility and the total amount of Chinese infrastructure investments it received, while controlling for GDP and population size. State fragility is estimated to be significantly positively correlated with investments, and is in fact considered to be the best predictor among the independent variables in this model.³⁴

The main takeaway from this analysis is to underscore that BRI investments are marked by a very high acceptance for conflict risks, especially compared to competing initiatives; that they tend to be concentrated in especially conflict-prone national and regional environments; and, by implication, that conflict management will be a very urgent and complicated task in the BRI's implementation.

While this data provides clear evidence of correlation, it should be interpreted very cautiously when it comes to the question of causation. Highly aggregated data collected over the short lifetime of the BRI is, by itself, insufficient to investigate the complex and often locally bounded relationships sketched in the earlier part of the paper. Accordingly, this

³⁴ Significance was estimated at the 0.01 p-level, the model however has a relatively low overall explanative quality with an adjusted R2 of about 0.11.

presentation is simply intended to frame the problem and to point out the relevance of the BRI to the infrastructure/conflict nexus. The enormous influx of resources into highly fragile contexts in the wake of the BRI is likely to yield many possible test cases for the varied effects of infrastructure on conflict dynamics. These, however, are best investigated by giving full regard to national context conditions and especially the effects of individual projects at the local level.

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China's Belt and Road Initiative 2.0: Promoting Peace and Security in Myanmar?

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The Belt and Road Initiative (BRI), as China's signature foreign policy enterprise, celebrated its sixth birthday in September 2019. Doubtlessly, the BRI has so far achieved much tangible progress on the ground, while it also triggers some controversies and even criticism from the international community mainly due to its ambiguity and grandness (e.g. Schicor, 2018, Zhang, 2018). In the long run, it is of great importance for China to win more international recognition to guarantee the success of the BRI.

Notably, when Chinese President Xi Jinping addressed a symposium in Beijing marking the fifth anniversary of the BRI in August 2018, he pointed out that the overall layout of the initiative had been completed during the previous years and demanded a high-quality shift from "big freehand" to "meticulous brushwork" in planning future BRI projects (Xinhua, 2018). This statement was widely perceived as a signal for an updated version of the BRI, or "BRI 2.0," which takes on board various interpretations and reflects Beijing's vision for further advancing the BRI.

In this light, people are curious about a number of questions, among which are: In what ways will the BRI 2.0 become qualitatively different from the previous version? Can this upgraded initiative go beyond the economic dimension to address environmental and social challenges? And how much will it promote peace and security in conflict-prone countries like Myanmar?

Exactly in the same month when President Xi made the statement, the Myanmar government published the Myanmar Sustainable Development Plan (MSDP) as the strategic guidance for the development of the country that provides an overall framework for coordination and cooperation across all ministries, states and regions, in order to forge a common path towards the emergence of a prosperous, peaceful and democratic Myanmar through 2030. Also, it localizes Myanmar's commitments to the United Nations 2030 Agenda for Sustainable Development (2030 Agenda) and its Sustainable Development Goals (SDGs), showing strong alignment with the SDG 16 (Peace, Justice and Strong Institutions) and especially SDG Target 16.5 (Substantially reduce corruption and bribery) and 16.6 (Develop effective, accountable and transparent institutions) in a variety of action plans (Figure 1).

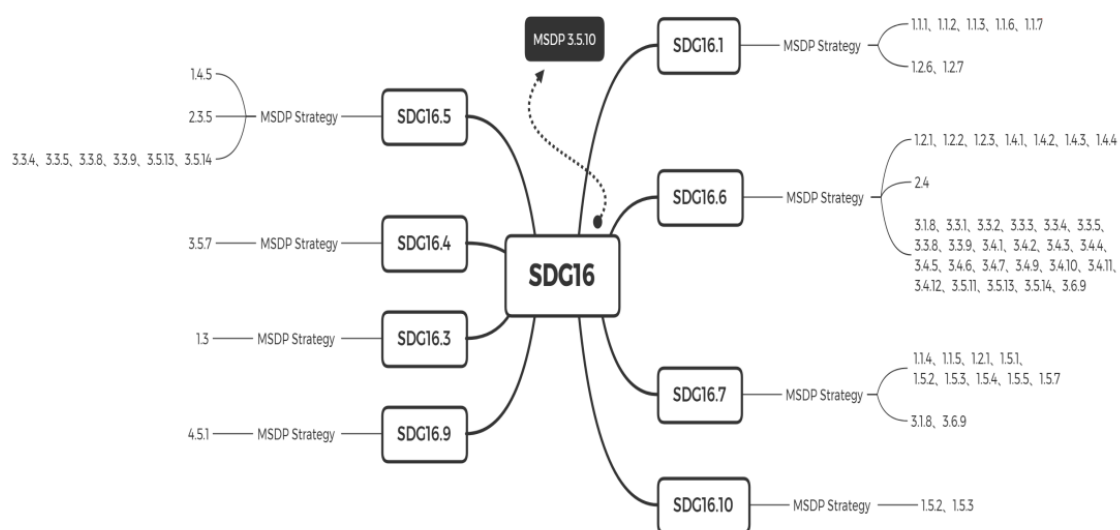


Figure 1: The SDG16-MSDP-Nexus.

More specifically, the MSDP prioritises peace and stability as the first pillar which is considered the prerequisite of achieving socio-economic development in Myanmar. In particular, strategy 1.2 of the MSDP is set to “promote equitable and conflict-sensitive socio-economic development through all States and Regions” (MFP, 2018). To a large extent, the MSDP seems to focus more on liberal political reforms and institutional inclusiveness as what is discussed by OECD donors in the approach of “peace-development-nexus”.

In contrast, the BRI does not explicitly address the issue of peace and security in its “Vision and Actions” jointly released by several ministries in 2015, while China does believe that peace and security can be brought to fragile countries along the Belt and Road like Myanmar through building state capacity and providing economic opportunities, for both of which infrastructure is a crucial element. This Chinese style of peacebuilding known as the “developmental peace” (e.g. He, 2017; Wang, 2018), as well as its narrative regarding the relation between peace and development, are substantially different from the “peace-development-nexus” approach adopted by the MSDP.

Now what is clear is that, right after President Xi’s state visit to Myanmar in January 2020, the “meticulous brushwork” of BRI 2.0 in Myanmar in general and the development of China-Myanmar Economic Corridor (CMEC) in particular will be greatly accelerated in coming years. Meanwhile, Beijing is expected to be increasingly involved in the Myanmar peace process by delivering more pressures on Ethnic Armed Organizations (EAOs) for peace talks to safeguard border security and economic interests. However, it remains to be seen whether China’s approach of “developmental peace” through mega infrastructure projects along the CMEC can fit into Myanmar’s priority for national reconciliation and good governance listed by the MSDP. Currently, to what degree Chinese efforts in peacekeeping, conflict mediation and the BRI-sponsored infrastructure investment in conflict zones are coordinated is still a question (Abb, 2018). Since there is a distinct lack of conscious peace and security angle to the BRI, whether the BRI 2.0 can provide Myanmar with an alternative model of peacebuilding needs to be further observed and evaluated.

In the longer term, the success of the “developmental peace” approach will largely depend on project management on the ground. While BRI-sponsored infrastructure projects will

generally enable Myanmar to become a regional hub of connectivity, improving the country's trade, foreign investment and living standards of its citizens, they are also likely to cause social and environmental harm and provoke new conflicts in some ongoing conflict areas in Rakhine, Kachin and northern Shan states, which may in turn derail and undermine these projects. Therefore, the growth and development from infrastructure projects would have to be well managed to ensure real benefits and narrowed inequality for ethnic communities within conflict-sensitive environments along the CMEC (e.g. Zhou ,2019; TNI, 2019).

Given the shortage of experience of Chinese companies have in dealing with conflict environments, these infrastructure projects along the CMEC will be faced with a wide range of security challenges. Furthermore, China's diplomatic tradition of political noninterference together with its emphasis on state-to-state exchanges, have constrained the options to manage security problems. Therefore, China needs to develop its own political strategy in parallel with the implementation of infrastructure projects. Also, Chinese companies need to be equipped with more conflict awareness, technical conflict mitigation capabilities as well as stakeholder outreach strategies by learning from and collaborating with developed nations when necessary, in order to make the BRI 2.0 qualitatively different and help promote peace and security in Myanmar.

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Trade and Investment

Enhancing Trade and Investment Facilitation for Global Value Chain Integration in Europe and Asia

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Introduction

This study aims at studying the key features of global value chain (GVC) integration in Europe and Asia to understand how these have spurred trade and investment connectivity in the Asia–Europe Meeting (ASEM) region. It is argued that in Europe and Asia, intraregional trade in goods and services, spurred by trade liberalization and regional integration, and foreign direct investment (FDI) have proved to be a powerful engine of growth and participation in GVCs.

The study also delves into an analysis of those factors that have hampered technology and knowledge spill-overs into some economies in Asia and Europe, preventing businesses to innovate, move upstream and capture a larger slice of the GVC pie.

As a conclusion, the study argues that, in order to strengthen trade and investment connectivity, Europe and Asia ought to cooperate to improve soft infrastructure and simplify the regulatory trade and investment environment to make engagement in GVCs a success.

Methodology

The study is mainly carried out through a descriptive analysis of trade and investment aspects in Europe and Asia, comparing trade and investment trends in Europe and Asia.

The study first analyses the key trends of trade and FDI in ASEM in the last few decades, showing the patterns of growth of trade in goods, trade in services and FDI across the two continents.

Subsequently, it analyses the areas demanding the attentions of policymakers in Europe and Asia to remove existing barriers to GVC integration. In order to investigate the main obstacles to further trade and investment integration, the study focuses on the challenges faced by small and medium enterprises (SMEs) to compete, connect and change – using the ITC SME Competitiveness (SMECO) methodology – as well as on the non-tariff measures (NTMs) and FDI restrictiveness that hamper the integration of businesses in Europe and Asia into existing or new GVCs.

Finally, the study recommends policy actions to further enhance Asia-Europe trade and investment institutional connectivity, with trade and investment facilitation at the hearth of the dialogue and cooperation.

Key highlights

1) Key trends of trade and FDI in Europe and Asia in the last few decades

GVCs are extraordinarily present in ASEM, mainly triggered by intense economic activity of intraregional trade in intermediate goods. In Asia and Europe, intraregional trade is the key factor driving economic growth, and shows how GVCs in both regions are mostly regional by nature. In Asia, the share of intraregional trade as a share of total trade increased to 57.3% in 2016, up from an average of 55.8% during 2010–2014, whereas in Europe the share amounted to 60% in 2016 (Asian Development Bank [ADB] 2017; World Bank 2016). Nonetheless, trade in services is increasingly growing in importance, playing a key role in the expansion in trade in Asia and Europe during the past few decades. Europe and Asia are also the world's top destinations for FDI.

2) Key policy determinants of GVC trade in Europe and Asia

Trade liberalization has enabled Europe and Asia to participate in GVCs, reducing significantly tariff barriers to the trade of intermediate and final goods. With production clustered around regional hubs, the rise of “Factory Asia” and “Factory Europe” has become the paradigmatic model of trade and development policies in GVCs.

Trade liberalization has been driven by robust free trade agreement (FTA) activity, which is intensifying in dimension and scope. In fact, the new generation of modern FTAs that both Europe and Asia are negotiating are deep and comprehensive by nature, going beyond mere liberalization of trade in goods. Moreover, decreased transport and telecommunication costs, business-friendly reforms and regional integration agendas in Europe and Asia have ensured that countries could seize greater FDI opportunity to integrate in GVCs.

Trade facilitation has contributed to make the business environment more conducive to trade in the ASEM region, reducing the time and cost to import and export across borders. Improvements in trade facilitation performance entail considerable economic gains and encourage more backward and forward linkages in GVCs. The entry into force of the WTO Trade Facilitation Agreement (TFA) has provided new impetus for trade facilitation reforms.

3) Areas demanding attention of leaders in Europe and Asia: barriers to GVC integration

SMEs are at the bulk of economic activity in Asia and Europe and have many opportunities to thrive in the digital commerce era; however, in Asia they are not robustly integrated into GVCs. In the different ASEM sub-regions smaller firms face higher costs due to their inability to capitalize on economies of scale and show higher gaps in competing and connecting to GVCs due to a lack of managerial capabilities and inability to internalize technology.

Although tariffs in Europe and Asia have decreased, other behind-the-border barriers have progressively continued to pose even higher costs on SMEs. NTMs have become increasingly important within GVCs to promote access to information and traceability of products; however, they make compliance for small-scale businesses extremely difficult and impede their integration in GVCs. Procedural obstacles encountered to comply with NTMs are a major hurdle for SMEs, which often lack the resources to minimize the impact of trade costs arising from such obstacles.

Despite improvements in the last decade, services restrictiveness still affects the competitiveness of Asian economies. Services restrictiveness is particularly detrimental for countries connected to GVCs, preventing them from upgrading in the chain. Different levels of competitiveness and technological advancement occur among ASEM economies, determining their different positioning in GVCs. Inability to exploit services to move upwards

in GVCs and to absorb technological and knowledge spill-overs widens the gap among better-performing and lagging economies in the ASEM region.

Conclusions: policy recommendations

It is argued that trade and investment facilitation policies should be further pursued by policymakers in Europe and Asia to cope with modern challenges in international trade and to advance strengthened connectivity between the two regions.

It is recommended that policymakers in the two continents should keep pursuing deep and comprehensive FTAs, with services, investment and trade facilitation provisions, as a means to spur an enabling climate for further trade liberalization. Regional approaches to negotiate FTAs should be sought to simplify rules and pursue deeper cooperation in a number of domains.

It is also recommended that policymakers establish a robust cooperation and surveillance mechanism on addressing NTMs for increased economic growth in Asia and Europe. In particular, a coordinated approach to regional implementation of trade facilitation reforms in Europe and Asia would be crucial to promote mutually workable solutions and reduce common procedural obstacles to trade.

Finally, it is recommended that policymakers differentiate investment policies based on the country's level of development, and implement policies geared towards not only investment facilitation but also investment absorption to develop or enhance indigenous technological capabilities.

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The Role of Global Value Chains to Strengthening the Connectivity between Europe and Asia

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Introduction

Globalization that started in the 80-90s changes the world economic landscape through the Global Value Chain (GVC). GVC allows quite a lot of opportunities for developing countries to participate in global trade and improve productivity. Before the rise of GVC, nations had to build a deep and wide industrial base before becoming competitive. This is the way the United States, Germany, and Japan did. GVC requires liberalization import-export and infrastructure improvement. Some policy options, such as improving connectivity with the international market, setting competitive pricing, increasing domestic value chain, infrastructure, and services, should be established (Taglioni & Winkler, 2016).

