www.americanosp.com/index.php/IJSDI

International Journal of Socio-Economic Development and Digital Innovation

Conceptualizing the Land-Locked Developing Trap in ASEAN: A Strategic Perspective from Lao People's Democratic Republic

Masatoshi Hara

Business Breakthrough University, Tokyo, Japan. ORCID: 0000-0002-5975-454X. Email: masaharatoshi@gmail.com

Check for updates

Paper type: Article

Received: 07 October 2025
Revised: 11 November 2025
Accepted: 18 December 2025
Published: 30 December 2025

Citation: Hara, M. (2025). Conceptualizing the land-locked developing trap in ASEAN: A strategic perspective from Lao People's Democratic Republic. *International Journal of Socio-Economic Development and Digital Innovation*, *1*(1), 1–15. https://doi.org/10.70122/ijsdi.v1i1.1

Abstract

This study examined the constraints faced by landlocked developing countries (LLDCs) and explored how landlocked economies transitioned into land-linked economies (LLEs) to achieve sustainable development. LLDCs continued to struggle with high transport costs, limited access to global markets, and dependence on transit countries. Using a qualitative research design based on comparative case studies and document analysis of secondary data from twelve landlocked economies—classified into developed and developing groups—this study re-evaluated the land-locked developing trap (LLDT) within the ASEAN region, focusing on Lao People's Democratic Republic (Lao PDR) as the only landlocked country in this area. Drawing on Krugman's trade theory and Sachs's geographical determinants of economic growth, a theoretical framework was proposed, integrating geographical constraints, opportunity enablers, and anticipated outcomes. Findings indicated that developed LLDCs benefited from trade agreements, digital transformation, and innovation-driven policies, while developing LLDCs faced limited infrastructure, weak digital integration, and insufficient regional cooperation. The study highlighted practical implications for policymakers by emphasizing regional collaboration, digital connectivity, and entrepreneurship as pathways for resilience. By addressing structural barriers and leveraging regional and global opportunities, LLDCs can enhance connectivity, reduce trade obstacles, and move toward becoming economically integrated hubs.

Keywords: land-locked developing trap; land-linked economies; Lao PDR

© 2025 The Authors. Published by American Open Science Philosophy. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

1. Introduction

World Economic Outlook (WEO) reports have constantly emphasized the developmental gaps between land-locked and coastal countries, where economic disadvantages emanate from geographical constraints (IMF, 2020). Most land-locked economies record economic growth that is slower than those of coastal economies, as well as infrequent access to international markets because of elevated vulnerability to exogenous shocks caused by reliance on the neighbors for trade and transit. The WEO illustrates that the economic, social, and technological limitations of these nations continue to be perpetuated throughout the world. Furthermore, The WEO demonstrates that the rise of regional trade agreements, developing global supply chains and advances in digital technologies offer unique opportunities for closing these gaps and enabling these nations to experience sustainable economic growth. Regional initiatives and creative methods aimed at creating land-locked economies provide specific examples of how nations can work together to overcome their economic challenges.

Geography influences economic development and access to markets, natural resources and trade routes. As defined by Sachs et al. (2001) and Faye et al. (2004), the "Land-Locked Developing Trap (LLDT)" refers to the continued economic challenges faced by LLDCs due to the increased cost of transporting goods, dependence

on their neighbor for trade, and their limited access to the rest of the world for trade and commerce. Therefore, these challenges will hinder the ability to have diverse economies, attract foreign direct investment and grow industries, thus creating an unnecessary impediment to achieving sustainable development. Conversely, land-linked economies have also strategically overcome specific geographic disadvantages by improving regional economic connectivity through trade agreements and digital technologies. Infrastructure investment, trade agreements, and digital technologies have allowed landlocked countries to participate in global value chains, which has resulted in decreased trade and logistics costs, increased economic resilience, and accelerated progress toward sustainable economic growth (Arvis et al., 2011; UNECA, 2018).

The LLDT is conceptualized through a framework of sustainable business strategy and the process of transitioning LLDCs into being an LLDT. This research combines Paul Krugman's contribution to economic geography, development economics and strategic management, to detail the interaction of logistical barriers and strategic opportunities through that theoretical framework, with the ultimate goal of creating a framework for economic transition from an LLDC to an LLDT. The synthesis of successful case studies and the literature associated with LLDTs, aimed at producing strategies that promote inclusive growth for both businesses and policymakers, is discussed in this report. The study hopes to bridge the gap between the theoretical discourse regarding LLDCs and the actual implementation of policies to support LLDCs, through an aspirational vision of how LLDCs can become regional and global centers of connectivity, innovation and resilience.

Although the LLDT is a global challenge, it takes on special significance in the ASEAN environment, with the Lao PDR being the only LLDC. The central geographic location of Laos, between rapidly growing neighboring countries and the dynamic nature of regional supply chains, provides an ideal environment for exploring different paths to establishing a "land-linked" economy, from an ASEAN perspective. This paper highlights the importance of trade corridors, regional cooperation and digital connectivity as key strategies for creating economic opportunities from geographic constraints. Accordingly, this study aims to theorize the transition from land-locked to land-linked economies by examining how geographical constraints shape sustainable business development, with particular attention to the ASEAN context and the case of Lao PDR.

2. Literature Review

2.1. Global Economic Trends and Overview of Trap Literature

Technological advancements, population movements, and geopolitical changes have rapidly changed the world economy. In many ways, advanced economies have returned to COVID-19 paid in full; developing countries and landlocked economies are still struggling with structural impediments and have limited access to global trade due to their isolated locations. International Monetary Fund (2020) states that underdeveloped nations that are landlocked cannot take advantage of their potential for economic growth to the same extent as wealthier nations because of the geographic disadvantages they face as part of their inability to raise living standards. There are large structural disparities in statistics representing various levels of income groups with respect to this. The following table has numerous economic measures associated with 33 landlocked economies, as shown in Table 1. These countries have been categorized into distinct income groups in the 44 globally recognized LLDCs.

Analysis shows high-income LLDCs achieve GDP per capita above USD 20,000 consistently at 3% annual growth rate; their FDI inflows exceed triable USD50bn annually; and their economies have a strong service sector and technologically advanced manufacturing. Middle-income LLDCs experience intermittent growth patterns with GDP per capita between USD5,000 to USD10,000. There is limited ability to attract foreign direct investors due to lack of adequate infrastructure/logistics in the middle-income countries. Low-income LLDCs achieve below $1,000 GDP Per Capita with typically unstable measures of growth. FDI inflows only average several billion per year. Also, the low-income LLDC economies generally remain agrarian and are not adequately diversified.

