




Towards Prosperity: Harnessing Infrastructure for Economic Growth

Awal Nopriyanto Bahasoan¹ , Rahmatia Rahmatia², Muhammad Jibril Tajibu³,
Amanus Khalifah Fil'ardy Yunus⁴

¹ Sulawesi Barat University, Majene, West Sulawesi 91412, Indonesia
^{2,3,4} Hasanuddin University, Makassar, South Sulawesi 90245, Indonesia
Email : awalnopriyanto@unsulbar.ac.id

Abstract

Infrastructure has a strategic role in facilitating economic growth, especially in developing regions. Through the Systematic Literature Review (SLR) approach with the PRISMA method, this study identifies the direct and indirect relationship between infrastructure development and economic growth. Adequate infrastructure increases productivity, efficiency, and market accessibility, which ultimately accelerates economic growth. This article reviews the latest literature on infrastructure, economic growth, and regional development, especially in developing countries. The study also explores moderation factors, such as government policies and public investment, that can affect the effectiveness of infrastructure in supporting economic growth. The results of this study show that targeted infrastructure investment can strengthen regional competitiveness, improve quality of life, and reduce economic disparities between regions. The conclusion of this study is the importance of synergy between the public and private sectors in infrastructure development to support sustainable economic growth.

Keywords

Infrastructure, Economic Growth, Regional Development, Public Investment, PRISMA SLR

1. Introduction

Economic growth has a vital role in the study of regional development, especially in developing countries. In this context, economic growth is not only seen as an increase in the Gross Domestic Product (GDP) figure but also includes other aspects, such as improving people's welfare, job creation, and equitable development between regions[1], [2], [3], [4]. Developing countries often face challenges in optimizing economic growth due to limited resources, technology, and supportive policies [5], [6], [7].

Infrastructure is seen as one of the main factors that can significantly accelerate economic growth. With adequate infrastructure, such as highways, transportation, energy, and information technology, efficiency in the distribution of goods and services can be improved, ultimately expanding market access and increasing regional competitiveness[8], [9], [10]. In addition, infrastructure also supports investment, creates an environment conducive to the growth of the industrial sector, and accelerates economic mobility in various sectors[11], [12], [13], [14].

Infrastructure plays a vital role in supporting various economic activities in many sectors. Transportation infrastructure, for example, helps accelerate the distribution of goods and services, facilitate labor mobility, and open up new market access. Energy infrastructure provides a stable and affordable supply of electricity, which is essential to support the operations of industries and the household sector[15], [16], [17]. Meanwhile, telecommunications infrastructure enables rapid information exchange, which is crucial in today's digital era, improving the efficiency of business communication and technology development[18], [19], [20].

The impact of infrastructure on productivity and economic efficiency is significant. When basic infrastructure such as transportation, energy, and telecommunications are running optimally, companies and individuals can reduce operational costs, speed up production processes, and scale operations[21], [22], [23], [24]. This not only improves the competitiveness of the company in the local market but also opens up export and foreign investment opportunities. Robust infrastructure also supports more inclusive economic growth by ensuring more comprehensive access to essential services, which ultimately improves people's well-being[25], [26], [27].

Adequate infrastructure has a vital role in improving the mobility of goods and services, which directly affects economic efficiency. When transportation infrastructure, such as highways and logistics systems, run well, the distribution of goods becomes faster, and shipping costs can be reduced[28], [29], [30]. This not only helps companies increase productivity but also opens up access to new markets that were previously difficult to reach. With broader market access, companies can expand their market share, increase sales, and drive local and regional economic growth[31], [32], [33].

In addition, good infrastructure also plays a role in encouraging innovation. Telecommunications and digital infrastructure allow for faster exchange of information and technology, facilitate collaboration between economic actors, and facilitate the adoption of new technologies. This innovation ultimately strengthens regional

competitiveness because regions that have superior infrastructure tend to be more attractive to investors and are able to compete more effectively in the global market[34], [35], [36]. Solid infrastructure also serves as a foundation for sustainable development, which can reduce inequality between regions and improve the overall quality of life of the community[37], [38], [39], [40].