To be sustainable, either economically and environmentally, GVCs should promote social upgrades and equalize the opportunities for each people. Some East Asian countries demonstrate that participating in GVC may decrease poverty. Yet, before implementing GVC, some considerations should be taken into account. there are three theorems in Beijing Consensus, i.e. the use of innovation to encourage progress, foreign direct investment and the development of human resources by improving education quality ()

Methodology

All secondary data were obtained from the ASEM Sustainable Connectivity Portal. Data used for the analysis were extensive aggregated data obtained from "Indicator Explorer" and "Connectivity map". The aggregated data consist of Physical, Economic and Financial, Political, Institutional, People to People, Social, and Economic and Financiall. For the connectivity, only Foreign Direct Investment (FDI), Trade in Goods and Research output with international collaboration were selected.

The analyses used in this research were Biplot Principle Component Analysis (in short PCA), Self Organizing Map Kohonen artificial neural networks (in short SOM) for clustering the countries and Social Network Analysis (in short SNA) to evaluate the modularity of the networks. SOM, as the other neural network model, for each simulation will not guarantee to obtain the same results as in the deterministic model, yet the pattern of cluster obtained from the learning process will not change too much. This is due to the random number attached as the weights during the initial simulation.

A list of countries and their abbreviation used in this research is shown in Table 1.

Table 1: Country index and abbreviation.

Index	Country	Index	Country	Index	Country	Index	Country	Index	Country
1 AT	Austria	11 DE	Germany	21 NO	Norway	31 AU	Australia	41 LA	Lao
2 BE	Belgium	12 GR	Greece	22 PL	Poland	32 BD	Bangladesh	42 MY	Malaysia
3 BG	Bulgaria	13 HU	Hungary	23 PT	Portugal	33 BN	Brunei	43 MN	Mongolia
4 HR	Croatia	14 IR	Ireland	24 RO	Romania	34 KH	Cambodia	44 MM	Myanmar
5 CY	Cyprus	15 IT	Italy	25 SK	Slovakia	35 CN	China	45 NZ	N Zealand
6 CZ	Czech	16 LV	Latvia	26 SI	Slovenia	36 IN	India	46 PK	Pakistan
7 DK	Denmark	17 LT	Lithuania	27 ES	Spain	37 ID	Indonesia	47 PH	Philippines
8 EE	Estonia	18 LU	Luxemburg	28 SE	Sweden	38 JP	Japan	48 RU	Russia
9 FI	Finland	19 MT	Malta	29 CH	Switzerland	39 KZ	Kazakhstan	49 SG	Singapore
10 FR	France	20 NL	Netherlands	30 GB	U Kingdom	40 KR	Korea	50 TH	Thailand
								51 VN	Vietnam

Results

Based on the result from PCA, countries in Asia and Europe exhibit different characteristics in many aspects. Regionalism in Europe is stronger compared to Asia. Europe is also more homogenous than in Asia. Almost all of the Asian countries are located on the opposite side of the arrow direction which represents the indicators. It means that their relations are negative. For instance, BN(33) and KZ(39) are negatively related to the Social and Institutional indicators. VN(51) is negatively related to the Politics indicator. MY(42) and RU(48) negatively related to the Environmental indicator. MM(44) and LA(41) are negatively related to the Economic/Financial and People to People Connection indicator. On the other hand, almost the European countries follow one or more arrow direction. GB(30), FR(10) and DE(11) are very strong in Economic and People to People Connection, NO(21) in Sustainability, CH(29) in Social and Institutional indicators. The results from PCA also indicate that the Physical and Connectivity indicator are highly correlated. A similar result also found between Social and Institutional indicator, thus these two indicators are redundant (see Figure 1).

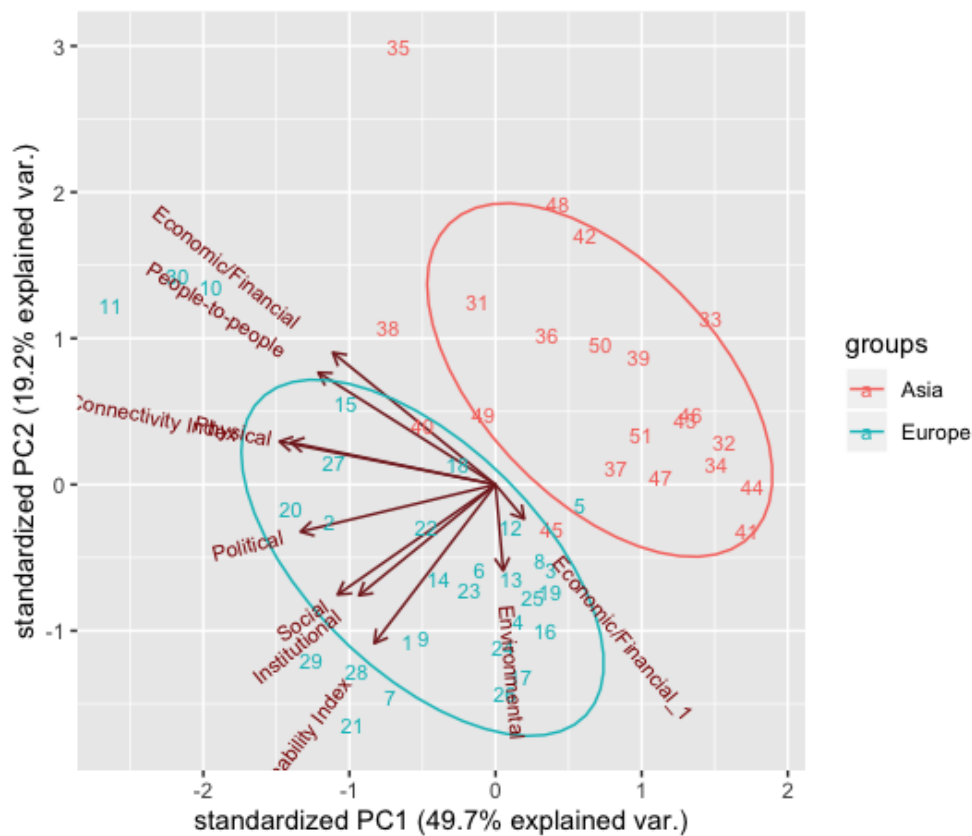


Figure 1: Biplot PCA.

The result of the SOM-Kohonen is shown in Figure 2 and Table 2. To read the result, node 1, symbolized as a circle, is located at the most left bottom of the diagram and it contains two members (countries). The second node located right next to the first node. Nodes that are located closely (the neighbour nodes) in the same cluster have some degree of similarity. For instance, cluster number 17 (FR, DB, GB) is encircled by cluster number 13 (IT, ES), 14(JP) and 18 (CN). As shown in Biplot PCA, FR, DB and GB are the top performers and labelled as cluster 1 in SOM-Kohonen. BE and NL (located in node 9) are closely related to node 13 (IT, ES) and 14 (JP). Node 9 (BE, NL), 13 (IT, ES), 14 (JP) and 18(CN) are labelled as cluster 2. Node 5 (DK, NO, SE, CH), Node 6(IR), Node 10 (PL and PT) in cluster 3 encircled node 9 in cluster 3. Since they located in a different cluster, their similarity is not as strong if they located in the same cluster. Node 4 (BD, MM) represents the node with less intense development and network compared to other clusters. Node 4 (BD, MM) is close to Node 3 (LA, VN, and KH) and node 8 (IN, ID, PH, PK, TH), either in the model or geographically. Node 20 (BN, KZ, MN) are countries which rich in natural resources (oil and coal), the networks are limited and close to the RU node and classified as cluster 4.

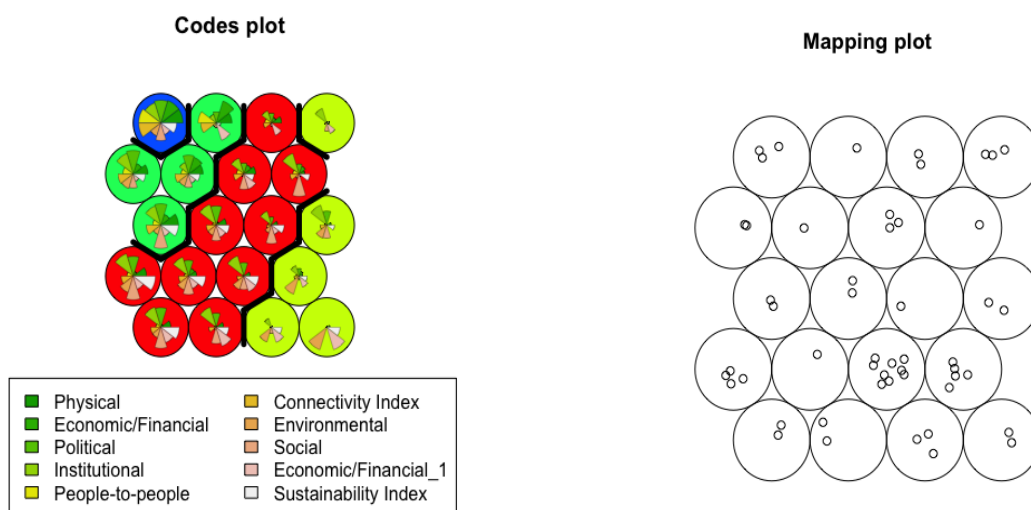


Figure 2: SOM Kohonen Result.

Table 2 shows the results of clustering by SOM Kohonen.

Table 2: Clustering by SOM Kohonen.

Country			Country			Country		
1	AT,FI #3	Political, Institutional, Social, Economic, Sustainability	7	BG,HR,HU, LV,LT, MT,RO,SK,SI #3	Political, Institutional, Environment, Financial, Sustainability	13	IT,ES #2	Physical, Economic, Political, Institutional, People, Connectivity, Environment, Social
2	CZ,EE #3	Institutional, Social, Financial, Sustainability	8	IN,ID, PH, PK, TH #4	Environment	14	JP #2	Physical, Economic, Political, People, Connectivity, Environment, Social
3	LA,VN,KH #4	Environment, Financial	9	BE,NL #2	Physical, Economic, Political, Institutional, People, Connectivity, Social, Sustainability	15	AU,KR,SG #3	Physical, Economic, People, Connectivity, Social, Financial
4	BD, MM #4	Environment, Financial, Sustainability,	10	PL,PT #3	Physical, Political, Institutional, Connectivity, Social, Sustainability	16	LU #3	Economic, Institutional, People, Connectivity, Social
5	DK,NO,SE,CH #3	Physical, Political, Institutional, Connectivity, Environment, Social, Sustainability	11	NZ #3	Social, Sustainability	17	FR,DE,GB #1	Physical, Economic, Political, Institutional, People, Connectivity, Environment, Social, Sustainability
6	IR #3	Economic, Political, Institutional, Connectivity, Environment, Social	12	CY,GR #4	Political, Institutional, People, Environment	18	CN #2	Physical, Economic, People, Connectivity, Financial,
						19	MY,RU #3	Physical, Economic, People
						20	BN,KZ,MN #4	-

Figure 3 shows the modularity of the SNA for Foreign Direct Investment (FDI) (left) and Trade in Goods (right). For FDI, three clusters of modularity are identified. RU, KR, VN, and PK becomes small cluster along with the European and Asia Cluster. In Figure 3, Trade in Goods provides a more complex structure. The European cluster is divided into four sub-clusters. The most connection between Europe and Asia mostly occurs between West Europe. Central European and east Europe are more closely related to West Europe. Thus, the connection is more intense if the country located in the same region or sharing a common history. The connection between Central and East Europe with Asia can be improved in the future.

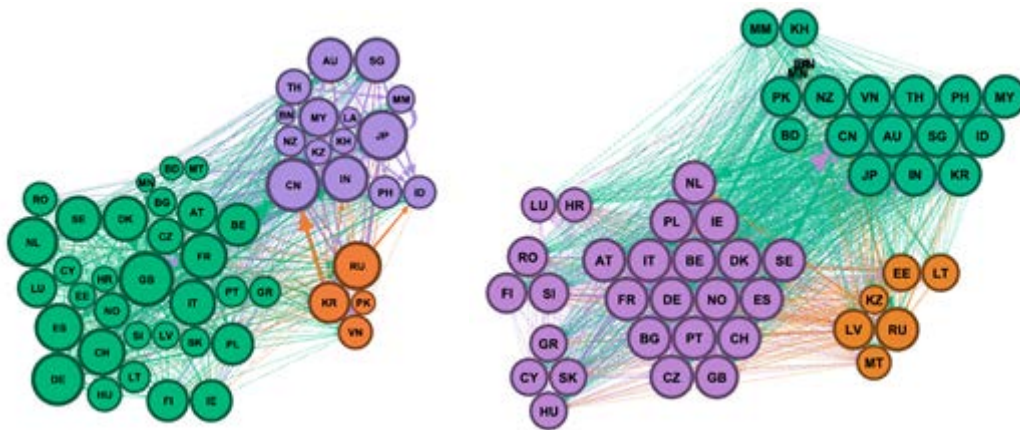


Figure 3: Modularity in SNA.

Results from the SNA is shown in Figure 4, CN is the main source of FDI in ID, IN, and MY whilst KR is the main source of FDI in China and VN. GB also has a prominent role in IN. Tough, the pattern of FDI is not so apparent in Europe. In terms of trade in goods, CN and DE are the main player in their respected region, followed by JP and KR in Asia, and NL in Europe. FDI is needed for technological transfer, involving SMEs in the process of production and become part of the Global Value Chain. NL, SG are small countries, but they have major roles in logistics and distribution. ID, IN, PK, TH, PH are located in the same node, countries with a high population.