Table 1. Economic statistics of land-locked countries (by income level, 44 out of 33 countries).

No	Country	Income-Level (World Bank, 2025)	GNI per Capita, Atlas Method (2023)	Foreign Direct Investment per GDP (%, 2022)	Manufacturing, value added (% of GDP, 2023)	Service, value added (% of GDP, 2023)
1	Austria	High	55,070	2.2	15.7	62.3
2	Czechia	High	27,110	2.9	21.4	59.8
3	Hungary	High	19,820	8.2	17.1	57.6
4	Luxembourg	High	88,370	3.8	3.5	80.6
5	Slovak Republic	High	22,790	-1.3	21.5	56.5
6	Switzerland	High	95,160	1.7	18.1	71.9
7	Armenia	Higher-Middle	7,330	-5.7	11.1	59
8	Azerbaijan	Higher-Middle	6,680	0.3	5.8	39.1
9	Belarus	Higher-Middle	7,780	0	23	47.8
10	Botswana	Higher-Middle	7,620	0.4	5.6	59.4
11	Kazakhstan	Higher-Middle	10,940	0.5	12.3	56
12	Mongolia	Higher-Middle	4,950	6.3	6.9	40.1
13	Serbia	Higher-Middle	10,030	-	-	51.2
14	Paraguay	Higher-Middle	6,200	-	19.4	49
15	Bolivia	Lower-Middle	3,600	3.6	-	51.3
16	Eswatini	Lower-Middle	3,860	-5.8	27.6	53.5
17	Kyrgyz Republic	Lower-Middle	1,700	-0.3	12.6	50.8
18	Lao PDR	Lower-Middle	2,120	-	9.2	44
19	Lesotho	Lower-Middle	1,160	-394.5	14	51.4
20	Nepal	Lower-Middle	1,370	6.2	4.6	55.4
21	Tajikistan	Lower-Middle	1,440	6.5	-	-
22	Uzbekistan	Lower-Middle	2,360	1.2	19.5	41
23	Burkina Faso	Low	850	1	10.7	43.6
24	Burundi	Low	230	5	-	48.8
25	Chad	Low	710	0.3	-	28.7
26	Ethiopia	Low	1,130	2.2	4.5	37
27	Malawi	Low	640	4	-	52.2
28	Mali	Low	860	14.6	6	36.1
29	Niger	Low	600	1.6	7.2	26.9
30	Rwanda	Low	980	7.3	9.9	44.3
31	Uganda	Low	980	-0.2	15.6	42.4
32	Zambia	Low	1,320	-	8.3	54.9

The differences among the LLDC economic profiles are particularly significant since lack of available ports for these countries generates 1.5 to 2 times higher trade costs compared with coastal economies, which effectively reduces LLDCs' ability to export and isolates these economies from international supply chains. Logistical constraints and infrastructure gaps also impede domestic market integration, trapping countries in low-income levels and the creation of a LLDT. This is then closely related to the "Middle-Income Trap (MIT)," defined as the stagnation of economic progress because of structural barriers. Tran (2016) classifies MIT into "lower" and "upper" stages, and the World Bank (2024) operationalizes the "3i-strategy," namely:

(1) Investment in low-income economies;
(2) Investment plus infusion for lower-middle-income economies; and
(3) Investment, infusion, and innovation for upper-middle-income economies.

Collier (2007) conceptualizes the "Poverty Trap" and differentiates four types: (i) conflict, (ii) natural resources, (iii) governance in small states, and (iv) land-lockedness. The geographical dimension of land-lockedness is closely related to the notion of a "land-locked trap," which constrains economic development by limiting access to markets and external resources. LLDCs are less able to attract foreign direct investment (FDI) and to adopt or diffuse new technologies, making it particularly difficult to overcome the MIT (Tran, 2016). In recent times, there has been an increasing focus on artificial intelligence (AI) as a method of breaking through this. AI promotes higher productivity, helps to improve supply chain efficiencies, and ultimately can improve the living standard in technologically less developed national economies. Conversely, absence of adequate infrastructure, insufficient digital literacy and limited access to technology are all barriers to the introduction of AI. Therefore, investments made in education, governance, and infrastructure will increase the likelihood of benefiting from AI. In summary, while the determinants of economic development may vary across income

levels, land-lockedness remains one of the most significant structural constraints facing LLDCs. Integration of AI-based technological approaches with targeted policy intervention will thus be quite instrumental in facilitating the transition for LLDCs toward "land-linked" economic structures for their sustainable growth.

These structural constraints faced by LLDCs have also been repeatedly highlighted in major international development reports, including those published by the IMF (2023) and the World Bank (2024), which emphasize persistent trade costs, infrastructure gaps, and limited global market integration.

2.2. Land-Locked Developing Trap

At the moment, 44 countries are considered landlocked; they do not have direct access to the sea, resulting in higher transport costs, trade barriers, and less integration with markets. While some landlocked nations in Europe manage to grow economically owing to good infrastructure and strong trade agreements, others in Africa and Asia remain in a state of economic doldrums: 32 nations are classified as developing, and 17 as the least developed, because they are low-income and unstable. According to the United Nations (2025), these disparities could be described as “LLDT,” or the persisting economic disadvantages of land-locked developing countries, given their higher transportation costs, their dependence on the neighbors for trade, and the limited access to global markets.

Infrastructure gaps are identified as core underpinning causes in the case of LLDTs. Most landlocked countries depend on transiting neighboring countries, which reduces autonomy and adds to the cost (Arvis et al., 2011). LLDCs need to find ways to bridge the gap in infrastructure between themselves and their coastal or maritime trade partners through a multi-dimensional approach, which combines infrastructure investment, regional integration and innovative business strategies to create 'land-linked' economies.

There are several examples of LLDCs that are taking advantage of infrastructure investments, regional integration efforts, and innovative business strategies. Nepal and Bhutan are examples of countries that are successfully using India's ports for trade, while Rwanda has experienced its share of logistical challenges. Conversely, Switzerland has been successful in overcoming these obstacles by investing in rail infrastructure and integrating with the European Union.

Digitally enabled infrastructure has the ability to have a transformative impact on LLDCs, as it facilitates virtual trade and improves connectivity. Rwanda is an example of the types of advances that can occur as a result of investment in information and communication technology (ICT), but Rwanda continues to experience challenges as a result of a lack of access to broadband services and limited levels of digital literacy.