Infrastructure development is often a top priority for governments because of its significant impact on sustainable economic growth. Good infrastructure, such as roads, bridges, airports, and energy facilities, is essential to improve efficiency in various sectors of the economy. With adequate infrastructure, access to markets becomes more accessible, the distribution of goods and services is faster, and labor mobility increases[41], [42], [43]. All of this contributes to increasing the productivity and competitiveness of the national economy. Therefore, many countries, especially developing countries, place infrastructure development as an integral part of their long-term economic growth strategies[44], [45], [46], [47].

However, while infrastructure is considered critical to the success of economic development, funding and policy challenges are often the main obstacles. The high cost of building and maintaining infrastructure requires significant investments, both from the government and the private sector[48], [49], [50]. In addition, less supportive policies, such as complicated bureaucracy or inconsistent regulations, can slow down the infrastructure development process. Therefore, synergy between the government and the private sector, as well as proactive policies, is needed to overcome these obstacles and ensure that infrastructure development runs effectively in support of sustainable economic growth[51], [52], [53].

The relationship between infrastructure and economic growth has been the focus of many studies, but the results often show significant variations depending on the regional context. In some areas, infrastructure development, such as transportation and energy, directly drives economic growth by improving efficiency and market access[51], [52], [53]. However, in other regions, the impact may be more limited if the infrastructure does not match local needs or if geographical and demographic conditions become barriers. Factors such as urbanization, population density, and geographical location often affect how much infrastructure affects economic growth in a given region[54], [55], [56].

In addition to regional factors, policies implemented by the government also play an essential role in determining the success of infrastructure in encouraging economic growth. Policies that support infrastructure development, such as incentives for investors, ease of licensing, and transparent regulations, can accelerate the development process and ensure maximum economic benefits[57], [58], [59]. Conversely, inconsistent policies or slow bureaucracy can hamper the effectiveness of infrastructure and limit its impact on economic growth. Therefore, a combination of appropriate policy management and understanding of regional needs is essential to ensure that infrastructure investment can contribute optimally to economic growth[60], [61], [62].

In developing countries, inadequate infrastructure is often a significant obstacle to achieving optimal economic growth. The inability to provide basic infrastructure such as transportation, energy, and clean water leads to limited access to essential markets and services[60], [61], [62]. This further deepens economic inequality between regions, as less developed regions tend to lag further behind economic centers that have better infrastructure[63], [64], [65].

Various theoretical and empirical studies show that increasing infrastructure investment has a significant impact on increasing Gross Domestic Product (GDP) and people's welfare. Good infrastructure allows companies to operate more efficiently, lower distribution costs, and increase productivity[66], [67], [68]. In addition, the community also benefits directly in the form of better access to education, health, and employment, all of which contribute to improving the quality of life[69], [70], [71].

However, the effectiveness of infrastructure development in encouraging economic growth depends on good governance, appropriate policy priorities, and synergy between the public and private sectors[72], [73], [74]. If governance is poor and there is no coordination between related parties, infrastructure investment can stall and not provide maximum results. Therefore, close cooperation and a planned development strategy are essential to achieve the expected economic impact[75], [76], [77].

In the context of regional development, infrastructure not only affects local economic growth but can also increase investment attractiveness and industrial development[78], [79], [80]. Areas with good infrastructure are more attractive to investors as they provide easier access and a more conducive business environment. This can ultimately encourage the development of local industries, expand employment, and increase regional income[81], [82], [83].

This study aims to examine the relationship between infrastructure and economic growth through the Systematic Literature Review (SLR) approach with the PRISMA method. Through this method, the research will identify various relevant studies and explore the factors that affect the success of infrastructure development in

supporting economic growth[84], [85], [86]. The findings of this study are expected to provide deeper insights into how infrastructure can play a role in driving sustainable economic development[87], [88], [89], [90].