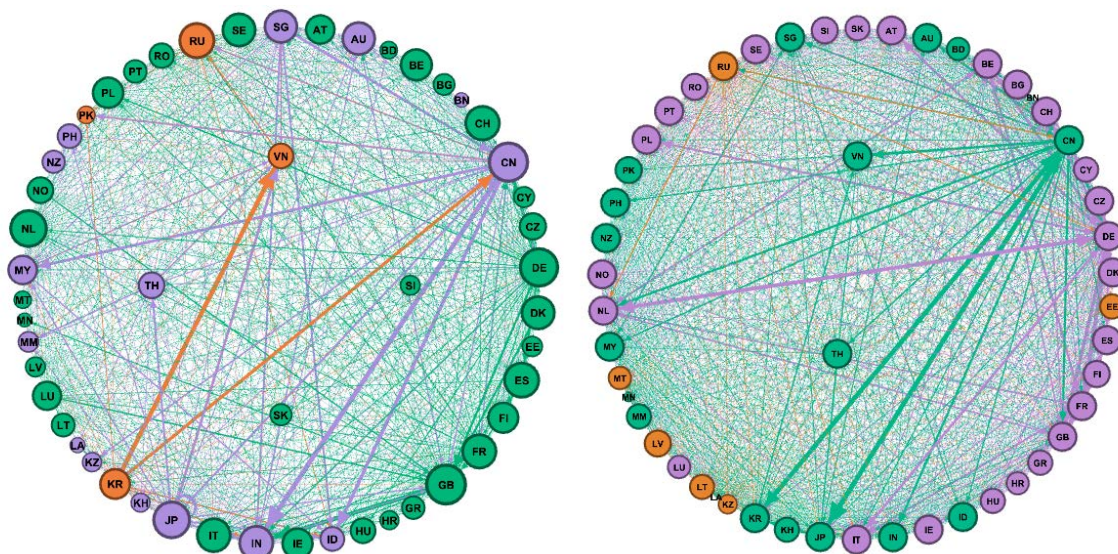


Figure 4: SNA for FDI and Trade in Goods

The results also showed that countries with a shared border with JP and KR, i.e. CN in Asia and DE in Europe (NL, PL, HU) have advantages for FDI from their neighbour.

Discussion

According to Taglioni & Winkler (2016) when entering GVC, infrastructure (physical factor) and easiness of doing business need to be improved. Besides, the quality and competence of services and efficiency of custom (institution) are also the main factors involve in GVC. Yet, based on the SOM analysis, none of the Asian countries is good in institutional indicators. Yet, Europe is excel in Institutional indicators compare to its counterpart in Asia.

FDI in Asia is concentrated in some countries. IN and ID are among the largest recipient of FDI, mainly from China whilst VN receive FDI mostly from KR. CN also receives FDI from JP whilst ID also receives FDI from GB. Both ID and IN are the largest economy in SE Asia and South Asia, therefore they have opportunities to be the economic powerhouse in their region. Yet, IN networks are more differentiated compared to ID and ID need to expand its network to make GVC more effective

Central European countries, such as BG, HR, HU, LV, LT, MT, RO, SK, SI are constrained by their scale. Some of these countries are trying to capture FDI and flow of trade through modern silk-road from China and compete with each other to be the main gates between Asia and Europe (especially after BRI was launched in China). But these countries have overlooked the potential of the other Asian Countries such as IN, ID, PH, TH, SG and MY which are traditionally connected to West Europe for their exports and trades, especially with GB and NL. GB is closely related to IN for people to people connection and FDI.

The networks for some countries which are rich in their natural resources such as BN and KH are very limited. Thus, these countries need to improve the networks and participation in GVC to diversify their economy, in anticipation when their oil depleted or alternative energy is used to replace the fossil fuel as the main source of energy. MM, LA and KH are lack of resources in all aspects. Implementing GVC may put their countries at risk to be controlled by foreign investors. Inclusion for these countries can be started from the nearest neighbour countries, for instance, LA and KH with TH and VN rather than with CN which involving a large amount of money. A special zone can be used as a stepping stone to economy wide improvements (World Bank, IDE-JETRO, OECD, UIBE, 2017). Open the service sectors in the process of integrating into globalization is one of the good strategies. The other issue is how to improve involvement in small and medium-size firms in GVC.

To maximize the benefit of Asia-Europe connectivity, countries should take a specialization in GVC. It can be done by maximizing its endowment to participate in the stages of production. Failure to meet this may result in the exclusion of some countries in the GVC. For instance, ID for alternative and renewable energy, VN for electronic devices, SG for services and financial centres, TH for automotive, IN for software and back-office and so on.

However, without the labour that has adequate skills then development is undertaken will not benefit the country's which results in debt pile resulted in recipients' countries. These conditions will result in long-term dependency which is very costly and reduce the sovereignty of recipient countries to control their essential infrastructure (Ruby, 2017). The higher education institutions can provide training and retraining. They can also help small and medium firms enter in GVC. Academics and universities could be more active in tracking natural, social, and technological causes of regional differences and could make policy-oriented initiatives a priority (Yang et. al., 2016). Incorporating more environmental actions into the initiative would help achieve long-term global economic prosperity and ecological sustainability (Liu et. al, 2015).

Conclusions

GVC allows quite a lot of opportunities for developing countries to participate in global trade and improve productivity. Countries like in East Asia can grip the benefits and opportunities of globalization. GVC not only stimulates economic growth, but it also creates economic polarization into three economic regions, i.e. China in Asia, Germany in Europe and the United States in North America. Joining GVC is faster than the old import-substitution route. The developing nations that adopted this new strategy are called emerging market economies. It shifts the locus of globalization from sectors to stages of production. These opportunities can be improved by enhancing the networks outside the traditional networks which are still undeveloped. MM, LA, BN, and KH need to improve their involvement in the GVC. IN, as the member of G-20 needs to expand their networks, whilst countries in Central Europe may exploit the opportunities of GVC and higher education collaboration with Asian countries.

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Coffee and Cocoa Connection: I-EU CEPA Potential Impact to Indonesian Farmers

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Background

Trade numbers between the European Union (EU) and Indonesia are relatively low compared to other trade partners, and on a declining trend. According to ASEM data, trade in goods from Indonesia to the EU is at USD 14.5 billion (9.7% of Indonesian exports), and USD 11.4 billion the other way around (7.5% of Indonesian imports) (ASEM 2018, WITS 2018). Key challenges to trade from the Indonesian side include tariff barriers, non-tariff measures, low human capital capacity, and low productivity. Relatedly, investment flow from the EU to Indonesia is also low at an average of USD 2 billion in three years (ASEM 2018). These numbers may drop even more since Indonesia is poised to graduate from the Generalized Schemes of Preferences (GSP) program in 2023, while other Asian countries like Vietnam have already completed their trade agreement with the EU. This could negatively affect the livelihood of many Indonesian producers, consumers, and labourers.

Indonesia and the EU are currently negotiating the I-EU Comprehensive Economic Partnership Agreement (I-EU CEPA). This research paper analyses the potential impact of I-EU CEPA on trade and investments by looking at key export commodities for Indonesia to the EU member states: coffee and cocoa. The purpose of the research is to demonstrate the positive economic and social impact that can potentially be brought by I-EU CEPA to Indonesia and to encourage its utilization to strengthen the connectivity between Indonesia and the EU.

The research uses qualitative analysis of trade and investment data from ASEM Sustainable Connectivity Portal, government statistics, and various trade databases. Further, the research studies existing models of private investments in Indonesia and its impact, based on case studies in cocoa and coffee sector. The case studies are taken from Nestlé's work with coffee farmers, and Swisscontact's and Kalimajari's initiatives in cocoa.

Indonesia's Coffee and Cocoa Sector

Indonesia is among the world's leading producers of coffee and cocoa, producing the third most cocoa and fourth most coffee globally (FAO 2015; ICO 2019). These commodities are also major export commodities, including to the EU member states, earning US \$1,175.4 million for coffee exports and US \$53.5 million for cocoa exports (Statistics Indonesia 2018; Statistics Indonesia 2019). The EU member states together make up 20.8% of Indonesia's export destination for coffee. Indonesia's coffee is 4% of the total coffee import across the EU, with Brazil being the main source (European Commission 2017). Meanwhile, Indonesia's cocoa is not yet a major trading commodity to the EU, which prefers to import cocoa from Côte d'Ivoire and Ghana. Despite its strategic importance, Indonesia's cocoa and coffee sector face many productivity challenges and are experiencing a decline according to production data from the Ministry of Agriculture.

Table 1: Official Production Level and Productivity Rates of Cocoa and Coffee (2012-2017) (FAOSTAT 2019).

	2012	2013	2014	2015	2016	2017
Cocoa						
Production (tonnes)	740,500	720,900	728,400	593,331	659,399	659,776
Productivity rates (tonne/ha)	0.57	0.41	0.42	0.35	0.39	0.38
Coffee						
Production (tonnes)	691,163	675,800	643,900	639,412	639,305	668,677
Productivity rates (tonne/ha)	0.56	0.54	0.52	0.52	0.52	0.53

Cocoa industry actors believe that MOA overestimates production numbers, as private actors believe production to be only between 350,000 to 400,000 tonnes annually (Glorya & Nugraha 2019). Indonesian cocoa and coffee productivity levels are the lowest among other top producing countries like Ghana and Côte d'Ivoire for cocoa, and Vietnam, Brazil, and Colombia for coffee. There are a number of reasons for this, including aging trees, diseases such as black pod disease for cocoa and coffee berry borer, elderly smallholder farmers, and the fact that cocoa and coffee are increasingly low priority crops. Farmers often lack the financial resources to invest in seedlings or purchase fertilizers. The products also tend to be of lower quality as farmers aim to make quick cash by selling the products soon after harvest in the forms of unfermented cocoa beans and green coffee beans. This reduces the opportunity to benefit from value-adding operations that could increase the quality and returns.

Government programmes such as providing seedlings or technologies to farmers, research and development, and setting national standardization, address the many problems faced by these major industries, but often do so inefficiently due to the massive regional differences. In the cocoa industry programmes focus on providing subsidized inputs, but lack sufficient education or supervision to ensure these inputs are being used correctly. According to Neilson & Mackenzie (2016), between 2009 and 2015 cocoa production decreased despite the extensive government programs. The coffee industry programmes focus on increasing quality, yet are unable to supervise quality creation, and cannot guarantee a consistent market for better quality coffee.

Private Sector Investments

The private sector provides additional solutions to increase cocoa and coffee productivity. To analyse the impact of these private sector initiatives, we identified and evaluated three initiatives, all of which have some connections with EU member states. The initiatives are Nestlé, a Swiss-based multinational company who works with coffee farmers in Lampung; Swisscontact, a business-oriented international aid agency who works with cocoa farmers; and Kalimajari, a local NGO that arranges contract farming between cocoa farmers and buyers, including EU buyers. These private sector initiatives focus mainly on educating farmers and providing them with the means to increase their income independently. Nestlé and Swisscontact both have established financial intervention programmes that not only give farmers access to financial support, but also continued monitoring and supervision. Meanwhile, Kalimajari's contract farming program sets certain obligations and rights agreed between buyers and farmers, and then trains the farmers in Good Agriculture Practices (GAP). In addition, Nestlé, Swisscontact, and Kalimajari all provide extension officers (EO) to

help farmers with their daily challenges. These non-government actors have a very limited number of EO, less than 100 each, so they developed partnerships with other market players to scale up the number of EO in order to support the work and increase the total number of supervised farmers.

Table 2: Partnerships for extension services.

Swisscontact	SECO Switzerland, Barry Callebaut, Big Tree Farm, Cargill, Ecom, Guittard, JB Cocoa, Krakakoa, Mars, Mondelēz International, Nestlé, Cocoa Sustainability Partnership Indonesia & PISAgro
Kalimajari	Jembrana District Government, Kerta Semaya Samaniya Union, Barry Callebaut, Pipiltin, Valrhona, Cau Chocolate Bali, Rainforest Alliance, UTZ, Indonesia Coffee and Cocoa Research Institute. & Cocoa Sustainability Partnership Indonesia
Nestlé	Indonesia Coffee and Cocoa Research Institute, Nestle Research & Development Centre in Tours – France, Swisscontact, & PISAgro

Findings

Our study finds that foreign private investments and technology and knowledge transfer in these sectors in Indonesia lead to an increased human capacity and productivity rate. Swisscontact, with seven years of experience supervising 154,000 cocoa farmers under their Sustainable Cocoa Production Program (SCPP), explains that their results vary with time. Beginner farmers, with two years of Swisscontact supervision, can achieve average productivity of 0.62 tonnes/ha annually. Farmers with six years supervision, can achieve average productivity of 0.93 tonnes/ha, and last but not least, professional farmers can achieve average productivity as high as 2.5 tonnes/ha annually. By contrast, the Ministry of Agriculture (MOA) records national cocoa productivity to be approximately 0.4 tonnes/ha annually, so Swisscontact farmers' average productivity is significantly higher than the average productivity rates in Indonesia. Swisscontact-supervised farmers' productivity is recorded at 55% higher for beginner farmers, 133% higher for farmers with six years supervision, and 625% higher for professional farmers.

Kalimajari, which only manages approximately 619 cocoa farmers with each farmer possessing less than 1 hectare of land, records productivity not much higher than MOA and FAO's average productivity rates. However, their cocoa beans are bought at much higher prices due to their fermented quality. Average productivity is 0.3 tonnes/ha for one harvesting period – 0.6 tonnes/ ha annually. Farmers receive 40,000 IDR for each kilo, meaning that farmers selling to Kalimajari earn a minimum of 12 million IDR per harvest, and 24 million IDR annually. These incomes are far higher than those of cocoa farmers who sell their product for only around 20,000 IDR per kilo, and are unable to make up for the low prices per kilo with greater productivity.

Nestlé has supervised 20,000 coffee farmers in Lampung for over 30 years and has achieved an average productivity of 1.2 tonnes/ha annually. This number is more than twice as high as MOA's reported average productivity for Indonesian coffee farmers, which is approximately 0.5 tonnes/ha. It is 20% higher than Colombia's average coffee productivity, which is approximately 1 tonne/ha.

In plantations supported by foreign enterprises, the productivity rate increased from an average of 0.4 tonnes/ha to 2.5 tonnes/ha for cocoa, and from 0.5 tonnes/ha to 1.2 tonnes/ha for coffee. The investment also increased awareness of sustainable practices and increased trade values through certification, which could strengthen farmers' ability to meet the EU

market's preference for sustainable commodities and/or Geographic Indicator (GI). Cocoa farmers are able to sustainably farm and process the cocoa beans, increasing the value from USD 1.42/kg to USD 2.84/kg. Further exploration of these findings can be found in Glorya and Nugraha (2019). These case studies illustrate the positive impact that foreign investments can bring to Indonesia's human capital and suggests the need for an I-EU CEPA to facilitate EU-Indonesia connection in trade and investments.

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Quantitative Studies on the Belt and Road Initiative's Impacts on Asia

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Introduction

The Belt and Road Initiative (BRI), officially unveiled in 2013, is China's landmark foreign and economic policy initiative to achieve improved connectivity, regional cooperation, and economic development on a trans-continental scale. Six years on, how is the BRI being viewed in Asian stakeholding countries? What are the potential impacts of the BRI on national economic output? What policy reforms should China and the BRI stakeholding countries pursue in order to make the BRI a “win-win” proposition?