The research and findings from Krugman (1991) and Sachs et al. (2001) support the idea that reducing transportation costs and fostering industrial clusters can help LLDCs become more economically viable. Examples of public-private partnerships supporting these objectives are the Djibouti–Addis Ababa railway in Ethiopia and other infrastructure projects that ensure that LLDCs will have the resources and linkages needed to develop and compete effectively. Therefore, in order to develop 'land-linked' economies, LLDCs must develop a multi-faceted approach to escaping their LLDT (Lake et al., 2001).

2.3. Sustainable Business Strategy in Land-Locked Developing Countries

Using adapted business models, there are great opportunities for low-income consumers in developing countries to have access to goods at affordable prices. Business models also leverage low-wage economies. Developing business models under these conditions, however, has its challenges. When entering lower-middle-income markets, businesses face costs, regulatory and cultural barriers that all require significant research and development, as well as cost-effective production in order for them to adequately compete for market share. These costs and delays usually result in the inability for companies to achieve profitability in the short run. A sustainable focus on fair investment in land-locked developing countries will foster the building of trust, and help businesses grow. Businesses operating in LLDCs also incur much higher shipping expenses, are significantly limited in the markets in which they can sell their products, and heavily depend on

their neighboring countries for both imports and exports. However, with the right approach, many of the challenges facing LLDCs—the cost of transportation, the inability to reach markets, and their reliance on their neighbors—can be overcome through the use of sustainable business strategies. Many sustainable business strategies can convert the geographical limitations of land-locked developing countries into business opportunities, including trade facilitators, diversifying industries, and formulating regional partnerships as shown in a number of published works, including those of Sachs et al. (2001) and Krugman (1991). E-commerce, blockchain, and investments in digital infrastructure and the AfCFTA all lend themselves to increasing connectivity and reducing costs due to enhanced use of these technologies.

Building resilient economies in landlocked countries like those found in Africa and other regions are supported through the use of technology, primarily through start-ups related to Artificial Intelligence. Two examples to show how the use of innovative AI-based technologies can lead to economic development, are the city of innovation in Kigali, Rwanda and the use of AI-based applications for agriculture and tourism in Bhutan. Additionally, other countries have used similar technologies to encourage growth; these include the initiatives by China through the Belt and Road Initiative, Sustainable Tourism and Investment in Information and Communication Technologies; and in Ethiopia through industrial parks.

2.4. Conceptualization of the Shift from Land-Locked to Land-Linked Economies

Although LLDCs faces many challenges, there is substantial evidence that through the combination of strategic policy interventions, technological advances, and regional trade agreements, these countries can successfully address their constraints (Dumitrescu et al., 2018; Paudel & Alharthi, 2021). Examples of infrastructure investments that will enhance the efficiency of markets and reduce trade costs are transport corridors and digital networks. In addition, the participation in regional free trade area (AfCFTA) will enhance LLDC's access to trade and enhance trade integration. By development of digitization of trade routes, the availability of start-up ecosystems, and e-commerce LLDC countries will also have access to alternative routes for economic development.

Enabling Investments, including digital trade and infrastructure, will support LLDCs ability to diversify their economies, enhance their competitiveness, and connect with the broader economy as LLDCs have and will continue to have heavier reliance on trade. Countries such as Switzerland and Kazakhstan have successfully used their strategies and development-related regional agreements to mitigate the disadvantages of being land locked, while countries such as Nepal and Bolivia are still facing many challenges, mainly due to weakness in their traded integration and policies.

2.5. ASEAN Context: A Strategic Perspective from Lao PDR

Assessing LLDT in the Lao People's Democratic Republic, the only landlocked economy in Southeast Asia, provides a unique opportunity within the ASEAN region. Laos is entering a new regional trade environment that is developing through the rapid expansion of new logistics such as production networks and cross-border relationships, as well as greater connectivity among countries in the ASEAN region. Although Laos is constrained by its geographical location, its close proximity to Thailand, Vietnam, and China has created opportunities for the establishment of new transportation corridors and various sub-regional trade projects throughout the ASEAN region. The growing interdependence of Laos with these neighboring countries means that it has the potential to serve not only as a geographic disadvantage but also as a necessary transit point connecting the mainland of Southeast Asia to the international supply chains.

However, high costs of logistics, a limited domestic infrastructure and reliance on neighboring countries to access sea ports continue to present significant challenges in Laos for foreseeing its transition to being land-linked (Nuruzzaman, 2022). Further complicating Laos' ability to transition to a land-linked country includes a lack of cohesive or consistent policies implemented across its borders and a limited pool of qualified human capital development. These limitations also mirror challenges faced in other LLDCs, accentuating the requirements for regionally specific strategic responses.

However, several factors indicate that there are new paths for Laos to create a gradual transition toward being economically functional as a result of becoming a 'land-linked' country through the development of digital trade systems, creation of special economic zones, inter-state stabilization through GMS initiatives and improvement in connectivity along the BRI rail systems. The use of entrepreneurship, ICT use, and Private Sector Development offer enhanced opportunities to mitigate geographical barriers while allowing for Countries to work together through the framework of regional cooperation and infrastructure development for successful outcomes. Ultimately, as is evident in the ASEAN context, while LLDT is still deeply ingrained structurally, Laos has unique Regional Enablers that, if utilized strategically, can support a significant transition from being a "land-locked" to a "land-linked" economy.

2.6. Identification of the Study Gap

Even though a great deal of research has been done regarding the economic challenges faced by LLDCs, there is a paucity of information available regarding how geographical constraints specifically impact sustainable business development. In almost all instances, the studies conducted to date have focused primarily on the economic and infrastructural impediments to LLDCs, rather than the establishment of innovative business models and regional integration as ways to counteract the negative economic impacts of the LLDC status. While the recent trend has been to place greater emphasis on transforming LLDCs into Land-Linked Economies (LLEs), there is still not an adequate amount of theoretical work that has been done to conceptualize such a transition in terms of business development. This study therefore seeks to fill these gaps through bringing together theoretical insights and practical solutions to focus on sustainable business development strategies as one means to engender land-linked economies. This gap is seriously relevant in the ASEAN context, as Lao PDR uniquely represents one example among the LLDCs firmly embedded within a rapidly integrating regional trade environment—and where the literature does not heretofore investigate its strategic potential to become "land-linked."