2. Theoretical Studies

2.1 The Role of Infrastructure in the Framework of Classical Economic Growth Theory

Classical economic growth theory emphasizes that factors of production, such as land, labor, and capital, are critical elements in driving economic growth. In this context, infrastructure is considered an essential part of the physical capital that supports the production process[91], [92], [93]. With adequate infrastructure in place, the production process becomes more efficient because it speeds up the distribution of goods, reduces logistics costs, and increases access to the resources needed. As physical capital, infrastructure not only facilitates production but also expands economic capacity to overcome structural barriers[94], [95], [96].

Infrastructure, such as highways, railways, and ports, plays a role in supporting the mobility of labor and goods between regions, which directly increases productivity and economic growth[97], [98], [99]. With better access, companies can utilize resources from different regions more efficiently, ultimately increasing overall economic output. In addition, good infrastructure also allows workers to move more easily between work sites, thereby increasing labor flexibility and creating a more dynamic labor market[100], [101], [102].

However, it is essential to remember that infrastructure not only serves as physical capital in classical economic growth theory but also as a catalyst for innovation and investment[103], [104], [105]. When basic infrastructure is in place, such as adequate transportation networks, it opens up opportunities for new industries to expand and for companies to adopt more advanced technologies. Therefore, the role of infrastructure in classical economic growth theory is not only limited to production efficiency, but also to its capacity to drive structural change and accelerate economic modernization in various sectors[106], [107], [108].

2.2 The Role of Infrastructure in Regional Economic Theory

In regional economic theory, infrastructure is considered the main driver of regional development through increased accessibility and connectivity between regions. Adequate infrastructure, such as highways, ports, and airports, allows remote or underdeveloped areas to more easily connect with economic centers[109], [110], [111], [112]. With increased accessibility, these areas can attract more investment, both from within and outside the country, which in turn creates new jobs and strengthens the local economic base. Good infrastructure also reduces geographical barriers that are often a major obstacle to regional economic development[113], [114], [115], [116].

Improved connectivity also strengthens the region's competitiveness, as better access allows companies to operate more efficiently and expand their market reach. With supporting infrastructure, logistics costs can be reduced, distribution times can be accelerated, and business relationships between regions become more closely established[117], [118], [119]. This not only improves economic efficiency but also encourages innovation and collaboration between regions. Regions with superior infrastructure will more easily attract investors and create a conducive business environment, thereby strengthening overall regional competitiveness[120], [121], [122].

In addition, infrastructure in regional economic theory is also seen as a tool to create a balance of development between regions. When adequate infrastructure is available in different regions, the distribution of resources and economic opportunities becomes more even, thereby reducing economic inequality between regions[123], [124], [125]. Well-planned infrastructure development can help underdeveloped regions to grow in line with developed regions, creating harmony in national economic growth. Inclusive infrastructure serves as an essential catalyst in encouraging sustainable and equitable development across the region[126], [127], [128].

2.3. Infrastructure as a Driver of Mobility in Economic Growth

Infrastructure-based development theory emphasizes that efficient infrastructure development is the key to increasing the mobility of capital, labor, and goods[129], [130], [131]. Transportation infrastructure, such as roads, bridges, and ports, allows for faster and more efficient movement of goods and services, which directly increases productivity. Better mobility also expands market reach for companies and creates new opportunities for investment. With better infrastructure, the cost of distributing goods can be reduced, which ultimately increases the company's competitiveness in the domestic and international markets[132], [133], [134].

In addition to increasing the mobility of goods, infrastructure also has a significant impact on labor mobility. Adequate transportation infrastructure allows workers to move from one region to another more easily, creating a more flexible labor market[135], [136], [137]. Workers who have high mobility can fill labor shortages in specific regions and take advantage of better job opportunities in other areas. This ultimately improves the welfare of the workforce and encourages economic growth evenly in various regions[138], [139], [140].