Impacts and implications of the BRI can be assessed either through a survey or through a model-based study. This paper uses both approaches (i) to highlight the economic and geopolitical impacts of the BRI on Asian stakeholding countries; and (ii) to come up with policy recommendations that should be implemented by both China and BRI stakeholding countries.

Perception survey of Asian opinion leaders

We conducted an online perception survey for a month during mid-June to mid-July 2019, to which 1230 Asian opinion leaders (defined as policy makers, academics, businesses, and media representatives) from 26 East and Southeast, South and Central Asian countries that have signed a BRI agreement with China responded. The highest number of respondents (more than 100) were from Pakistan, Singapore, Bangladesh and the Philippines. In terms of affiliation, academics (56%) and policymakers (23%) made up the bulk of the respondents.

Among the BRI's five policy objectives, respondents felt that achieving infrastructure connectivity and unimpeded trade are more relevant to their countries than financial integration, policy coordination, and people-to-people bonds. On infrastructure types, respondents felt that energy, transport, and industrial infrastructure should be the ones on which the BRI needs to focus in Asia.

A majority of the respondents felt that the BRI provides a platform for BRI countries to attract trade, investment, and tourists from China and elsewhere. They also expected the BRI to stimulate economic growth and technological advancement while closing infrastructure gaps. Improved political relations with China due to the BRI was also highlighted as a key benefit by close to three-fifths of the respondents. On the other hand, respondents expressed concerns over the potential downsides of the BRI like China's influence expansion, influx of Chinese migrant workers, BRI projects' environmental implications, lack of technology transfer opportunities, and debt sustainability risks.

Overall, the respondents viewed the BRI more favourably than is generally the case. The opinion leaders who categorised the BRI as a “net opportunity” significantly outnumbered

those who saw the BRI as a “net risk”. Similarly, the respondents were more confident than not that the BRI will eventually lead to win-win outcomes. More than four out of ten respondents rejected the notion of malicious Chinese “debt-trap diplomacy”. These findings, however, must be interpreted with caution because for each of the three questions a large chunk of respondents were undecided.

In terms of policy actions that should be taken to ensure a successful BRI, enhancing transparency, offering more capacity building and local employment, adapting the BRI to specific needs of foreign partners, and allowing non-Chinese contractors to bid for projects topped the list of recommendations for Beijing to maximise the developmental impact of the BRI. As for the stakeholding country governments, the respondents felt that they should focus on improving governance, negotiating with China for best possible terms, making sure that the BRI fits in a national infrastructure development strategy, performing due diligence, and insisting that local companies be allowed to bid for BRI projects.

Quantitative assessment of BRI's economic impact

We also examined the potential economic impacts of the BRI on stakeholding Eurasian countries. For this we used a modified, static Global Trade Analysis Project (GTAP) model to quantify the real gross domestic product (GDP) effects of the BRI's connectivity enhancement (i.e. reducing transport cost) and trade liberalisation agenda. Three findings are noteworthy.

First, the results suggest that while reducing transport costs and tariff barriers would both contribute to national economic gains, the latter appears to have a greater beneficial impact than the former. This finding points to the need for reforming trade policies while investing in transport infrastructure by China and BRI stakeholding countries. Second, landlocked countries (e.g. Mongolia and Kazakhstan) and countries presently with high tariffs (e.g. Iran) are likely to be the largest beneficiaries of the BRI. With respect to the Maritime Silk Road, it is projected that countries already well-embedded in the global maritime shipping networks (e.g. Malaysian and Singapore) could experience higher real GDP improvement than others. Third, the economic implications of India's stance on the Bangladesh-China-India-Myanmar (BCIM) and Trans-Himalayan (China-Nepal-India) corridors differ. For the BCIM corridor, the absence of India has a relatively muted economic impact on the gains accrued to other participants. By contrast, for the Trans-Himalayan corridor, the economic impact on Nepal depends very much on India's participation or non-participation in the BRI.

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Achieving complex development goals along China's Digital Silk Road

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Introduction

China's Belt and Road Initiative (BRI) is a 1 trillion USD project spanning over 70 countries framed as a revival of the ancient Silk Road which connected China with the West through an expansive network of trade routes. Despite being engrained in the BRI's vision, its digital component known as the 'Digital Silk Road' (DSR), is often overlooked while most of the focus is placed on roads, ports, and energy infrastructure (Shen, 2018). Moreover, China's DSR aspirations go beyond infrastructure to include: increasing market share for Chinese device manufacturers; acquisition of digital companies by Chinese Internet companies; promoting e-commerce, and promoting China's vision of 'Internet Sovereignty' amongst other goals.

China has invited other governments to partner with it along the BRI through Overseas Development Assistance (Renwick et al., 2018). This paper analyses DSR activities using findings from the literature on trade-offs and synergies between expansion of ICTs and achieving the Sustainable Development Goals (SDG) to provide insights and advice to traditional development donors on how to engage with the DSR. The SDGs include 169 targets for 17 goals as well an overarching goal of 'Leave No One Behind'. There is increasing recognition of the interlinked nature of the goals and targets and the need to shift away from tackling goals in siloes towards holistic approaches (Alcamo et al., 2018). It is possible to achieve SDG targets or goals at the detriment of other goals. Similarly, there are potential trade-offs between large scale efforts like the Digital Silk Road and achieving SDG goals and targets. This research covers potential trade-offs between five DSR activities and the SDGs.

ICT Infrastructure

Like other infrastructure aspects of the BRI, it is difficult to know where DSR digital infrastructure projects begin and end (Shen, 2018). UNESCAP, (2017) uncovered 13 digital infrastructure projects linked to the BRI in Central Asia alone. In 2018, Chinese ICT equipment manufacturers Huawei and ZTE were the biggest and fourth biggest mobile ICT equipment suppliers controlling 40% of the global market (telecomlead, 2018). Huawei accounted for over a third of new submarine fibre optic systems installed between 2013 to 2017 including cables that link countries in the global south to each other (Huawei Marine, 2018). Chinese ICT suppliers have been applauded for their efforts to build infrastructure in places deemed unprofitable or risky by other suppliers and have historically provided equipment up to 40% cheaper (Cisse, 2012; Kunavut et al., 2018). Chinese financing for ICT infrastructure in Africa often surpasses funding from all Infrastructure Consortium for Africa members combined which includes the G8 countries and South Korea (ICA, 2017).

Although China's 13th five year plan commits to 98% internet coverage within China, China has not made similar commitments along the DSR. There is a risk that DSR linked digital infrastructure is built mainly in places that serve Chinese geopolitical and economic interests (Cisse, 2012), while leaving other geographies behind. As more social, economic, and political

experiences and services continue to migrate to digital channels, a lack of access threatens to increase inequalities (Hernandez & Roberts, 2018).

Huawei has aligned itself with the SDGs in its corporate mission. However, there is a risk that Huawei is SDG washing its operations while ignoring potential trade-offs between their current ICT infrastructure activities the SDGs. Huawei, (2018) conflates correlation with causation despite a well-established academic literature suggesting that the causal relationship between ICTs and economic growth is unclear (Friederici et al., 2016; Galperin & Viece, 2017). Huawei makes many correlation based causal assumptions about the impact of ICTs on achieving multiple SDGs thus presenting ICT infrastructure as end in itself.

Moreover, Huawei, (2018) calls for more data centres and suggests that cloud services could be environmentally beneficial. However, the ICT sector's emissions unloading from other sectors has coincided with the ICT sector emitting more greenhouse gases making its net impact unclear (Greenpeace, 2017a; Unwin, 2017). Networks (e.g. digital infrastructure) are the biggest electricity consuming sub-component of the ICT sector and its share of energy consumption is on the rise thanks to the ever increasing amount of data that passes through networks. Andrae & Edler, (2015) project that the ICT sector's share of global greenhouse gas emissions is likely to increase even under the best case scenario and may account for over 50% of energy consumption by 2030 under the worst. Unless efforts are made to power DSR-linked infrastructure with green energy, the effort may subtract from environmental SDG goals. Lastly, an over-reliance on increasing availability of infrastructure can lead to a lack of progress on tackling other access barriers which DSR activities make little if any reference to including: affordability of connectivity; awareness of ICTs, ICT applications and their potential benefits; abilities and skills to make effective use of ICTs; and the agency to use ICTs amidst social and gender norms (Hernandez & Roberts, 2018). Increasing infrastructure availability without tackling other barriers threatens to amplify inequalities between well off groups and the poorest and most marginalised (Unwin, 2017).



Figure 2: SDG synergies and trade-offs: Digital Silk Road Infrastructure Activities

Expansion of Chinese device manufacturers

Making use of ICT infrastructure requires devices. Chinese device manufacturers have been gaining market share over the last few years and are poised to further increase sales across the BRI. In 2014, none of the top 9 mobile manufacturers were from Mainland China. In just four years, Huawei, Xiaomi, Oppo, and Lenovo rose to become the 3rd, 4th, 5th, and 7th top mobile manufacturers globally³⁵. Moreover, another Chinese manufacturer, Transsion Holdings owns several mobile phone brands including Tecno, Infinix, and Itel which combined overtook Samsung as the top manufacturer in Africa in 2017 (Dahir, 2018). Transsion has been applauded for tailoring its phones to African contexts through affordable phones with features that cater to African users (e.g. operating systems in local languages, cameras calibrated to take better photos of darker skin tones, multiple sim slots, long battery life). Moreover, the company has invested in African research and development centres in Nigeria and Kenya as well as factories in Ethiopia.

However, due in large part to Transsion, the share of smart phones sold relative to feature phones sold decreased between 2016 and 2017. This is concerning because, feature phones offer users less capabilities and opportunities than smartphones and can potentially lead to a 'smartphone divide' "based on a user's ability to access and use [and benefit from] an array of different services" which threatens to leave feature phone users behind (Sangwon Lee & Park, 2015, p. 81). Moreover, there are environmental concerns about Chinese device

³⁵ <https://gs.statcounter.com/vendor-market-share/mobile/worldwide/>

manufacturers. Huawei was the only top 3 device manufacturer that did not report on its supply chain or emissions in 2017 and “has yet to set any goal to transition its supply chain to renewable energy” (Greenpeace, 2017b, p. 13). Huawei along with Oppo, Xiamoi and Vivo were all ranked poorly, in Greenpeace's (2017b) Green Electronics company report card's three main areas: resource intensity, dirty energy consumption, and harmful chemicals found in products. These concerns are not limited to Chinese manufacturers. Although other manufacturers score higher on average, the sector as a whole are guilty of not taking adequate measures to protect the environment or to deal with the e-waste arising from current ‘planned obsolescence’ business models. Furthermore, Huawei, ZTE, and Lenovo (as well as manufacturers from other countries) have not taken necessary measures to ensure that Cobalt and Lithium ion used to make and power mobile phones is free from forced labour or children working in hazardous conditions (Amnesty International, 2016).



Figure 3: SDG synergies and trade-offs: Digital Silk Road Mobile Phone Manufacturer Activities

Expansion of Chinese Internet giants

Whilst Chinese digital infrastructure and device manufacturers have been expanding for decades, Chinese Internet companies international expansion was only incentivized and promoted by the Chinese government in 2015 when the government urged its internet companies to get involved in building a ‘Digital Silk Road’ (Lee, 2017). Chinese Internet

companies have endorsed the call by using the BRI as a mechanism to receive government funding, blessing, and diplomatic and political support for their international efforts (Shen, 2018). Since then, the technology, media and telecommunications sector has outperformed all other sectors in regards to attracting Chinese Foreign Direct Investment (FDI) and Mergers and Acquisitions (M&A) (Ernst and Young, 2018). Alibaba and Tencent have acquired majority stakes in e-commerce and other Internet companies (e.g. ride-sharing apps, messaging apps, music streaming services, etc.) across the BRI including companies in Turkey, Indonesia, Singapore, Pakistan, and others and aligning these acquisitions with the BRI (Sender, 2018).

These investments tend to occur in countries that lack local venture capital and sufficient finance infrastructure for SMEs. Moreover, Alibaba and Tencent tend to introduce new services into the market (e.g. Alipay) after acquisitions. However, Tencent and Alibaba seem to be becoming duopoly funders in some regions creating power imbalances between local and Chinese companies (Sender, 2018). These trends fit into larger geo-economic trends where five companies (Google, Facebook, Amazon, Tencent, and Alibaba) continue to consolidate a majority of the economic gains from the Internet economy while limiting opportunities for market entry and competition (Internet Society, 2019).

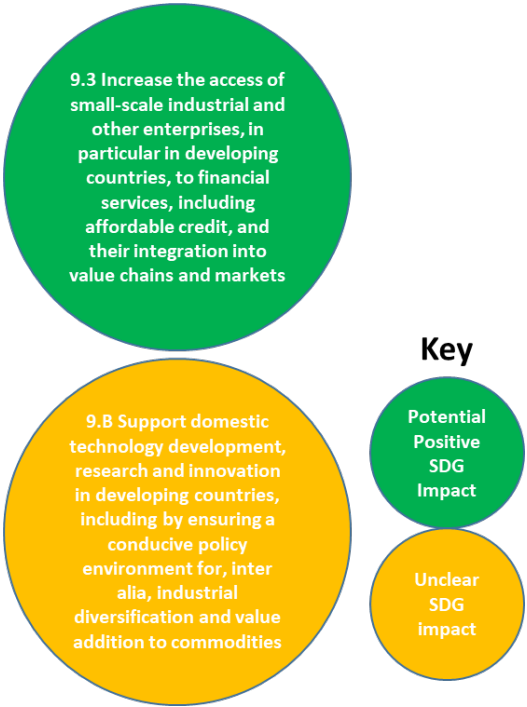


Figure 4: SDG synergies and trade-offs: Digital Silk Road Internet Company Acquisition Activities.

Inclusive globalization through e-commerce

In 2016, Jack Ma introduced the electronic World Trade Platform (eWTP), labelled it as ‘inclusive globalisation’ platform for SMEs and aligned it with the BRI. The eWTP seeks to help SMEs “overcome complex regulations, processes and barriers that hinder their participation in global commerce” (Alibaba Group, 2016). The eWTP includes ‘Digital Free Trade Zones’ (DFTZ) which provide import and export services to SMEs akin to those provided to big businesses by traditional duty free zones. Moreover, these zones offer SMEs with support and training to access international markets. Participating SMEs also benefit from a host of

Alibaba services including e-commerce and digital payment services (Rastogi, 2018). One such zone has been launched in Malaysia with mixed results. Yean, (2018) showed that rather than being inclusive, 3 of 13 Malaysian states accounted for 67% of all SMEs using the eWTP and that SMEs that were already experienced with digital technology and export procedures were the most likely to benefit. Moreover, Ma envisions the initiative changing the way goods are sold and purchased around the world in way that's similar to Alibaba's impact in China. However, Alibaba's e-commerce business model which depends on delivering individualized packages may have negative externalities on the environment. "The combined length of packing tape used by China in 2015 could circle the equator 425 times" and only 20% of Chinese packaging are estimated to be recycled (Luo, 2017).