2.7. Research Purpose

This study attempts to establish and provide support for a new theory about how a country can move from a landlocked location to a situation where it is connected to other lands. This is accomplished by exploring and analyzing how the geographical constraints that are experienced by LLDCs are affecting businesses' ability to establish and develop sustainable business practices. Current research on LLDCs has been focused mainly on the economic and infrastructure challenges of these developing countries. The lack of an adequate source of information in the current literature on LLDCs regarding innovative business practices and strategies and how these may potentially address the geographical isolation of LLDCs is significant. This study will attempt to close this gap by proposing the development of a framework that will incorporate the vital components of business innovation and strategy as potential ways for LLDCs to improve their geographic separation.

The study synthesizes various aspects of Economic Geography, Trade Facilitation and Sustainable Business Development to create a framework for understanding how businesses that operate in land-locked regions may develop sustainable businesses and be able to achieve their full potential. Additionally, this study draws upon Krugman (1991) and Sachs et al. (2001) in creating a linkage between the study of trade theory and geography and will provide a mechanism for connecting the two bodies of knowledge for future research.

This study is designed to provide a roadmap to business leaders and policymakers that specifies the key strategic actions businesses and nation-states must take to enhance connectivity, eliminate trade barriers and build a sustainable, economically viable environment in LLDCs. An initial goal of this paper, through the identification of theoretical and practical aspects of LLDC issues as well as the gaps in current LLDC literature, will be to provide a strong starting point for future research into the subject matter.

2.8. Research Question

In the context of the ASEAN Region and the Lao People's Democratic Republic (PDR), how does sustainable business development increase opportunities for transitioning from a landlocked to a Land Linked Economy through the use of Innovative Business Strategies and Regional Integration?

3. Proposed Theoretical Framework

This study identifies a gap in the existing literature, focusing on transitions of land-locked economies to land-linked economies through a conceptual research framework developed utilizing a "funnel" methodology. The third column of Table 2 provides an overview of this framework and it consists of three major parts:

Table 2. Theoretical foundations of escaping the LLDT to achieve LLEs in ASEAN context.

No	Income Level	Constraint Factors as "Land-Locked Trap"	Opportunity Enablers shifting from "Land-Locked" to "Land-Link"	Outcomes (Land-Linked)
1	Low-income	1. Trade Costs 2. Market Access 3. Infrastructure Gaps 4. Insufficient Human Capital	1. Regional and Global Trade Agreements 2. Digitalized Innovation through Startup Ecosystems and AI 3. Promoting Primary and Secondary Education for Human Capital Development	1. Business Growth 2. Export Diversification 3. Economic Resiliency
2	Lower-middle Income	1. Trade Costs 2. Market Access 3. Infrastructure Gaps 4. Insufficient Human Capital	1. Regional and Global Trade Agreements 2. Digitalized Innovation through Startup Ecosystems and AI 3. Promoting Primary and Secondary Education for Human Capital Development	1. Business Growth 2. Export Diversification 3. Economic Resiliency
3	Higher-Middle Income	1. Trade Costs 2. Market Access 3. Infrastructure Gaps	1. Regional Trade Agreements 2. Digitalized Innovation through Startup Ecosystems and AI 3. Promoting Higher Education	1. Business Growth 2. Export Diversification 3. Economic Resiliency

In reference to the framework presented by Hara (2025, p.61), 1) geographical constraints (e.g., high trade costs, dependence on transit neighbors, and inadequacies of infrastructure negatively impact business operating costs and reduce international competitiveness), 2) opportunity enablers (e.g., for low-income economies, regional trade agreements and partnerships create lower costs of trade; for lower-middle-income economies, similar strategies used with emphasis on the gradual digital integration; and for higher-middle-income economies, global business strategies, regional agreements, and digitalized solutions to streamline operations provide increased 66 competitiveness), and 3) expected outcomes (e.g., On the basis of the evidence presented in this section, the authors posit that the experience of ASEAN will be a particularly useful context for understanding the relationship between the conceptual framework described above and Laos PDR's transition from a "land-locked" to a "land-linked" nation, as a result of the follow direct-to-consumer supply chains via cross-border rail corridors and the rapid development of digital infrastructure and trade, and greater regional integration initiatives.

By addressing the constraints of being landlocked, as well as maximizing the use of enabling factors, business growth and diversification in exports, and its market integration, landlocked countries may be able to transition from being functionally disconnected geographically into a functionally interconnected economy.

The transition from landlocked to land-linked economies has a direct and positive impact on the sustainable development of businesses, depending on what level of economic development is attained. Many businesses view that the geographical constraint of being landlocked is a disadvantage; however, through strategic investment, regional collaboration, and innovative policy alternatives, those disadvantages can be turn into a benefit, providing both economic development opportunities and economic integration. These countries are in a strong position to develop the pathways to success by establishing partnerships that utilize shared

resources and sustainable business practices creating a thriving landlocked economy that can be a mutually beneficial, active player in a global market place.

4. Methodology

4.1. Research Design

The qualitative methodology employed in this study is develop to theoretical frameworks to help understand how to transit from LLDC to LLE's as well as compare LLDC's success and failure by using multiple case studies. The qualitative methodology provides in-depth information concerning LLDC's economic conditions and identification of barriers to building successful sustainable business development strategies and provides insight on the options available to them moving towards building sustainable business development strategies.

4.2. Data Collection

The research has utilized a wide variety of credible sources to obtain both primary and secondary data. Authoritative organizations and research/case specific reports were reviewed in order to provide a well-rounded and comprehensive picture of what is happening within LLDCs. The document analysis process followed Bowen's (2009) procedures in order to make sure the official reports, policy documents and research articles used in this research were all properly reviewed. World Bank Reports provided a large amount of information concerning trade volumes, transport costs, infrastructure investments, and economic development indicators of LLDCs in addition to providing longitudinal comparisons of their performance.

UNCTAD publications cover the trade facilitation, regional integration and global supply chain development impacts on the economic growth of land-locked countries. Additionally, there are several case specific reports (e.g., national development plans, policy documents, country specific research studies) which contribute to our understanding of the contextual nuances of land-linked countries. The various methods of data collection in this study give us insight into the different dimensions of the challenges confronted and opportunities for economic transformation in LLDCs.

4.3. Sampling

It is very essential that the selection of cases from the 44 Land-locked countries considers the diversity in the level of the individual countries' economic development as well as geographical and/or policy related factors. My recommendation to randomly select 12 (4 economic advanced countries plus 8 developing countries) countries would be appropriate because it would maintain a managed level of research without unnecessarily broadening the reach of the data that must be analyzed which could lead to difficulty in reaching the point of theoretical saturation as Boddy (2016) indicated as being a minimum of 12 cases. The need for this level of theoretical saturation was further supported by Hara (2024) who recommended that countries that were at various levels of economic development could be utilized for comparative analysis leading to a greater ability to form broader conclusions about the factors that contribute to, and hinder, success across the largest possible range of situations. The ratio of 1:2 developed to developing would allow for a structurally balanced analysis that would also illustrate to some extent the commonalities/differences between the two categories of countries as indicated by WTO (1996). The selection of the 12 countries was based upon three significant criteria; regional representation, diversity in economic development, and diversity in policy approaches, as described in the following paragraphs regarding selected countries and their classification into Group A and Group B.