The existence of efficient infrastructure also accelerates capital mobility. Better access to financial infrastructure and technology allows companies to obtain the capital resources they need to thrive more easily [141], [142], [143]. With a good telecommunications infrastructure, for example, companies can more quickly access the capital market and the latest technology to increase their productivity. As a result, economic growth can be accelerated as capital, labor, and goods can move more efficiently, creating a supportive environment for innovation and business expansion [144], [145], [146], [147].

3. Research Methods

This study uses the Systematic Literature Review (SLR) method which is a systematic approach in collecting and analyzing relevant literature for a particular topic [148], [149], [150], [151]. This approach focuses on reporting results based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines, which provide rigorous guidelines to ensure that literature reviews are conducted in a transparent, comprehensive, and standardized manner [152], [153], [154], [155], [156]. PRISMA allows researchers to filter relevant information and ensure that each stage in the research process is well documented.

The initial stage in the SLR method is a literature search using credible academic databases such as Scopus, ScienceDirect, and Google Scholar [157], [158], [159]. In this study, the literature collected is a study related to infrastructure, economic growth, and regional development [160], [161], [162], [163]. The use of appropriate keywords is essential to ensure that the articles collected are genuinely relevant to the topic being researched.

The PRISMA stage begins with the identification of relevant literature through database searches. At this stage, all relevant literature, including journal articles, reports, and other sources, is noted. After identification, screening is carried out to eliminate irrelevant literature, including the removal of duplicate articles and those that do not meet the criteria [164], [165], [166].

This research focuses on literature that specifically discusses the relationship between infrastructure and economic growth in developing countries. Good infrastructure can increase productivity and strengthen regional competitiveness, thus playing an essential role in economic growth [167], [168], [169]. However, this relationship is often influenced by moderation factors, such as government policies, public investment, and adequate infrastructure governance [170], [171], [172].

4. Results and Discussion

4.1 The Role of Infrastructure in Driving Economic Growth in Developing Countries

Based on literature reviews, most studies show that infrastructure plays a vital role in driving economic growth, especially in developing countries. Adequate transportation, energy, and communication infrastructure helps increase productivity by facilitating the flow of goods and services. In many cases, infrastructure development has proven to have a positive effect on increasing per capita income and national economic competitiveness. In addition, adequate infrastructure also strengthens a region's attractiveness to foreign investors, which in turn can support industrialization and modernization of the economy.

However, the positive impact of infrastructure on economic growth is greatly influenced by the quality of management and underlying public policies. In many developing countries, one of the main challenges is weak infrastructure governance, which often hampers or off-target development projects. For example, infrastructure projects that are not supported by careful planning or stable funding often result in suboptimal facilities. As a result, the full potential of infrastructure investment to boost economic growth cannot be fully realized.

In addition to management factors, the availability of public and private funds is also critical to the success of infrastructure development. Many developing countries face limitations in terms of funding, which leads them to rely on foreign loans or private investment to build the infrastructure needed. While private sector involvement in infrastructure development can accelerate the development process, the challenge is how to ensure that the investment provides equitable benefits to the broader community, not just the benefits to the companies involved.

The studies analyzed in this literature also highlight that supportive policies and long-term strategies must accompany infrastructure development. For example, the construction of highways that improve accessibility must be supported by policies that encourage the development of local industries and market access. Without complementary policies, infrastructure development may not provide the expected economic benefits. This shows the importance of synergy between physical development and comprehensive economic planning.

On the other hand, the literature also notes that infrastructure development often has an uneven impact in different regions within a country. Urban areas often benefit more from infrastructure development than rural or remote areas. This inequality deepens economic disparities between regions, which can ultimately hinder overall economic growth. Therefore, the government needs to ensure that infrastructure projects are planned by considering the needs of each region fairly and equitably. The positive influence of infrastructure on economic growth is also greatly influenced by local contextualization. Developing countries with different geographical, demographic, and political conditions require a specific approach to infrastructure planning. Countries with large areas and dispersed populations, for example, require different transport networks compared to

smaller, more densely populated countries. Therefore, the literature emphasizes the importance of adapting infrastructure development strategies to the unique characteristics of each country or region.