Figure 5: SDG synergies and trade-offs: Digital Silk Road eWTP Activities.

Internet Sovereignty

Through the DSR, China is also seeking to spread an alternative vision of Internet governance, 'Internet Sovereignty'. Internet Sovereignty suggests that sovereign nations should be able to govern the Internet within their borders however they see fit, opening up the option for an Internet that is heavily state controlled and censored (Hornby, 2017). China already ranks last on Freedom House's (2018) freedom on the net index for four years in a row. China has partnered with seven like-minded governments, five of which are also ranked 'Not Free' on the Freedom on the Net Index, while the other two are not scored. Internet Sovereignty goes against the ethos that the Internet was founded on regarding openness and net neutrality. It also goes against traditional Multi-Stakeholderism approaches to Internet governance.

which deliberately includes civil society, business, and state actors in decision-making and tend to be more palatable with citizens from traditional donor countries (Unwin, 2017).

There is evidence of China exercising its Internet sovereignty extensively. Its online censorship system has been called ‘the great firewall’ with thousands of foreign websites and services blocked in the country and all Internet companies in China required to censor any material that disturbs the economic or social order”, “endangers national honour”, or may contribute to the “overthrow of the socialist system” (Financial Times, 2017; The Economist, 2018). Moreover, thousands of journal articles from high impact journals are censored (Human rights Watch, 2018). There is evidence that the Chinese government actively censors content that criticizes the government and content about LGBTQI issues, ethnic and religious minorities, and mobilisation for public causes. The Chinese government has also been found to shut down the Internet during times of protest (Freedom House, 2018). This is especially the case in Xinjiang where a large number of the marginalised Uighur minority group reside and facial recognition software has been introduced to prevent any potential organising (Freedom House, 2018). Members of the LGBTQI community and ethnic minorities are two groups identified as being under threat of being left behind unless targeted efforts are made to improve their lives (UNDP, 2016).



Figure 6: SDG synergies and trade-offs: Internet Sovereignty.

Policy Recommendations

- Although Chinese actors frame their DSR aligned activities as having positive SDG implications, they fail to consider potential challenges and trade-offs. The Chinese government could take steps towards requiring Chinese actors seeking to be involved in the DSR to consider trade-offs and plan to tackle them from the start.
- The trade-offs presented by the DSR and the expansion of digital technology more generally are complex and will likely require global multi-stakeholder partnerships to tackle.
- Traditional donors need to weigh the risks of being directly involved in BRI-branded ICT activities given some projects (e.g. surveillance) and goals (e.g. Internet Sovereignty) are not popular amongst the public in traditional donor countries.
- Traditional donors can add value by being honest brokers between Chinese actors and BRI countries, seeking to independently tackle some of the trade-offs presented by ICT expansion in BRI countries.
- Traditional donors should seek to provide off-line alternatives for people that remain disconnected and risk being left behind.

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Poster contributions

Pakistan's relations with the EU and China: On the path towards sustainable connectivity

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With its strengths in environmental sustainability and challenges related to financial and people-to-people connectivity, Pakistan lags behind most Asian countries. Can the European Union (EU) and China, through their long-term multifaceted relations with Pakistan, help the country catch up with its peers? This paper investigates the contemporary dynamics of the EU–Pakistan and China–Pakistan relationships to identify their contribution to the realization of the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs) in Pakistan.

The study is motivated by (i) Pakistan's characteristics as a pivotal and fragile state. Despite its geopolitical and nuclear potential, the country is beset by severe domestic (terrorist and separatist activities) and external (rocky relations with India and Afghanistan) threats. As Pakistan's security situation has global implications, the fulfilment in the country of the SDGs, especially SDG 16 (peace, justice and strong institutions), will have a positive impact on the region and beyond. Another reason to conduct the study is (ii) the poor global recognition of the EU–Pakistan relationship. While Pakistan maintains strategic relations with the US and China, its relationship with the EU lacks significant political dynamics. Finally, (iii) the development of China's Belt and Road Initiative (BRI) also motivates the study. Its pilot project, the China-Pakistan Economic Corridor (CPEC), cannot be ignored when discussing Pakistan's international connectivity.

SDGs and foreign policy

Sustainable development is a demanding and attractive (if not utopian) world order project (Hass, 1996, p. 239), but the global response to foster development as outlined by the 2030 Agenda has not been ambitious enough (UN, 2019). Also, as it is primarily each nation's own responsibility to implement the SDGs (Schaller, 2019), expectations that countries will help their peers achieve the Goals may be unrealistic. However, foreign policy, especially vis-à-vis fragile states, which to a large extent depend on external actors, can significantly affect countries' capabilities to achieve the SDGs.

Despite the evident interdependence between foreign policy and SDG implementation, "the foreign policy dimensions of the 2030 Sustainable Development Agenda have not been sufficiently broached by foreign ministries to date" (Carius, Ivleva, Pohl, Rüttinger, Schaller, Tänzler & Vivekananda, 2018, p. 1). Nor has this topic been adequately addressed by political and social scientists. This paper analyses contemporary EU–Pakistan and China–Pakistan relations through the lenses of Pakistan's sustainability and the nexus between the two bilateral connectivity. Based on scholarly literature and primary sources (e.g. the CPEC Long-Term Plan and the EU–Pakistan Strategic Engagement Plan), the paper assesses the two relationships against the ASEM (Asia-Europe Meeting) Connectivity Index and Sustainability Index (Becker, Dominguez-Torreiro, Neves, Tacao Moura & Saisana, 2018, pp. 24–25).

Pakistan-EU and Pakistan-China: What connectivity?

Covering physical, economic/financial, political, institutional and people-to-people pillars, the Connectivity Index demonstrates the multidimensional characteristics of Pakistan's relations with and the EU and China (Table 1).

Table 1: Pakistan's bilateral connectivity with the EU and China. Source: Becker et al., 2018.

	Indicators	Origin	Destination	Data	Symmetry	Stronger connectivity
Physical	International flights' passenger capacity (seats)	Pakistan	EU	476500	Yes	Pakistan-EU
		EU	Pakistan	440100		
		China	Pakistan	157100	Yes	
		Pakistan	China	157100		
	Trade in gas (thousand kg)	EU	Pakistan	194.9	No	Pakistan-EU
		China	Pakistan	13.5	No	
Economic/Financial	Trade in goods (bn USD)	EU	Pakistan	5.8	No	Pakistan-China
		Pakistan	EU	6.9		
		China	Pakistan	17.2	No	
		Pakistan	China	1.6		
	FDI (m USD)	EU	Pakistan	1600.0	No	Pakistan-China
		Pakistan	EU	13.0		
		China	Pakistan	3100.0	No	
		Pakistan	China	108.0		
	Personal remittances (m USD)	EU	Pakistan	2800.0	No	Pakistan-EU
		China	Pakistan	22.0	No	
Political	Embassies network	EU	Pakistan	18	Yes	equal
		Pakistan	EU	19		
		China	Pakistan	1	Yes	
		Pakistan	China	1		
People-to-people	International students' mobility in tertiary education (n. of students)	Pakistan	EU	13400	No	n/a
		Pakistan	China	n/a	No	
	Research outputs with international collaborations	EU	Pakistan	6300	-	Pakistan-EU
		China	Pakistan	1978	-	
	Patents with foreign co-inventor	EU	Pakistan	4	-	Pakistan-EU
		China	Pakistan	0	-	
	Trade in cultural goods (m USD)	Pakistan	EU	410.0	No	Pakistan-China
		EU	Pakistan	54.0		
		China	Pakistan	677.0	No	
		Pakistan	China	5.0		
	Migrant stock	Pakistan	EU	842200	No	Pakistan-EU
		EU	Pakistan	n/a		
		China	Pakistan	312	No	
		Pakistan	China	4500		

Selected indicators of the Connectivity Index (Table 1) demonstrate Pakistan's stronger economic connectivity with China, which surpasses the EU in trade in goods and bilateral Foreign Direct Investment (FDI) flows. However, the EU holds the position of Pakistan's top export partner. Also, the EU has developed stronger person-to-person relationships (measured by research outputs with international collaborations and patents with foreign co-inventor) and physical connectivity (measured by international flights' passenger capacity and trade in gas) with Pakistan than China has. Both bilateral relationships are highly asymmetrical, which is characteristic of the cooperation between the parties, whose political and economic capabilities differ significantly. However, in some cases, such asymmetry can harm the weaker party.

Pakistan's sustainability

Pakistan's unfortunate geopolitical heritage has resulted in a high impact of external actors on the country's performance. The impact was assessed at 8.8 out of 10 by the Fund for Peace (2019). Consequently, external actors have the potential to affect Pakistan's achievements in SDG implementation and its performance on the Sustainability Index (Table 2).

Table 2. The correspondence between the SDGs and the ASEM Sustainability Index. Source: Becker, et al., 2018 p. 25.

Environmental	SDG 7 (affordable and clean energy), SDG 12 (responsible consumption and production), SDG 13 (climate action), SDG 15 (life on land)
Social	SDG 1 (no poverty), SDG 4 (quality education), SDG 5 (gender equality), SDG 10 (reduced inequalities), SDG 16 (peace, justice and strong institutions)
Economic/Financial	SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure)

However, topics related to Pakistan's sustainability have been hardly recognized within most bilateral agreements. Salik (2016, pp. 123-124) notes that this gap has harmed Pakistan's social sustainability, as "external factors adversely affected [the] government's development efforts and further pushed the vulnerable groups into poverty".

In their own commitments to multifaceted connectivity with Pakistan, China and the EU do notice the country's sustainability. However, they approach the social pillar of sustainability differently. Unlike China, the EU seeks to exchange best practices with Pakistan on gender equality (SDG 5). While both seek to contribute to reducing inequalities (SDG 10) in Pakistan, only Brussels highlights the place of minorities in that context. These differences result from the respective characteristics of the EU's and China's foreign strategies. While Brussels's schemes emphasize conditionality—for instance, improving the standards of democracy (SDG 16) and human rights (SDG 10)—China's initiatives do not attach any political strings.

China's and the EU's ambitious plans to support the Islamic Republic's sustainability, as declared in the bilateral agreements, are challenged by the contemporary trajectories of the two relationships. Brexit will significantly decrease EU–Pakistan physical, economic, political and people-to-people connectivity, as the UK served as the engine of the overall bilateral dynamics. It will be followed by a decrease in the EU's capabilities to affect Pakistan's sustainability. Unlike the EU, China with its CPEC is pivoting towards Pakistan. Wolf (2018, p. 87) notes, "The CPEC influences many aspects of state and society: it relates to the economic, political, and social spheres, as well as foreign policy objectives and geopolitics". The initiative

promises to improve economic and social sustainability, but it poses a serious threat to environmental sustainability, which is the primary sustainability domain in Pakistan.

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Leveraging IT to preserve cultural heritage in ASEAN

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Introduction

Aggregating cultural information for the purposes of knowledge sharing and documentation is a noble pursuit but is often very challenging to implement. In a study conducted in the US by Günter Waibel (2010), efforts to encourage even a few museums and art collections to share their collections spanned over 40 years. Europe saw more success with a full implementation of the Europeana project (2005), a digital platform for preserving and providing education on European cultural heritage. The project was fundamentally driven by a top-down approach, initiated in 2005 by Jacques Chirac, President of France, in conjunction with the premiers of Germany, Spain, Italy, Poland and Hungary, and with the support of the President of the European Commission. Since its conception, involved leaders have continuously updated the strategy behind the Europeana project to sustain their partnership and inspire ongoing dialogues between art and science. Using the execution of Europeana as a model, we hope to move forward a similar pilot project that will result in a sustainable platform to leverage information technology (IT) in the preservation of cultural heritage in the ASEAN region.

The National Electronics and Computer Technology Center (NECTEC) of Thailand would like to emphasize the significance of preserved cultural information, in both intangible and tangible forms. In 2007, a flagship project, dubbed Digitized Thailand (2007), was initiated with four phases: Accumulation, Knowledge Management, Data Processing and Recommendations. The first phase, Accumulation, consists of content development, R&D on related technology for structuring digital information (e.g. creative content), data collection, standardization, and digital rights management. Many smaller projects were funded under Digitized Thailand; with one being the development of a smart museum guide. The guide was built out under the name “Museum Pool,” which per details in Thitipong Wongsatho et al. (2015), formed a platform for museum curators to effectively manage media assets for an improved visitor experience. A key benefit for end users is the centralized medium, as visitors can access information from any participating museum in the network via a mobile application. In 2017, “Museum Pool” was officially launched with three founding locations. It now boasts a network of over 20 participating museums in Thailand and plans to expand within ASEAN. Ultimately, we hope that the application can serve as a primary source for cultural knowledge sharing across the region.

More recently, we received funding from the Thai Ministry of Higher Education, Science, Research, and Innovation (MHESI), formerly the Ministry of Science and Technology, as part of an ASEAN cultural tourism initiative to start a pilot project that would leverage IT. We contacted partner universities and government agencies in Myanmar and Lao PDR for the opportunity to grow the impact of our pilot. Applying IT in the cultural context is a challenging task for these partners as they are required to involve various bureaucratic agencies for approval in the project’s implementation. However, with the necessary efforts, we have expanded our platform to Myanmar.

In navigating the sensitivities of handling cultural information over the course of our project, we have made some modifications to our primary goal of sharing cultural information, and shifted our focus to researching opportunities to improve museum visitor experience via a mobile application. Using aggregated data on navigation patterns within museum grounds, we hope to be able to draw recommendations for increasing engagement, such as a suggestion feature for other exhibits that may be of interest to a given visitor.

Methodology

We received two years of funding from MHESI to study the possibility of using IT in a collaborative project promoting cultural heritage education amongst ASEAN. “Museum Pool” forms the foundation of this larger research initiative, as the technology provides a space for storing and accessing museum metadata.

Initially, we were faced with the challenge of sourcing a suitable research partner for our planned assignment. Fortunately, our international collaboration officer was able to introduce us to active candidates from a prior ASEAN gathering.

In the first year of implementation, we partnered with both university and research institutions. As shown in Figure 1, the project started with a kick-off meeting to align on project objectives and the possibility of collaboration regarding the topic of museum guides within each country. From the kick-off meeting, we ascertained that there were no existing digital museum guides or equivalent in these countries. Therefore, our partner countries found the proposal to deploy our Museum Pool solution as a museum content management tool attractive.