- Group A as land-locked advanced economies: Austria, Czech Republic, Kazakhstan, and Switzerland
- Group B as land-locked developing countries: Bhutan, Bolivia, Ethiopia, Lao PDR, Mongolia, Nepal, Rwanda, and Uzbekistan

A qualitative research methodology was used to compare and contrast different approaches that have resulted in successful and unsuccessful outcomes in the transition of LLDCs to LLECs. As such, the results of this

research provide valuable insights into the types of challenges LLDCs typically experience in developing sustainable business development strategies and which types of strategies have resulted in the best chance of success in establishing sustainable businesses in LLDCs.

4.4. Data Analysis

This paper takes a Grounded Theory (GT) approach as a result of the comparative analysis section. Glaser and Strauss were the original developers of GT in 1967; GT is very appropriate for investigating social phenomena and constructing theories from empirical data. GT employs an inductive methodology where data collection and analysis are in constant cycles (Higuchi, 2017), which relates to the transition of LLDCs to LLEs.

This paper uses process of structured coding by Saldaña (2016), which has three stages: open coding, axial coding, and selective coding, to ensure that the coding process and theory development is systematic. The open coding stage identifies important themes and patterns that were collected from the data. During the axial coding stage inter-relationships between these themes are established. The last stage, selective coding integrates these findings to create a theoretical framework (Saldaña, 2016). The qualitative data collected by the researcher was analyzed using ATLAS.ti 24. The use of ATLAS.ti allowed for the organization and coding of data and allowed the researcher to determine the critical success factors and common barriers across selected land-locked countries. This rigorous coding process provides assurance that the new theoretical framework is based on empirical evidence and adds insight into what has enabled the transition of economies from being land-locked to being land-linked.

5. Results

This study employs a qualitative research approach combining document analysis, comparative case study analysis, and thematic analysis of 18 pieces of literature to evaluate the challenges and opportunities experienced by LLDCs and developed economies as shown in Table 3. The analysis of challenges experienced by LLDCs came from the literature of Dumitrescu et al. (2018), Snow et al. (2003), Cárcamo-Díaz (2004), Faye et al. (2004), Wilson (2008), Casal and Selamé (2015), and ITU (2024). The case studies of individual LLDCs were gleaned from Bird & Hill (2010), Idan & Shaffer (2011), Park (2011), Mitra (2014), Davalos & Gil-Herrera (2020), Paudel & Alharthi (2021), Nuruzzaman (2022), and Buchanan (2023). The case studies of advanced economies were obtained from Rodrigue & Kolář (2016). In addition to the literature, some policy studies were analyzed from Rizwan et al. (2024) and UNCTAD (2024). With this information, the author compared the strategies and obstacles to building a sustainable business in land-locked economies with respect to Group A (Austria, Czech Republic, Kazakhstan, and Switzerland) and Group B (Bhutan, Bolivia, Ethiopia, Lao PDR, Mongolia, Nepal, Rwanda, and Uzbekistan). Disparities in infrastructure, regional cooperation, digital integration, and business strategies (based on UNCTAD, 2022) were discovered and addressed through the research of Dumitrescu et al. (2018) and UNCTAD (2022).

In reference to the comparative framework presented by Hara (2025, p. 64), the perspectives summarized in Table 3 build upon the author's earlier exploratory analysis published in an internal institutional bulletin and have been revised and updated for the present study. The table facilitates an examination of the structural differences between higher-income and lower-income countries in their respective pathways toward becoming "land-linked" rather than remaining "land-locked." While "land-locked" countries can become "land-linked", but only if they are able to address the geographically-imposed obstacles by establishing strong transportation infrastructure (such as roads, railroads, ports, & airports), regional co-operations, the introduction of digital technologies, and engaging in trade with neighboring (and international) economies (e.g., Casal & Selamé, 2015; Rodrigue & Kolář, 2016; Idan & Shaffer, 2011). On the opposite end are developing nations (land-locked countries) that must deal with infrastructure deficits (land border), limited regional co-operation, and limited digital capabilities (Snow et al., 2003; Wilson, 2008; Bird & Hill, 2010; Paudel & Alharthi, 2021). A good example of a developing nation overcoming some of these challenges (to a degree) is Rwanda with their ICT startups and Kigali Innovation City. Unfortunately, most developing nations have weak institutions, limited resources and must rely heavily on their transit-neighbors which increases their cost of doing business and makes them vulnerable to external market changes (Buchanan, 2023; ITU, 2024). Therefore,

to escape the LLDT and to achieve long-term economic growth, developing nations must implement specific strategies to improve their transportation infrastructure, increase the adoption of digital technologies, and develop regional agreements to support the integration of the economies of all countries in a defined region.

Table 3. Comparative analysis between Group A and Group B.