This review concludes that infrastructure plays a strategic role in supporting economic growth, especially in developing countries. Its success depends heavily on governance, supporting policies, and strategies tailored to the local context. With careful planning and good synergy between various stakeholders, infrastructure investment can provide significant benefits for sustainable economic development.

Table 1. The Role of Infrastructure in Driving Economic Growth in Developing Countries

Key Factors	Research Results	Source
Infrastructure and Growth	Infrastructure plays a crucial role in driving economic growth, especially in developing countries.	[173], [174], [175], [176], [177].
Governance	Good governance is essential to ensure that infrastructure has a maximum positive impact.	[178], [179], [180], [181], [182].
Funding	Limited funding in developing countries affects the speed and effectiveness of infrastructure development.	[183], [184], [185], [186], [187].
Supporting Policies	Policies that support infrastructure must exist to ensure that the expected economic outcomes are achieved.	[188], [189], [190], [191], [192].
Regional Inequality	Infrastructure often deepens inequality between regions, especially between urban and rural areas.	[193], [194], [195], [196], [197].
Local Contextualization	Each country needs a specific approach to infrastructure development based on its unique conditions.	[16], [198], [199], [200], [201].
Long-Term Strategy	Infrastructure development requires a mature strategy and synergy between the government and the private sector.	[202], [203], [204], [205], [206].

4.2 Transportation Infrastructure as the Main Driver of Economic Growth

Transportation infrastructure plays a central role in driving a country's economic growth. Highways, railways, and other transportation lines not only facilitate the mobility of goods and services but also accelerate the flow of information and connections between different regions. When access to new markets opens up, companies can expand the reach of their operations and create a more efficient supply chain. Thus, good transportation infrastructure is able to support economic productivity and increase global competitiveness.

The study shows a positive correlation between transportation infrastructure development and Gross Domestic Product (GDP) growth. Efficient transportation infrastructure lowers logistics costs and improves delivery times, which ultimately improves the company's production capacity and competitiveness. For example, the construction of new highway and rail networks in various developing countries has succeeded in significantly increasing economic output, especially in industrial sectors that rely on fast and reliable distribution.

In addition, transportation infrastructure helps reduce economic inequality between regions by increasing access to remote areas. With adequate infrastructure, previously isolated areas can be connected to major economic centers, opening up new investment opportunities and improving the livelihoods of local communities. The spillover effect of this transportation infrastructure can be seen in the growth of other sectors, such as trade, tourism, and manufacturing, which depend on good accessibility.

However, the success of transportation infrastructure in encouraging economic growth is inseparable from the existing challenges. In many developing countries, funding constraints and governance weaknesses cause infrastructure projects not to run as planned or not to have maximum economic impact. Therefore, careful planning, adequate funding, and supportive policies are essential to ensure that transportation infrastructure can provide long-term benefits.

Overall, effective and efficient transportation infrastructure plays a crucial role in accelerating a country's economic growth. By improving access to markets and strengthening inter-regional relationships, transport infrastructure opens up great opportunities for inclusive and sustainable economic growth. To achieve optimal results, cooperation between the government, the private sector, and other stakeholders is needed in the planning, management, and development of transportation infrastructure projects.

Table 2. Transportation Infrastructure as the Main Driver of Economic Growth

Aspects	Research Results	Source
Correlation of Infrastructure and GDP	Good transportation infrastructure shows a positive correlation with a country's GDP growth.	[207], [208], [209], [210], [211].
Increased Market Access	Transportation infrastructure expands market access and creates more efficient supply chains.	[212], [213], [214], [215], [216].
Reducing Regional Inequality	Infrastructure helps reduce economic inequality between regions by opening access to remote areas.	[217], [218], [219], [220], [221].
Challenges in Development	Limited funds and weak governance are challenges in ensuring maximum benefits from infrastructure.	[222], [223], [224], [225].
Drivers of Economic Growth	Efficient transportation infrastructure plays a vital role in accelerating sustainable economic growth.	[30], [209], [226], [227], [228].