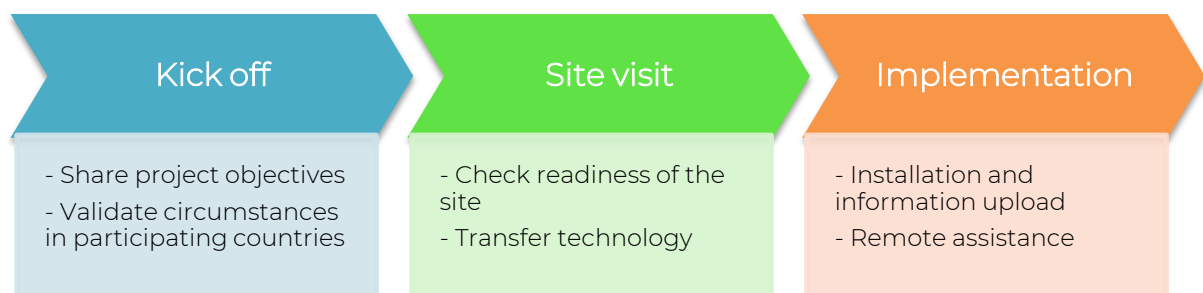


Figure 1. Project implementation process.

After the kick-off meeting, partners made the requisite effort to connect to relevant agencies to ensure the successful implementation of “Museum Pool” in their home country. We then visited the site to validate the readiness for transfer of our technology, and subsequently provided remote assistance and support to allow for smooth adoption.

Due to the extensive network of involved parties, there are a multitude of factors affecting the project’s success, such as technology, human resources for maintenance, availability of content creators as well as funding. After evaluating the readiness of our partner countries, as shown in Table 1, we planned to use these contributing factors as rough criteria in our rubric to recruit partners for our project expansion. So far, only Myanmar has been successfully implemented, with the details of our progress to be published in a planned collaborative paper.

Table 1: Readiness index using for technology transfer.

Readiness	Myanmar	Lao PDR
Technology	Ready to receive the technology transfer from Thailand	Ready to receive the technology transfer from Thailand
Human resources	Students	None
Content creators	Connection with a content provider	Connection with various content providers
Funding	None	None

In the second year of this project, we hope to build on the success modelled by Myanmar by sourcing a comparable university in Lao PDR with a similar implementation environment. However, due to socioeconomic and political nuances, a “comparable” environment may be difficult to identify. Within this same time period, we have also extended invitations to a research institute from Indonesia that appears to meet the criteria we have developed in our rubric. This institute exhibits a similar infrastructure to NECTEC, and in accordance to our index, it owns the technology, human resources and content creators, to make it an excellent candidate for a successful implementation. In early discussions, we also discovered that Indonesia has independently explored plans to implement a digital museum guide; providing the opportunity for us to exchange databases and share metadata for more robust project development.

Results

Our partner in Myanmar successfully deployed “Museum Pool” technology in Bagan and Schwedagon with the permission of the Myanmar Ministry of Culture, while Lao PDR and Indonesia are currently still in the planning stage. Since Indonesia has an independent museum guide database, an initial planned step would be for both parties to develop an Applications Program Interface (API) that would allow for the exchange of metadata based on the work of La-or K. et al. (2018). So far, we have received a large quantity of statistical information from Myanmar’s museum visitors, which we hope to use in the improvement of museum visitor engagement in each country.

Conclusions and Lessons Learned

We believe that our project so far is just beginning to forge the path forward for IT implementation in ASEAN cultural heritage preservation. Although this topic is considered a sensitive issue, we hope that the platform that we are working on will provide a basis for unification, following in the footsteps of the successful Europeana project. With two museums implemented in Myanmar, we have significantly expanded traffic to the network, which provides us with more data to help us scope and build our next step towards improving visitor engagement: a recommendation system for the visitor navigation.

So far, there are a few key takeaways that we can glean from our progress:

- Establishing trust and professional rapport between partner teams is a vital indicator of the project’s likelihood for success.
- Funding is a critical factor in project continuity.
- International collaboration is not a linear equation; in a synergistic environment, there can be exponential returns ($1+1 = 5$), or with misalignment, can turn into a resource

drain ($1+1 = 0$). We are in the process of learning and hope to discover the right inputs for high impact results.

- We proved that diplomacy can facilitate R&D activities. Once scientific developments are encouraged to extend across borders, we are empowered with tools for solving broad social challenges.

Since raising our last round of funding, we received support for only two years. In order to take advantage of the momentum we have achieved so far, each country needs to be able to source independent financial support. Unlike the European Union, ASEAN does not have a funding model for interdisciplinary projects, which may prove to be the most difficult challenge in our project's continuity.

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Bridge the Cross-Culture Understanding: Study Case of BIPA Program in Ambon

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Abstract

The purpose of this study is to present a systematic perspective of BIPA students about cultural understanding. The result of this research will contribute ideas to improve the BIPA program, also the international cooperation in the exchange student programs. Thus, this study investigated the relation between BIPA and culture understanding based on field experience among BIPA students and staff. The ethnographic research design with a qualitative descriptive approach was adopted for the study. The technique carried out in this research is based on a direct survey via a workshop of cross-cultural understanding in Ambon in September 2019 and a short course BIPA Plus program in Thailand in November 2019 as well as direct observation in the field of study. Findings revealed that live and experienced cultures are a good way to understand another culture. There are both differences and similarities in culture, among others taboo and non-taboo. Thus, the workshop of culture understanding is needed to avoid the gap among cultures and understanding foreign cultures. The participants need to understand the foreign culture at the beginning of the program. Bridge cross-culture understanding is a crucial issue in terms of the BIPA program in Indonesia. While the BIPA program could become a link for interconnectivity among language, culture and friendship; so that the institutions are linked for the best mutual cooperation and people from one country could understand another culture.

Introduction

Pattimura University in the framework of internationalization of the university and to support the university accreditation, there needs an effort to get international students. Thus, the international program such as the BIPA Darmasiswa and BIPA Plus programs play a crucial role. The BIPA Darmasiswa is a scholarship program organized by the Indonesian Ministry of Education and Culture (MoEC) in cooperation with the Ministry of Foreign Affairs (MoFA). This program started in 1974, which admit only students from ASEAN. Then, in 1976 the program extended to other countries. Nowadays, it has been extended further to include all countries which have diplomatic relationship with Indonesia, with a total of 135 countries. The scholarship holder will learn BIPA (*Bahasa Indonesia untuk Penutur Asing*, translated in English, Indonesian Language for Foreigners); language, art, and culture for one year at a selected university. The program aims to promote the Indonesian language and culture; also it has been designed to provide stronger cultural links and understanding among participants countries (see <https://darmasiswa.kemdikbud.go.id/about-us-2/>). The Indonesian government continues to work with various activities related to BIPA, including Darmasiswa RI scholarship, the KNB scholarship, and sending BIPA teachers abroad.

While BIPA PLUS is organized specially for Pattimura University's cooperation partners. The program has been established by the Language Centre of Pattimura University in 2017, which has been an annual program. This program has been conducted in the form of a short course program for ten days. The aim is to provide stronger cooperation with the university's

partners such as the university partners in Australia, Thailand, Germany, etc. Through this program, the participants will learn Indonesian language and one topic related to Maluku, such as the economic empowerment of people on the coastal, traditional fishing trap, or traditional cultures in the Moluccas.

Related to the BIPA program, the supporting facilities, teachers, and their teaching method as well as management of the program are needed to accomplish the BIPA program at university. One but not least is the intercultural competency of teachers and students. There are a lot of problems related to the BIPA program, among others are the mental and physical sickness students sent to join this program, and also cultural misunderstanding between students and staffs. For instance, the BIPA students from Europe prefer to travel even during the class run and often complain. Thus, this article aims to discuss the relation between BIPA and culture understanding based on the field experience among BIPA students and staffs.

Literature Review: BIPA and Cross-Culture Understanding

BIPA- Indonesian Language for Foreigners

In Indonesia, the BIPA program is accommodated by an institution or university. The BIPA program has developed rapidly in the last years. Many institutions that provide BIPA program are no longer mainly based in Java and Bali or other regions in Western Indonesia, but have expanded to Eastern Indonesia, including Maluku. Pattimura University is the only institution that organizes the BIPA program in Eastern Indonesia since 2016 (see Latupapua, 2020). BIPA is a bridge to introduce the Indonesian Language for foreigners formally. Language learning for foreigners is included in the second language learning after students master the first language or their mother tongue (Suyitno 2004, in Nirmalasari 2018: 42).

Further, BIPA or Indonesian language learning for foreign speakers learns Indonesian from the most basic knowledge about words until they are capable to arrange them into a good and comprehensible sentence. The level language skills are A1, A2, B1, B2, and C1, which is framed toward the European language proficiency frame. Those levels will be accomplished during a specific duration of time like one year program. For those reasons, in BIPA learning, there has to be a good method used to deliver the learning material. One of many important issues in organizing BIPA learning program is providing teaching materials or textbooks as learning resources that integrate local cultural material into language proficiency. Furthermore, for the framework of learning BIPA the students must be mastered not only the language competency but also culture and intercultural communication competency.

The scientific data shows that the research on BIPA has been done relating to different issues and perspectives, and most of the researches had been done to improve the program itself. Sumarti, et.al. (2018:361) stated that there is a lot of researches that have been pointed out of BIPA, among others about the development of the authentic teaching materials, which is based on local culture, the local culture “pamali” as media communication, etc. While Sumarti et.al. have been developed research on cross-cultural understanding of BIPA participants. They stated that “teaching language cannot be separated from culture”. Thus, teaching BIPA should be not oriented only in language competency but also in intercultural competency. Further, BIPA encouraged teachers to be able to build “intercultural competency”. Moreover, the research on BIPA, which is pointed out on grammatical Indonesian Language toward BIPA students from Tiongkok was done by Yohanna

Nirmalasari (2018), and the critically outline the issue, including showing the efforts that have been made to create teaching materials that give more space to local culture elements (Latupapua, 2020).

Culture and Cross-Culture Understanding

"Culture is society's way of creating social connectivity among a group of people through the origin, belief, institutions, religion, music, and art" (Tuleja 2019 in notredameonline.com). Thus, in international connectivity, culture can be defined by linking interactions among people from institutions such as a university. Eriksen (2004) emphasized the culture is not easy to grasp. He added that from the identified 162 different definitions provided in that book *Culture: A Critical Review of Concepts and Definitions* by Kroeber and Kluckhohn 1952, no definition of the culture concept that most anthropologists seem to agree upon. He argues that the most famous definitions of culture stems from the English anthropologist EB Tylor 1871 that "Culture or Civilization, taken in its widest ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, custom, and any other capabilities and habits acquired by man as a member of society".

Further, many theoretical perspectives on the conceptualization of culture and approaches can be found in academic literature relating to the concept of culture, which identified cultural differences from different aspects; beliefs, values and behavior (e.g. Wyer, et al. 2009). The interesting part contributed a concept of culture contrast with views of culture as a psychological variable as Schwartz noted as follows:

"These views see culture as beliefs, values, behaviors, and/or styles of thinking distributed in a distinctive pattern among the individuals in a society or other cultural group. Culture, as I conceptualize it, influences the distribution of individual beliefs, actions, goals, and styles of thinking through the press and expectations to which people are exposed" (Schwartz 2009:128).

Moreover, recent research about culture has been done based on the 5 dimensions of culture proposed by Hofstede, which are the power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation (e.g. Ulijn et al. 2010, notredameonline 2019). Ulijn et al. 2010 (96-120) research about cultural differences between German and the Netherlands identified some aspects of cultural differences among other differences in languages, dialects, religion, food habits, mentality, norms, behavior, and mutual perceptions. This research deals only with a less intense way of perception. Moreover, the reviewed perception literature implies the intercultural perspective that "what you see might not be what it is", for instance, "how the Germans and the Dutch see each other" Limaye (2000) and Ulijn and St Amant (2000) in Ulijn et al. (2010: 107-108). In addition, the interesting concept is the preparation of people for intercultural experiences by Richard W. Brislin 2009. The writer summarized Brislin's concept that people live in a culture is the best way to experience and understand a different culture. Besides, the cultural misunderstanding arose because people involved have the wrongly assumed that their own beliefs and values were normal. While understanding cross-culture recognized three steps, firstly "knowing yourself" is the crucial step towards bridging the culture gap. Secondly, the acknowledgment of the way you and your compatriots look at the world that is not universal, and thirdly, to find out as much you can about other culture's value and beliefs (Carté, Penny & Fox, Chris, 2008: 161).

However, this article aims to try to respond to some of the questions posed by Ulijn et al. (2010) and Brislin's concept (2009), explored through BIPA students and staff during the BIPA program. Thus, this research is conducted based on this concept within, "how the BIPA

students and staffs see each other". For instance, what they think about their own culture, foreign culture, and so on. Those concepts above help to figure out the cross-culture understanding as result of this research.

Methodology

The ethnographic research design with a qualitative descriptive approach was adopted for the study. Because the ethnographic research focuses on culture "how the BIPA students and staffs see each other", the researcher analyzed the following steps: (1) collect data, (2) reading the data again, (3) categorized (4) compare the data, (5) seeking the relationship and categories, (6) finding the descriptions and (7) interpretation to find the meaning (Fielding, 1993, in Setyowati, 2006). Further, to enrich the research result, the second additional research was conducted during the BIPA Plus program in Thailand in November 2019. Then, the researcher tried to put seven questions that were addressed both to 12 BIPA Plus students from three universities of Thailand and 4 students from a German university to structurize the research's finding. Those research questions refer to the theory about qualitative research questions; a central question and associated sub-questions (Creswell, 2002:120).

Sample description

The research subjects were the 4th BIPA students from Congo, Sudan, Ukraine, and the Czech Republic, 2 Mandarin Teachers from China and 8 BIPA organizer staffs have contributed to the direct survey. Further, the additional research was addressed both to 12 BIPA Plus students from three universities of Thailand and 4 students from a German university.