No	Development Perspectives	Group A as Land-Locked Advanced Economies (Switzerland, Austria, Kazakhstan, and Czech Republic)	Group B as Land-Locked Developing Countries (Rwanda, Ethiopia, Lao PDR, Nepal, Bhutan, Bolivia, Uzbekistan, and Mongolia)
1	Infrastructure and Trade Logistics	The strengths of a country's infrastructure and ability to integrate regionally into trade systems allows them to create effective trade routes through well-developed rail systems and EU corridors. One such example is Kazakhstan's development of the Western China to Western Europe Corridor (Idan & Shaffer, 2011; Rodrigue & Kolář, 2016; Rizwan et al., 2024). The completion of this corridor has improved the capacity for regional trading as well as exports, and reduced transit times for trading between countries.	Countries within Group B have poorly developed road systems with few links between these countries which contribute to increasing Trade Costs and inefficiencies. The High dependency upon neighbouring transit countries leaves the countries in Group B especially vulnerable to being negatively affected by any instability or unanticipated logistical costs that may arise (Snow et al., 2003; Cárcamo-Díaz, 2004; Wilson, 2008; Bird & Hill, 2010; Mitra, 2014; Paudel & Alharthi, 2021; Dumitrescu et al., 2018).
2	Digital Integration	Countries within Group A excel in the use of digital platforms for e-commerce and digital services as they develop and benefit from well-established data security policies that protect their digital assets, thus helping create a competitive environment for e-commerce and digital trade (Rodrigue & Kolář, 2016; International Telecommunication Union, 2024).	An example of digital advancement is Rwanda's Kigali Innovation City. Unfortunately, due to an overall lack of broadband infrastructure and poor levels of digital Literacy throughout most countries globally, e-commerce and Digital Trade potential remains greatly diminished (Davalos & Gil-Herrera, 2020; Buchanan, 2023).
3	Regional Integration and Cooperation	Switzerland and Austria benefit from EU integration, while Kazakhstan leverages the Belt and Road Initiative (BRI) to strengthen regional ties (Idan & Shaffer, 2011; Casal & Selamé, 2015)	Regional Cooperation is discussed further in Group B, where countries within Group B that have fragmented or weakly coordinated regional cooperations do not see their Economic growth as rapidly or drastically as those countries within Group A. Ethiopia relies on Djibouti for 92% of its port access, while Mongolia has major issues with accessing transit routes to neighbouring countries (Faye et al., 2004; Park, 2011; Nuruzzaman, 2022).
4	Business Strategies and Innovation	Advanced economies foster innovation-driven industries, high-tech ecosystems, and attract FDI through industrial clusters (Casal & Selamé, 2015; Rodrigue & Kolář, 2016).	Within Group B, Rwanda and Ethiopia are both leading in the number of ICT & Agribusiness start-ups, while Ethiopia appears to be focusing its focus on Industrial Parks. Weak Institutional Structures and Limited Resourcing throughout the Middle East, allow for minimal contribution to the overall growth of countries in this Region (Buchanan, 2023; ITU, 2024).

A qualitative research approach combining document analysis, comparative case study analysis, and thematic analysis of 18 relevant articles was conducted, with qualitative analysis performed using ATLAS.ti 24, which yielded multiple theme categories as well as common success factors and barriers to success in multiple regions. The assorted codes resulted in a total of 268 coded citations within the dataset. As can be seen in the coding analysis results presented in Figure 1, the analysis identifies two overarching areas of focus: regional integration and business strategy. Figure 1 reproduces the qualitative coding results originally reported in Hara (2025, p. 65) and serves as the empirical basis for the present discussion. The set of 268 coded citations represent the collective efforts of the research team to identify the key elements of regional development and growth in interconnected economies. The analysis shows that collaboration has contributed significantly to the overall development of the region. The collaboration theme (31 citations) reflects the positive results achieved when countries work together through combined initiatives to overcome shared challenges, discover new opportunities, and develop the economy. The resource sharing theme (11 citations) represents the advantages to society realized by combining their resources across the region. The land-locked trap theme (9 citations) describes how geographically constrained economies, such as land-locked countries, face distinctive

difficulties when trying to integrate their economies into the broader regional economy. Also, the need for trade barriers reduction and improved infrastructure connectivity (7 citations each) was highlighted as critical components to facilitate timely and efficient regional economic development. Effective and efficient transportation networks and the removal of trade obstacles are vital for facilitating the movement of goods across borders.

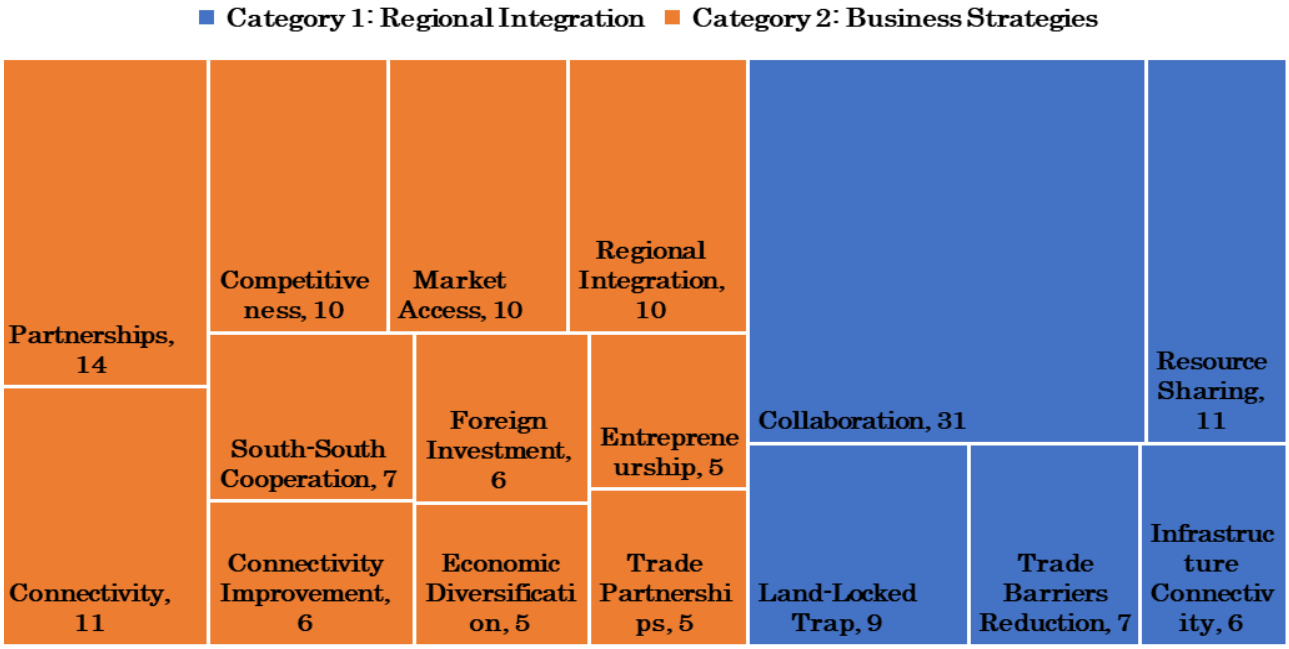

Figure 1: ATLAS.ti coding output of key themes in the results (regional integration and business strategies).