4.3 The Influence of Infrastructure in Reducing Economic Inequality Between Regions

Adequate infrastructure development plays a crucial role in encouraging economic growth and reducing inequality between regions. As transportation, energy, and communications infrastructure improves, previously isolated areas gain easier access to important economic centers and services. With good roads, ports, and telecommunication networks, goods and services can move faster and more efficiently, opening up new opportunities for investment and trade in remote areas.

The increased accessibility resulting from infrastructure development also provides direct benefits to local communities. Rural areas that were once difficult to reach are becoming more open to education, health services, and the job market. This, in turn, helps to improve the quality of life of the people in these areas and encourages local economic growth. With better access, communities can access a broader market for local agricultural and industrial products, ultimately driving increased income.

Transportation infrastructure, such as highways and railways, has a spillover effect that can accelerate the development of other sectors. As roads and transport lines are improved, logistics costs for transporting goods and services decrease. This allows companies in remote areas to reduce operational costs and become more competitive in the market. In addition, increased connectivity between regions allows for the development of sectors such as tourism, the manufacturing industry, and trade, which directly impacts the improvement of the regional economy.

However, effective infrastructure development does not only depend on physical factors but also on supporting governance and policies. Many developing countries face problems in terms of funding and implementing infrastructure projects, which often leads to imbalances in the distribution of infrastructure between regions. For example, urban areas tend to be prioritized in the allocation of infrastructure resources, while rural areas are often left behind. This deepens economic inequality between regions, although the original intention was to reduce the gap.

Better planning and management in infrastructure development are needed to overcome this problem. The government must ensure that the infrastructure projects designed not only focus on developed areas but also cover underdeveloped areas. In addition, the private sector's involvement in financing infrastructure projects is also important to reduce the burden on the government and accelerate the development process. The synergy between the public and private sectors can create a more equitable and inclusive infrastructure.

The positive impact of infrastructure development on reducing inequality between regions also depends on how effectively local communities use the infrastructure. Without adequate training and education, people in remote areas may not be able to take full advantage of the economic opportunities offered by new infrastructure. Therefore, infrastructure development must be followed by programs that increase the capacity of local communities to utilize the infrastructure optimally.

Overall, good infrastructure boosts economic growth and helps reduce economic inequality between regions. With better access to services, markets, and job opportunities, people in remote areas have a more significant opportunity to improve their well-being. However, the success of infrastructure in reducing economic inequality depends heavily on careful planning, good governance, and inclusive policies.

Table 3. The Influence of Infrastructure in Reducing Economic Inequality Between Regions

Aspects	Research Results	Source
Accessibility	Infrastructure improves access to services and markets, especially in remote areas.	[229], [230], [231], [232].
Impact on Quality of Life	Improving infrastructure helps improve the quality of life of people in remote areas.	[233], [234], [235], [236].
Infrastructure Spillover Effect	Good infrastructure supports the development of other sectors, such as trade and tourism.	[237], [238], [239], [240].
Governance Challenges	The problem of uneven funding and distribution of infrastructure deepens inequality between regions.	[241], [242], [243], [244].
Inclusive Planning	Infrastructure planning must include disadvantaged areas to reduce economic inequality.	[245], [246], [247], [248].
Synergy between the Public and Private Sectors	Private sector involvement is essential to accelerate equitable and inclusive infrastructure development.	[202], [249], [250], [251], [252].
Use of Infrastructure by the Community	Community capacity-building programs must follow good infrastructure for optimal results.	[253], [254], [255].

4.4 The Role of Energy Infrastructure in Supporting Economic Growth

Energy infrastructure is one of the main pillars in supporting economic growth. The availability of stable and affordable energy plays a vital role in maintaining smooth industrial operations and meeting household needs. Reliable energy allows companies to produce optimally without being disrupted by supply issues, ultimately increasing efficiency and productivity. In the context of developing countries, the development of energy infrastructure is a top priority to strengthen economic competitiveness and encourage broader industrialization.