Survey instrument

The technique carried out in this research based on a direct survey via a workshop and short course program as well as direct observation in the field. The first data collection contains responses to a series of tasks that were addressed both to BIPA students and organizer staffs in September 2019 workshop concerning the understanding of the own culture and the foreign culture, Taboo and Non-Taboo. To enrich the research result, the second additional research was conducted during the BIPA Plus program in Thailand in November 2019. The participants were given a paper with seven questions. These questions in my direct open questions survey among 2 suggested countries of Thailand and Germany in November 2019 through a short course of BIPA Plus in Thailand consisted of three general parts as follows:

- (i) The first 4 questions were about the program itself; the benefit of the program, teaching material, interesting topic, and teaching method
- (ii) The second 1 question was about the needs to conduct such program at their university
- (iii) The third 1 question was about participant's opinion if the BIPA program can strengthen the relationship between universities or countries
- (iv) The last 1 question was about what participant's thinking about Indonesia, Thailand, and Germany before and after (Thailand to Indonesia and Germany, on contrary Germany to Thailand and Indonesia).

Results

Table 1 shows an ongoing work in conjunction with the participant's opinion about the foreign culture (what the BIPA students know about Ambon (Indonesian culture), and on the contrary, the staffs wrote about Congo, Sudan, Ukraine, the Czech Republic, and China; the second of expected participants own culture what taboo and non-taboo for themselves, and the third expected participant's perception of the workshop.

Table 1: The participant's opinion about the foreign culture.

Country	Habits & Behaviour	Values	Appearance	Arts/nature	Knowledge
BIPA Students					
Czech Rep.	Friendly, punctual, consistent		People like beer, white skin	Artistic place	
Ukraine	Calm and friendly Punctual and consistent		Calm voice White skin	Like classical music	
Congo	Unpunctual		Fat, black skin, curly hair	Dancing skill	African part, hot weather, tasty food
Sudan	Smile, unpunctual, stylish		Black skin,	Like dancing, fashionable	African part, rich fuel, women in cover
China	Always smile	Business skill, stingy	Looks very simple, white skin, beautiful girl	Creative, like dancing	Tasty food
Indonesia (Ambon)	Kind, polite, generous people, friendly, different understanding of time and schedule	highly respected family, land of love, teacher relationship, particular culture, live relax	Tan skin	Fresh air, beautiful beach, speak Arabic many Moslem and mosque, hot and wet weather, city of songs, stylish and luxury wedding	Tasty food

The result suggested that participants understand the foreign culture in the way, how they look at other people's appearance (e.g. hair, white or dark skin, big size body/fat or thin, beautiful), habits, behaviour, values, activities, arts, and nature. While participants see their own culture as shown in Table 2, what taboo and non-taboo for themselves from what they normally did, compared to what they see other people doing as follows:

Table 2: The expected own culture (taboo and non- taboo).

Countries	Taboo	Non-Taboo
Czech	Sitting on ground, taking someone place when waiting in line, no talking to strangers, being too late disobeying rules, almost no taboos, everything very open and honest	Addressing someone mistake, use tissue more, ask a lot of questions, calling teacher by name, stand up late, make fun for everything, all people same level, no hierarchy
Congo		Its normal to ask too much questions about privacy, Its normal to eat in the same plate, say something if you don't like

Sudan	Using your left hand to offer things, e.g. food, smoking among guests, compliment an item in Sudanese house	Stand up when greeting, shaking hands, respect elder people, Friday is the most popular day for visit, family gathering at least in one meal
Ukraine	Almost no way to say "no" directly to express dislike or critics	honestly not taking things personally
China	No green hat, don't eat by using hand, don't ask the age, income, marital status when you meet a person in first time, don't use chopsticks to knock the bowl or plate, don't like the number "4, 14, 24, 34..."	
Indonesia (Ambon)	Fart is impolite when you having meal, greetings elder people by name, not seat in front of the door, do not talk during eat, do not sweep the feet of people, don't married with "gandong", don't give Moslem "meat pork" to eat, no using left hand by giving things, laughing loudly with open mouth.	Like chitchat, gossip among people

The result regarding the expected participant's perception of the workshop suggested that; (1) the workshop of cross-culture understanding must be done for BIPA Darmasiswa students, thus the foreign student who learns at the Pattimura University don't blame each other, (2) all participants accept the workshop as a great idea and a great chance within, they know other culture, (3) the workshop participants (staffs) are realizing that there are some similarities between foreign culture and culture in Indonesia, and (4) acknowledging that "every city or country has a specialty, for that reason, we shall tolerance and understand", wrote one Mandarin teacher.

Further, the additional research revealed that the first 4 questions about the program itself; the benefit of the program, teaching material, interesting topic, and teaching method that was varied answers. The author prefers to describe the interesting topic for themselves that Thailand's students from 3 different universities (Khon Kaen University, Buriram Rajabaht University, and Lampang Rajabaht University) stated different topic as an interesting topic for them, such as foods, family and traveling (3 persons of 12 participants, or 25%). While most of the German's student (75%) wrote that the "traveling" was as an interesting topic for themselves.

Table 3: The direct open questions survey – questions 5 - 7

No.	Questions	Answers	
		Thailand's Students	Germany's Students
5	What about the needs to conduct such as the program of BIPA at your university?	Thailand's Students answered only shortly, "yes, this is a great program and a great chance for students at my university",	German's students answered it with arguments; (a)"just pay attention that the group is not getting too big", (b)"getting to know Asian culture can be a valuable thing which can help someone develop their personality and strengthen intercultural relationship", (c) It's a great experience to be in a totally different group of students in an unknown country. Everybody should do such as trip in his study time".
6	The participant's opinion on whether BIPA program can strengthen the relationship between universities or countries.	Thailand's students said "yes, we exchange language and culture, means that we are friend"	"It's a good part of an intercultural team at universities and it builds bridges between countries. Even if the students accept it, it is a win-win-win situation for students, universities, and whole countries".
7	What participant's thinking about	Thailand's students said that before they thought that the	(a) "Thai people are very friendly, every time smile, welcoming, and Indonesians are similar;

Indonesia, Thailand and Germany before and after?	Germans are quite serious and hard to smile, but after met and learned together, they are also friendly and humourist.	(b)"The stereotypes in Germany are mainly Chinese or Japanese- stereotypes for Europeans Asia is just too big to separate each country from another if you have never been there".
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Discussion

The results of descriptive analysis showed that the bridge cross-culture understanding is a crucial issue in terms of the BIPA program in Indonesia. The participants need to understand the foreign culture at the beginning of the program. Thus, teaching BIPA should not be oriented only on language competency but also in cross-culture understanding.

Based on the analysis, then the research's finding are structured based on the central questions and associated sub-questions; "how the BIPA students and staffs see each other", what they think about their own culture and the foreign culture, what about the benefit of the program for themselves, and the connectivity of their universities and countries such as the benefit of the program, teaching material, interesting topic and teaching method. For the answer to the question "how the BIPA students and staffs see each other" refers to the concept of Brislin (2009) that people who live in a culture is the best way to experience and understand a different culture. Besides, the concept of "knowing yourself", "the acknowledgment" and the way to look at other culture's value and beliefs by Carté, Penny & Fox, Chris (2008: 161) has proved the findings. The first research finding through the workshop builds the intercultural competency of BIPA students and teachers or staff. In fact, there are not only differences, but also similarities in some aspects of culture, for instance what taboo, and non-taboo. Thus, the BIPA students and staffs should pay attention on both differences and similarities during the communication or during the program. Whether the culture understanding through the workshop is effective, the BIPA students from other countries are capable to understand the local culture where they will live in. In other word, culture understanding gives benefit for both the BIPA students and staff that they can understand each other from the perspective of taboo and non-taboo for themselves and for others. Besides, the staffs have knowledge about BIPA student's country without visiting or living there.

For the benefit aspects of the program, teaching material, interesting topic, and teaching methods that were varied answers. Those aspects showed that the institution should pay extra attention, improve the management of the program and prepare teachers for this program. While the topic will be dependent on individual interest but also the country's image of interest such as Germany. This country is also known for people like to spend time for traveling. Further, the BIPA program could become a link for interconnectivity among the language, culture and friendship; so that the institutions are linked for the best mutual cooperation and people from one country could understand another culture.

Conclusions

In summary, one find outs two main points as follows:

- 1) Participants understand foreign culture in the way how they look at other people. So, live and experienced cultures are a good way to understand another culture. Moreover, the workshop understanding culture is needed to avoid the gap among cultures and understanding foreign culture.

- 2) Understanding international cultural can be linked with the exchange culture programme among institutions such as a university.

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Abstract

We present a unique joint Singapore-France education project that uses technology to make more engaging student content as well as leveraging an intercontinental collaboration to gain a greater understanding of students from different cultural backgrounds and their respective learning process.

The Lightboard is a recently developed means of making tutorial-style learning videos which enable eye-contact, rather than students seeing lecturer's back, handwritten and informal teaching, which have been associated with benefits for students' learning. Lightboard videos have a more informal, conversational style, which could yield better results even than high production quality/cost videos.

Understanding the student and catering to their expectations is an important part of being an empathetic and effective teacher. Students' differences in their cultural backgrounds can have an impact on their preferences when it comes to teaching style, understanding the content and instructional design. Our cross-continental collaboration between lecturers in Singapore and France allows to gain a deeper understanding of how cultural background affects teaching style. The experienced lecturers from both countries each bring their own unique understanding of their respective local student population and spark new ideas.

Introduction

The use of videos in education has been promoted as early as 1980 (Rossi, 2015), where video technique and equipment was explained to the layman to promote greater use of this technology among instructors. Over the past years, video has become a popular supplement to traditional teaching methods such as didactic teaching, since they can be watched and re-watched anytime by students at their own pace. This also frees up valuable student-teacher time for guided practice and questions, rather than instruction. For this reason as well as videos combining both the auditory and visual sense, videos are often used in the flipped classroom setting as replacements to live lectures (Gloudeman, Shah-Manek, Wong, Vo, & Ip, 2018).

In this joint France-Singapore, collaboration, we filmed chemistry toxicology videos with the Lightboard. Simply speaking. A Lightboard is a glass writing board used for recording video lectures (Fung, 2017). Lightboard setup consists of a mounted LED-lit glass board, monitoring device, video recording device, and fluorescent markers to write annotations. It is pioneered by Michael Peshkin, a professor at Northwestern University (Peshkin, 2013). A step-by-step guide on how to build a Lightboard can be found in his website: Lightboard.info.

Method, Result and Discussion

In this paper, we experimented with the Lightboard to produce several video styles using the Lightboard as a tool for educational videos. The two styles are 1) the Interview-style and 2) the multi-presenter style (Figure 1). The rationale for the different video styles are explained in further detail in the proceeding section.

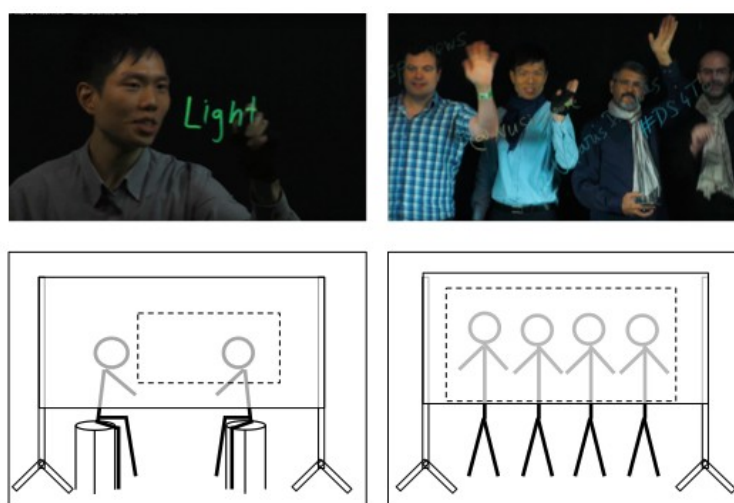


Figure 1. Top, from left to right: Interview- style and multi- presenter Lightboard videos. Bottom, from left to right: Schematic diagram of the recording setups for each video style. Presenters are positioned behind the glass board and annotate normally on the board, i. e. not writing backwards. Dashed lines on the diagram refer to the camera frame representing the area around the Lightboard that are captured on video.

First, the interview-style. Unlike conventional single-presenter Lightboard videos, the interview-style involves a more interactive, two-way conversation between the presenter and the interviewer. With another person supporting the dialogue, the presenter is able to receive verbal cues and prompts from the interviewer in case the presenter forgets to say something or is stuck in a particular part of the dialogue. Furthermore, the interviewer can help to moderate the dialogue being recorded, making sure that what is being said is accurate and relevant. This makes it easier for the presenter to deliver content as opposed to delivering a lecture individually, where the presenter has to be aware of their own verbal cues with no one to support them in case they make mistakes in the middle of recording.

Another added benefit is that with interview-style videos, the presenter can channel their eye contact to the interviewer instead of the camera, which can reduce the awkwardness normally felt when recording a conventional straight-to-camera Lightboard lecture

video. However, interview-style video recording would not help to moderate the content of the video, if both the interviewer and the presenter are unprepared and/or nervous, or if the interviewer is easily swayed by digression. In addition, due to the question-and-answer interview format, the presenter may take longer to deliver their message what could have been done shorter in a shorter period.

When recording our interview-style Lightboard video, the presenter found that having the interviewer verbalize questions helped to segmentate his content, making it easier for him to present as he could worry less about forgetting his content or flow of speech as opposed to recording a conventional single presenter video. One drawback he found was that writing on the Lightboard became more difficult as he had to split his attention between the interviewer and the Lightboard. He also noted that sitting down also reduces the amount of text that he could write on the Lightboard. Understanding this limitation, one improvement that we propose is to reduce the restriction of movements in the presenter, by making both the interviewer and presenter stand up normally. This would make this very similar to the multi-presenter style video.

Second, the multi-presenter style. Generally, there are only slight distinctions between interview-style and multi-presenter videos. One difference is that interview-style videos focus on a question-and-answer format and are typically recorded with both speakers seated.

In the multi-presenter style recording, the dynamics of content delivery is further increased as the presenters are not bound to taking turns to speak on camera, but are instead able to engage in interactive conversations to engage their audience further. Similar to the interview-style videos, having multiple presenters in the recording allows them to support each other in case one forgets or deviates from the topic of interest. This is assuming that all presenters have self-control over their content and are not easily swayed away by digressions.

Discussion

One disadvantage of multi-presenter videos we found was the minimal space available, both for the presenters to move and for them to annotate on the Lightboard. In fact, having annotations on the Lightboard becomes more challenging as the number of presenters increase, as not only does the amount of space to write becomes limited; having the amount of elements present in the video distracts viewers and makes it harder for the writing on the Lightboard to stand out. This is further aggravated when the presenter wears light coloured clothing, which makes annotations on the Lightboard less legible (Figure 2).

One measure to counter these limitations would be to ensure that presenters all wear dark coloured clothing. Besides that, allowing more freedom of movement, for instance by situating themselves outside the camera frame or further back from the Lightboard at certain moments during recording. Limiting the number of presenters to four people would also help to ensure sufficient space during recording.