The study examines the various ways businesses and nations formulate business plans and pursue their competitiveness and sustainable growth. The most common way in which large and small businesses partner (Gr=14) together to achieve an overall growth and success. Connectivity (Gr=11) and market access (Gr=10) show that in order to create and sustain a successful business climate, a company must establish important connections to fill their supply chain and create and maintain business growth through increasing market access. Regional integration (Gr=10), the third theme emerging in partnership type strategies is that it requires a level of cooperation on a regional scale to develop a successful business. The development of developing countries should include a focus on south-south Cooperation (Gr=7) as a way to build the foundation for future growth and development of capacity, knowledge, and joint ventures among developing nations. The fourth theme emerging from this research on foreign direct investment (FDI) (Gr=6), indicates the importance of a nation attracting foreign investment to enhance their overall economic development. New themes emerging which reflect an increased focus on creating more inclusive, sustainable and varied economies that has the ability to adapt to the changing economic environment are economic diversification (Gr=5), entrepreneurship (Gr=5), and trade partnerships (Gr=5). Overall, the work situates LLDT within an ASEAN context, offering an insight into both how Lao PDR fits into and differs from the patterns seen in the other landlocked economies within the world.

6. Discussion

6.1. Interpretations of Study Results and Proposed Theoretical Framework

This study also examines the distinctive challenges LLDCs may face due to the dependence on neighboring countries for trade; as well as the difficulties only certain geographic areas of LLDCs have when it comes to the barrier related to geography and infrastructure to conduct trade. Countries including: Bhutan, Bolivia, Ethiopia, India, Laos, Mongolia, Nepal, Rwanda and Uzbekistan are attempting to mitigate these constraints through infrastructure projects to enhance their opportunities for increased economic integration, strengthen their trading relationships with their neighbors and improve regional cooperation. Policies relating to digital

economy opportunities, are highlighted as being essential to ensuring that LLDCs have the best opportunity to leverage the global digital transformation to their advantage.

Table 2 presents a theoretical framework for understanding how economies transition from being landlocked to becoming connected through their proximity to other countries. The framework consists of three primary components: geographical constraints; enablers of opportunity; and expected outcomes. Geographical constraints (e.g., Limited access to markets and high transportation costs) will be addressed through the use of opportunity enablers (e.g., Infrastructure investment, digital integration, and regional trade agreements). The opportunity enablers are expected to produce the following outcomes export diversification; economic resilience and growth; and sustainable economic growth.

The proposed framework for LLDCs realizes and highlights the need for country-specific strategies focused on the current level of either economic development or lack thereof of each LLDC. The outcome of this strategy is the ability of LLDCs to use their geographical disadvantage as an opportunity to establish economic linkages at both the global and regional levels.

The Vienna Programme of Action emphasizes the need for LLDCs to increase their investment in Transport Infrastructure and Regional Integration to meet the economic challenges of LLDCs (UNCTAD, 2024). South-south cooperation is key in that it provides the foundation for capacity building, knowledge sharing and resource mobilization. Key recommendations for LLDCs include improving regional cooperation, implementing the use of advanced technology, and implementing disaster risk reduction strategies to create increased market access and economic growth.

In the context of the ASEAN community, however, the example of Lao PDR serves as an illustration of how integrating regionally, sharing infrastructure, and enhancing cross-border digital connectivity can, over time, convert structural geographical disadvantages into opportunities for economic development regionally.

6.2. Study Limitations

The research examined approaches to sustainable business development through the experiences of 12 different land-locked developing countries from two classifications: advanced & developing economies. There were limitations on this research based upon comparative analysis; however, these analyses provided insight into LLDCs but did not necessarily give an adequate amount of depth into the overall situation LLDC's were facing in terms of their challenges in real-time. Additionally, while the countries selected for the purpose of this research provided some type of representation for the total of the 32 LLDCs that exist in the world, the experiences from the chosen countries would not represent the complete diversity of the LLDC experience.

6.3. Implications

This study outlines specific strategies for aiding the transition of LLDCs into LLEs as well as giving policy makers and business leaders a better understanding of how this can be achieved. The use of Infrastructure, digital connections and regional agreements will be key elements to overcome the obstacles presented by geography. LLDCs will benefit also by establishing entrepreneurship, south-south co-operation and resource sharing to overcome the LLDT. For developed economies, the next stage in innovation will be trade facilitation & digital integration. The study highlights that developing economies require different approaches depending on level of economic development. Sustainable growth is dependent both on local & international policies and co-operation. A coordinated corridor development, a digital trade framework, and a range of sub-regional partnerships, all working together, will allow LLDCs to accelerate their transition from being an LLDC to becoming an LLE, within the context of the ASEAN region.

These findings are consistent with prior studies on LLEs, which emphasize the importance of infrastructure development, regional integration, and trade facilitation in mitigating geographical disadvantages (Arvis et al., 2011; Paudel & Alharthi, 2021). However, this study extends the existing literature by explicitly linking these structural factors to sustainable business development strategies within the ASEAN context.

7. Conclusions

This study examined how land-locked economies can transition into land-linked economies by developing a theoretical framework grounded in economic geography and sustainable business development. Through comparisons between LLDC and LLE's Infrastructure development, this study highlights the large gap in digital adoption rates and regional cooperation between LLDCs and LLEs. Additionally, the analysis shows how LLDCs can close these gaps by leveraging enablers and addressing barriers to enhance connectivity, reduce trade barriers and enhance the establishment of sustainable business practices. By proving a proposed framework for LLDC transformation, this study shows a tool to assist LLDCs in their transition from an LLDC to an LLE. The case study from the ASEAN region and more specifically the Lao PDR, proves that this transition is within the reach of LLEs when connectivity, digital infrastructure, and a shared strategic partnership are achieved. The ASEAN case of Lao PDR further demonstrates that regional integration and connectivity-oriented strategies can offer practical pathways for overcoming the LLDT.

Author Contributions:

Conceptualization: Masatoshi Hara.
Data curation: Formal analysis: Masatoshi Hara.
Funding acquisition: Masatoshi Hara.
Investigation: Masatoshi Hara.
Methodology: Masatoshi Hara.
Project administration: Masatoshi Hara.
Resources: Masatoshi Hara.
Software: Masatoshi Hara.
Validation: Masatoshi Hara.
Visualization: Masatoshi Hara.
Writing –original draft: Masatoshi Hara.
Writing –review & editing: Masatoshi Hara.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data is available upon request from the authors.

Conflicts of Interest: The author(s) declares no conflicts of interest.