In addition, good energy infrastructure not only supports the industrial sector but also contributes to improving the quality of life of the community. Affordable energy allows households to get better access to electricity for daily needs, such as lighting, electronic devices, and water heaters. This increase in energy access for households also encourages increased productivity in the informal sector and increases economic opportunities for individuals in rural or remote areas.

Energy infrastructure is an essential foundation for the development of more advanced industries in the industrial sector. The manufacturing industry, for example, relies heavily on a stable supply of energy to operate production machinery and equipment. When energy costs are lower, and supply is more reliable, companies can reduce production costs and improve their competitiveness in the global market. Good energy infrastructure also drives the growth of the renewable energy sector, which is increasingly important in supporting sustainable economic growth.

However, the development of energy infrastructure in many developing countries is still facing significant challenges. Funding issues, unclear regulations, and uneven distribution of energy often hamper efforts to provide stable and affordable energy across the region. Remote and rural areas are often the most affected areas, with limited access to modern energy. This inequality deepens economic disparities between regions, which ultimately affects overall economic growth.

To address these challenges, the government needs to work with the private sector to create a sustainable investment model for energy infrastructure development. Renewable energy projects, such as solar and wind, can be a long-term solution to meet energy needs in areas that traditional power grids have not reached. In addition, more transparent regulations and fiscal incentives could encourage more investment in the energy sector, accelerating the development of energy infrastructure that is evenly distributed across the region.

In conclusion, energy infrastructure plays a strategic role in strengthening a country's economic competitiveness and supporting sustainable economic growth. The availability of stable and affordable energy is essential not only for the industrial sector but also for households. However, the success of energy infrastructure development is highly dependent on good governance, sustainable investment models, and policies that support the development of renewable energy.

Table 4. The Role of Energy Infrastructure in Supporting Economic Growth

Aspects	Research Results	Source
Energy Stability	Good energy infrastructure provides a stable supply to support the smooth operation of industries and households.	[256], [257], [258], [259].
Impact on Industry	Affordable and reliable energy improves production efficiency and industrial competitiveness in the global market.	[95], [260], [261], [262].
Improved Quality of Life	Access to affordable energy improves the quality of life of households and economic opportunities in rural areas.	[263], [264], [265], [266].
Energy Infrastructure Challenges	The main obstacles to the development of energy infrastructure are unequal funding, regulation, and distribution of energy.	[267], [268], [269], [270].
Public-Private Synergy	Cooperation between the government and the private sector is needed to create sustainable investment in the energy sector.	[271], [272], [273], [274].
Renewable Energy	Renewable energy, such as solar and wind power, can be a long-term solution to meet equitable energy needs.	[275], [276], [277], [278].

4.5 Challenges of Governance and Financing in Infrastructure Development for Economic Growth

Infrastructure development plays a vital role in encouraging economic growth, especially in developing countries. However, a significant challenge often faced is poor governance. Effective governance is necessary to ensure that infrastructure projects are well-planned, implemented, and managed. Unfortunately, many infrastructure projects are hampered by complex

bureaucracy, corruption, and a lack of transparency in the decision-making process. This often leads to project delays, inflated costs, and suboptimal results.

Limited financing is also a significant problem in infrastructure development. Many developing countries do not have enough funds to finance major infrastructure projects such as highways, power grids, and clean water systems. Reliance on international loans or foreign aid is often the only option to finance such projects, ultimately adding to the country's debt burden. This puts tremendous pressure on the government budget, which should be allocated to other sectors such as education and health.

The lack of synergy between the government and the private sector also hampers the acceleration of infrastructure development. In many countries, governments are often the only party responsible for infrastructure development, while the private sector tends to be reluctant to invest due to high risks and regulatory uncertainty. In fact, public-private partnership (PPP) can be an effective solution to overcome financing and risk problems. By involving the private sector, the government can share the burden of financing and ensure that infrastructure projects can run faster and more efficiently.