Figure 2. Photo of interview style setup. During the recording, the camera is zoomed in to show only the presenter/interviewee's visage. The interviewer's face remains out of the camera.

Conclusion

According to current research, the Lightboard itself is a tool that enables lecturers to create more engaging video content due to the instantaneous handwriting and face-to-face explanations. Different recording styles—interview- and multi-presenter, were created between the French and Singapore faculties to generate various modes of instructional teaching. Despite their minor limitations, these exploratory experiments show that there is a large variety of video types that the Lightboard allows to create. In conclusion, we experimented with several novel styles to use the Lightboard device.

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Co-Creating immersive 360° video media with a Singapore-France education collaboration

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Abstract

In this abstract, we present a cutting edge method of immersive learning in tertiary STEM education, using interactive 360° videos immersive environments, based on a cross-continental collaboration between Singapore and France. The motivation for using immersive learning is that it provides learners the opportunity to experience learning content overseas virtually - such as remote locations or restricted-access labs - which they otherwise would not get to explore in real time. The interactive and experiential learning journey that is enabled through immersive learning environment could provide novel, and potentially powerful, ways of conveying topics to learners, while potentially positively affecting their motivation.

Introduction

Field trips are commonly used activities for environmental teaching. They are a great way for instructors to engage students and give them a first-hand understanding of a subject. However, the execution for a field trip in a compact schedule renders it logistically challenging and resource-intensive. On top of that, it is common for students and instructors to have back-to-back lectures. As such, the tight schedule restricts the implementation of a local field trip, let alone an overseas one. The lack of visual engagement with the environment deprive students who are interested to see the real scene in the environment to stimulate critical thinking (Ernst & Monroe, 2004). Because of the challenge, our France-Singapore team applied immersive learning field trip with the use of the individual VR gear for their own exploration to a real site where the 360° media are captured by the instructors across both countries (Figure 1).

Method

This immersive field trip was carried out on a cohort of 74 third- and fourth-year chemistry students over the duration of two lessons across three weeks, each ranging from 1 to 1.5 hours in duration. The course code/title is CM3261/Environmental Chemistry. The first lesson's

objectives were to introduce the idea of VR in the classroom setting using immersive 360° video media and to allow students to familiarize themselves with both the VR gear and the online 360° media application. During the first lesson, the instructor led the students through the various 360° photospheres and 360° elements. Then, students were then left to explore the virtual site for themselves <https://tinyurl.com/uptale-CM3261>.



Figure 1: View of the 360° media (Left). The split screen show two pictures for each eye. By doing so it creates an immersive environment. VR gear—goggles (A) and lenses (B) on the right.

For the second lesson, students were given a unique code to access a new module containing the set of 360° photospheres filmed in *Ungaran*, a rural city in Indonesia (Zimmermann, Ardisara, Fung, & Leang, 2019). During the lesson, the instructor directed students to specific areas of the photosphere to draw further emphasis to specific areas of interest. Students were then allowed to explore the field trip on their own (Figure 2). After the second lesson, students were then required to answer environmental chemistry questions regarding their field trip (Fung et al., 2019).



Figure 2. Students immersed in the virtual field trip at their own pace.

Result

After conducting the second VR class, a voluntary anonymous survey was posted to gather feedback on using the 360° immersive video (response rate: 80%). The feedback primarily revolved around the enthusiasm towards the first use of VR in a chemistry course at NUS. On a Likert scale of 1—5, students rated their virtual field trip experience (Table 1).

Table 1. Students' Perceptions Regarding the Virtual Field Trip.

Question for Student Response	Responses by Score ^a N (Total N = 59) ^b				
	5	4	3	2	1
On a scale from 1 to 5, how would you rate your experience based on today's virtual field trip class?	5	33	14	6	1

^a The scores from 5 to 1 represent the following agreement levels: "very good"; "good"; "neutral"; "poor"; and "very poor", respectively. The total number of responses for each level of agreement are tabulated. ^b Response rate = 80%.

From the data, it suggests that the students were generally receptive towards the use of the immersive technology in the virtual field trip. From a user experience perspective, the main challenges faced were disorientation and app limitations. The reported disorientation could be caused by the 15-minute virtual excursion that was conducted without intervals. A possible solution is to punctuate the session into 5-minute chunks. In this way, students can afford a break from the virtual world, look into the real world, and return to the virtual excursion when ready. Due to the lack of functionality such as a zoom element, students were unable to view clearly, certain images or objects within the photospheres. A possible workaround is to check the mobile app that is monitoring the recording to preview that the 360° camera captures all salient objects (Ardisara & Fung, 2018). Nevertheless, majority of the students gained a positive experience.

Discussion

Faculties in France and Singapore annotated 360° videos which provide learners limited interaction and "movement" within the 360° environment. Using 360° videos to create immersive learning environments presents a - albeit low-fidelity - low-cost alternative to fully-developed virtual reality environments commonly found in advanced games or training simulations. We presented annotated 360° video media as a feasible alternative to virtual reality environments, as it provides a way to create immersive learning content in shorter time and significantly cheaper. Furthermore, the ease-of-use of 360° videos allows even non-technical instructors to create custom content that follows their current curriculum. Potentially, they can even choose to co-create immersive 360° experiences with students, which has been shown to be beneficial.

Conclusion

We co-created this immersive 360° video project as a fruitful cross-continental collaboration between teaching teams in Singapore and France. The understanding of different cultural backgrounds in this collaboration can lead to an understanding of unquestioned assumptions of what teaching means. Our project being used both in Singaporean as well as French lecture halls, we can gain a better understanding of whether our teaching approaches and students' responses to them are "universally" applicable or culturally specific.

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HODLNG, a Blockchain-based solution for the Liquefied Natural Gas (LNG) market; unleashing Asia-Europe exports and imports of gas, in the context of a Sustainable Connectivity

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Summary

HODLNG, a Blockchain-based solution for the Liquefied Natural Gas (LNG) industry; with smart contract, we address contracting issue, triggering an innovative and fair profit-sharing mechanism. Our utility tokens generate additional revenue; contributing to positive social impact.

Context: exports and imports of gas

The report “*Exploring ASEM sustainable connectivity*” (Becker et al., 2018) states that trade in gas is essential for many countries, which may have little or no natural resources of their own to draw on. It is frequently a central topic in energy interdependency and international politics. The gas trade includes gas exported via pipelines, as well as in liquid forms via other means of transport. HODLNG subsumes in its logic an inherent European dimension due to the purpose of its tool: natural gas. Tackling anti-competitive provisions, our solution solves issues raised during events; as the workshop co-organized by the European Commission Directorate General for Energy and METI, Japan on global LNG market. Our proposition is cross-border and multi-country integrated. It serves to fulfil the European Union (EU) single market, addressing fragmented domestic markets and providing flexibility in destination (re-export).

Introduction

LNG markets are going through momentous changes. The phasing out coal approach is leading to meaningful effect transition policies. This industry is undergoing a major transition where LNG may be re-sold several times on an individual spot cargo basis or through a chain of short contracts. The competition comes from a wide range of suppliers and options in the markets, and moves towards more destination flexibility in contracts. Governments should pay close attention to LNG project structure and the long-term LNG sale and purchase agreements between LNG producers and off-takers. In particular, the practice of diverting LNG cargos to more lucrative export markets than the ones initially designated in off-take agreements should be regulated and monitored by governments to balance the financial incentives to LNG sellers with the interests of LNG-exporting countries. The market has to cope with the anti-competitive provisions prohibiting diversion. This is why we decided to tackle this issue, with Blockchain technology; and, introducing innovative fair profit-sharing mechanisms.

Blockchain solutions

We intent to develop a Blockchain based-solution to govern diversion; introducing innovative profit-sharing mechanisms, and more diversified and advanced pricing formulas and contracts. In order to solve the problem we identified, we will use a public Blockchain. We create a native utility token and a wallet, to manage the scarcity and managing additional revenue, to be transferred to the selected NGOs, local communities, and indigenous or marginalized people. The novelty is to transfer to a permission-less Blockchain with a smart contract language the existing excessive contentious clauses on the paper contract; by upholding the concerns of exporting countries, particularly low-income countries.

Thanks to the Blockchain technology, our disruptive approach is to link additional revenue get from natural resources to development and social impact; bringing more transparency in contracting process and revenue sharing. To achieve that, we will use Blockchain for transparency, traceability and tamper-proof. We are building the path toward more standardized, efficient and cost-competitive practices, consolidating major trends of the LNG market: growing liquidity and efforts to simplify supply agreements.

HODLNG is a Blockchain start-up incorporated in Tallinn, Estonia. We're fully dedicated to fixing problems in one market - the Liquefied Natural Gas, or L N G, industry, at both the EU and global levels. We're doing that by developing a Blockchain-based, smart contracting regime for L N G logistics. We help L N G stakeholders to address contracting issues, while also creating a space for an innovative and fair profit-sharing mechanism, generating additional revenues and contributing to positive social impact, including sustainable development and climate change. HODLNG Solutions are tackling contracting (anti-competitive provisions), enhancing the flexibility of the LNG market.

LNG Market, inefficiencies and lack of transparency

LNG is about shipping gas via tankers, from LNG producers to importers; and there is big demand for it. 2019 was a record year for LNG supply growth, and the sector has tripled since 2000. Here is currently some 1.4 trillion dollars being invested in it. For the fifth consecutive year, global LNG trade set a record, reaching far more than 3 hundreds (316.5) million of millions BTU. LNG is also growing in terms of diversity, from a limited number of importers – less than 10 in 2000 – to over 40 last year, and 50 in the coming decade. So you have a fast-growing sector with more and more exporters and importers every year. A study published recently stressed that the market is anticipated to reach nearly 20 Billions US Dollar by 2026. To unleash the huge potential of this sector, it is crucial to allow gas to flow where it is valued most, and when it is needed most. Global LNG procurement trends are undoubtedly shifting toward shorter contracts with smaller volumes and increasingly flexible commercial terms (destination, resale rights, price indexation, take-or-pay clauses, and volume flexibility). National governments in LNG-producing economies need better insight into the valuation of LNG sales and the corresponding impact on their revenues. They also need to better monitor and control the routing of their valuable natural resource. Blockchain is the ideal way to do this.

So you have an important resource that brings a lot of benefits, and could represent a significant driver of prosperity for the Global South. The problem is that a complex supply chain has arisen in LNG, with many inefficiencies and a lack of transparency.

It is typically developing countries like Trinidad and Tobago, Papua New Guinea and Mozambique (to name a few) that are producers. So you have an important resource that brings a lot of benefits, and could represent an important driver of prosperity for the Global South. The problem is that a complex supply chain has made LNG far too tempting in terms of corruption; “suffering” of lack of transparency; and unfair redistribution.

Corruption is a gigantic social evil - an estimated 2.6 trillion US dollars is stolen annually through corruption – a sum equivalent to more than 5 per cent of the global GDP. But its impact on the LNG economy is extremely pernicious; lastly in December, news raised that 2 billion dollars is believed to have been lost to the treasury of an ASEAN country by the actions of its former Minister of energy, because of corrupt LNG contracts.

As raised by an Ambassador of an LNG exporter, our tool will support them for fighting corruption; another Ambassador echoed by saying that our solution supports their efforts for transparency enhancement.

In fact, HODLNG’s technology has been specifically designed to facilitate a more secure, flexible, fair and balanced LNG contracting environment, powering a truly transparent global LNG market. This would benefit producing economies, as well as make the overall market more efficient. Governments should push for these agreements to maximize the price flowing back to the LNG plant.

An innovative solution to incentive diversion

We remove destination restriction in LNG contracts; diversion clauses will now being governed by smart contracts. In particular, the practice of diverting LNG cargos to more lucrative export markets than the ones initially designated should be balanced between the financial incentives to LNG sellers with the interests of LNG-exporting countries, especially the least developed ones.

HODLNG does this by a truly smart contract allied with the foundations of a truly fair profit-sharing mechanism. We propose a move to a smarter and more sophisticated approach for contracting LNG. This will benefit producing economies, as well as making the overall market more efficient. LNG is an important, growing sector that offers great opportunities for developing countries, but that opportunity could be tragically wasted if the market is not made more trustworthy and fair.

Technical solution

We propose a 3-layer architecture, integrating a full stack of existing open-source technologies. At layer 1, the consensus protocol from a public chain. At layer 2: smart contract, with a scalable and private off-chain process. At layer 3, a utility token to incentive contractors; managing profit-sharing agreements. Blockchain technology is needed to program smart contracts, to stack native token, and to provide the security, immutability, transparency and tamper-proof when needed. By migrating almost all activities off-chain, our solution is fully scalable and highly flexible. In order to assure privacy of permissioned sets of participants, data recorded in the Blockchain are cryptographic hashes; only users who validate contract execution can see all of the chain data.

Additionally, using an off-chain solution, we address main constraints of Blockchain: scalability, speed, privacy, and minimizing transaction costs; increasing the contract's capacity and greatly reducing transaction costs, without significant load on the main chain. We have selected Off-chain Labs solution. It acts as a second layer on any block chain

(Blockchain agnostic), allowing it to process programs and transactions off-chain, either through side-chains or state channels, through enhanced privacy and scalability. It's allowing them to push services, dApps, or tokens from Ethereum to arbitrage exploiting the benefits of OffChain Labs solution – better privacy and scalability.

Next steps: stable coins and digital hub

We are exploring to issue an asset-backed stable coins; a both crypto-collateralized to stabilize the coins, and backed by a gas ledger reserve. Additionally, LNG stakeholders view us as a potential promising LNG digital hub. Interestingly, we could address issue raised in your report regarding data gathering and statistics (quoting) “This is a recognized issue in energy statistics, which is why we have omitted the study on gas networks in this edition until it is possible to assemble a more reliable data set.”

Conclusions

Our solution will make it possible to facilitate the interactions in the LNG market. With our service, LNG diversion clauses are now governed by smart contracts; managing a fair profit-sharing mechanism, benefiting to projects with social impact. Our service will render more transparent extracting industry activities and generate more revenue from natural resources; leveraging development projects. In the context of the UN SDGs, we focus on goals 7 & 8; as, financing low-carbon technology for underserved regions. HODLNG can be a force multiplier to address the requirement of the global energy system: de-carbonization. Additionally, our service can be a virtual global LNG hub; serving as a catalyst across all industry stakeholders. It will serve also as a LNG pricing benchmark; moving away from the prevalence of oil index pricing. Lastly, our service is viewed as a solution for a more “commodified” global LNG market. We participate to a more secure, flexible, fair and balanced LNG trade system.

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