References

Arvis, J. F., Carruthers, R.C., Smith, G. M., & Christopher, W. (2011). *Connecting landlocked developing countries to markets: Trade corridors in the 21st century*. World Bank Group. http://documents.worldbank.org/curated/en/489041468154790373/Connecting-landlocked-developing-countries-to-markets-trade-corridors-in-the-21st-century

Bird, K., & Hill, H. (2010). Tiny, poor, landlocked, indebted, but growing: lessons for late reforming transition economies from Laos *Working papers in trade and development, No.3*. https://papers.ssrn.com/sol3/Delivery.cfm?abstractid=1910326

Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal, 19*(4), 426–432. https://doi.org/10.1108/QMR-06-2016-0053

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

Buchanan, I. A. (2023). Foreign policy and development strategies of small and landlocked states: The case study of Rwanda. In C. D. Bhatta & J. Menge (Eds.), *Foreign policy and development strategies of small and landlocked states* (pp. 209–224). Friedrich-Ebert-Stiftung, Nepal Office. https://library.fes.de/pdf-files/bueros/nepal/20712.pdf#page=215

Cárcamo-Díaz, R. (2004). *Towards development in landlocked economies* (Development Macroeconomics No. 29). United Nations. https://repositorio.cepal.org/server/api/core/bitstreams/dbbc9509-33a8-40c5-a6ab-b3b6c82e3175/content

Casal, P., & Selamé, N. (2015). Sea for the landlocked: a sustainable development goal? *Journal of Global Ethics, 11*(3), 270-279. https://doi.org/10.1080/17449626.2015.1099560

Davalos Y. A., & Gil-Herrera, R.J. (2020) The land-locked condition as determinant for development of internet: the Bolivian case. *Indian Journal of Science and Technology, 13*(34), 3521-3537. https://doi.org/10.17485/IJST/v13i34.1145

Dumitrescu, A., El-Hifnawi, B., & Zemke, L. (2018). *How can LLDCs overcome the plight of land locked-ness?* World Bank Group. https://documents1.worldbank.org/curated/en/993481536263142544/pdf/129783-BRI-Landlocked-Developing-Countries-PUBLIC.pdf

Faye, M. L., McArthur, J. W., Sachs, J. D., & Snow, T. (2004). The challenges facing landlocked developing countries. *Journal of Human Development, 5*(1), 31–68. https://doi.org/10.1080/1464988031000166020l

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: strategies for qualitative research*. Aldine Publishing.

Hara, M. (2025). Escaping "land-locked developing trap": accelerating sustainable business strategies for "land-linked economies," *Business Breakthrough University Review, 11*(1), 56-70.

Hara, M. (2024). Roles of Artificial Intelligence in education for sustainable development in Asia-Pacific contexts. *Global Journal of Business and Integral Security, 1*(2), 1-17. Retrieved from https://www.gbis.ch/index.php/gbis/article/view/350

Higuchi, M. (2017). Methodological philosophy of CAQDAS and their functions: Difference between Atlas.ti 7 and Nvivo 11. *Annals of Human Sciences, 38*, 193–210.

Idan, A., & Shaffer, B. (2011). The foreign policies of post-Soviet landlocked states. *Post-Soviet Affairs, 27*(3), 241–268.

International Monetary Fund. (2020). Chapter 1: Global prospects and policies. In *World Economic Outlook: A Long and Difficult Ascent*. https://www.imf.org/-/media/Files/Publications/WEO/2020/October/English/Ch1.ashx

International Telecommunication Union. (2024). *Facts and figures: Focus on landlocked developing countries. Measuring Digital Development.* https://www.itu.int/itu-d/reports/statistics/facts-figures-for-lldc/

Krugman, P. (1991). *Geography and trade*. MIT Press.

Mitra, S. (2014). *Unlocking Bhutan's potential: Measuring potential output for the small, landlocked Himalayan kingdom of Bhutan* (ADB South Asia Working Paper Series No. 32). Asian Development Bank.

Nuruzzaman, S. (2022). *Review of progress made in the implementation of the Vienna Programme of Action for the landlocked developing countries (LLDCs) by Afghanistan, Bhutan, Lao PDR, Mongolia, and Nepal: Conference paper prepared for the Euro-Asian final review of the Vienna Programme of Action for Landlocked Developing Countries for the Decade 2014–2024.* United Nations Economic and Social Commission for Asia and the Pacific. https://repository.unescap.org/bitstream/handle/20.500.12870/5269/ESCAP-2022-WP-Review-progress-implementation-Vienna-Programme-Action-LLDCs.pdf?sequence=1

Park, Y-A. (2011). Land-locked country and port accessibility - Mongolian case. *International Journal of Maritime Affairs and Fisheries, 3*(1), 83-102. https://www.academia.edu/download/46304519/Landlocked_Country_and_Port_Accessibility_-_Park_-___2011.pdf

Paudel, R. C., & Alharthi, A. (2021) Role of financial development in the export performance of a landlocked developing country: The case of Nepal. *Cogent Economics & Finance, 9*(1), 1973653. https://doi.org/10.1080/23322039.2021.1973653

Rizwan, M., Shehrya, R., & Khan, M.F. (2024). Navigating security challenges: Data insights into the foreign policy paradigm of landlocked nations. *The Asian Bulletin of Big Data Management, 4*(3), 204-214. https://doi.org/10.62019/abbdm.v4i3.195

Rodrigue, J.-P., & Kolář, P. (2016). Port regionalization and landlocked Hinterland: The Czech Republic *Central European Business Review, 5*(3), 69-77. https://cebr.vse.cz/pdfs/cbr/2016/03/06.pdf

Sachs, J. D., Gallup, J.L., & Mellinger, A. D. (2001). The geography of poverty and wealth. *Scientific American, 284*(3), 70-75. https://doi.org/10.1038/scientificamerican0301-70

Saldaña, J. (2016). *The coding manual for qualitative researchers (3rd ed.).* Sage Publications.

Snow, T., Faye, M., McArthur, J., & Sachs, J. (2003). *Country case studies on the challenges facing landlocked developing countries: Background paper for Human Development Report 2003*. United Nations Development Programme. https://hdr.undp.org/system/files/documents/landlockedcountries2003.pdf

Tran, V.T. (2016). *The new horizon of the ASEAN economies and Japan: The new development of each economy and area* [In Japanese]. Bunshindo Publishing Corporation.

United Nations. (2025). *The 17 goals*. Retrieved from https://sdgs.un.org/goals

United Nations. (2025). *What is a landlocked developing country?* https://www.un.org/en/landlocked/about-landlocked-developing-countries

Wilson, F. (2008). *Challenges and policy options facing the landlocked*. Institute of Development Studies. https://assets.publishing.service.gov.uk/media/57a08b8c40f0b652dd000d3c/R8539-NewNo6-Landlockedweb.pdf

World Trade Organization (WTO) (1996). *Development: Participation of developing countries in world trade: Overview of major trends and underlying factors*. https://www.wto.org/english/tratop_e/devel_e/w15.htm