In this context, clear and supportive government policies are urgently needed to create a conducive environment for the private sector. Governments must provide transparent regulations, fiscal incentives, and legal certainty to encourage private investment in infrastructure projects. Without supportive policies, the private sector will continue to be hesitant to engage in large and complex infrastructure projects. Therefore, policy reform is essential to create synergies between the government and the private sector.

In addition to policies, mature infrastructure planning also plays a vital role in increasing the effectiveness of development. The government needs to design infrastructure projects that are not only suitable for the current economic needs but can also meet long-term needs. Well-planned infrastructure will provide sustainable economic benefits, while poorly planned projects can lead to wasted funds and unused infrastructure.

In some cases, financing barriers can be overcome by adopting innovative financing models, such as infrastructure bonds or blended financing schemes between governments, the private sector, and international institutions. These models allow for more flexible funding and reduce reliance on traditional loans. However, implementing this model effectively requires strong financial management skills and good governance.

In conclusion, poor governance, inadequate financing, and a lack of synergy between the government and the private sector are the main obstacles to effective infrastructure development. To address these challenges, policy reforms, better planning, and the adoption of innovative financing models are necessary. Only through these measures can infrastructure optimally contribute to sustainable economic growth.

In conclusion, poor governance, inadequate financing, and lack of synergy between the government and the private sector are the main obstacles to effective infrastructure development. To address these challenges, policy reforms, better planning, and the adoption of innovative financing models are needed. Only in this way can infrastructure contribute optimally to sustainable economic growth.

Table 5. Challenges of Governance and Financing in Infrastructure Development for Economic Growth

Aspects	Research Results	Source
Project Governance	Poor governance leads to project delays, cost overruns, and suboptimal results.	[279], [280], [281], [282].
Financing Limitations	Many developing countries face financing constraints and often rely on foreign loans.	[283], [284], [285], [286].
Lack of Synergy with the Private Sector	Kurangnya keterlibatan sektor swasta menghambat percepatan pembangunan infrastruktur.	[287], [288], [289], [290].
Government Policy	Supportive policies are needed to create a conducive environment for private investment.	[291], [292], [293], [294].
Infrastructure Planning	Careful infrastructure planning is essential to ensure the sustainability of the economic benefits of large projects.	[295], [296], [297], [298].
Innovative Financing Models	Innovative financing models such as infrastructure bonds can help overcome financing barriers.	[299], [300], [301], [302].
Policy Reform	Policy reform is urgently needed to create synergy between the government and the private sector in development.	[303], [304], [305], [306].

5. Conclusion

Infrastructure development plays a vital role in driving economic growth, especially in developing countries. Good infrastructure, such as transportation, energy, and telecommunications, can increase productivity, open more comprehensive market access, and strengthen a region's economic competitiveness. When the infrastructure is adequate, the production process becomes more efficient, the distribution of goods is faster, and logistics costs decrease. This allows for an increase in economic activity and strengthens the long-term growth potential.

However, effective infrastructure investment must be supported by clear government policies and synergies between the public and private sectors. Governments have an essential role to play in creating a conducive environment for the private sector to participate in infrastructure projects through supportive regulations and fiscal incentives. Cooperation between these two sectors allows for risk sharing and financing, thereby accelerating the development of much-needed infrastructure to support economic growth.

Adequate infrastructure can increase economic growth and reduce inequality between regions. Areas that were previously isolated with poor infrastructure can be connected to more developed economic centers, creating opportunities for economic development in these regions. Improved access to markets, education, and health services also helps to reduce economic and social disparities between regions. Inclusive infrastructure plays a vital role in creating more equitable growth across the country's territory.

However, the success of infrastructure development is often hampered by challenges in terms of governance and funding. Many developing countries face problems in managing infrastructure projects properly, which often leads to delays, inflated costs, and suboptimal results. In addition, limited public funds and reliance on foreign loans also add to the pressure on the state budget. Therefore, improvements are needed in project governance and diversification of funding sources to ensure the success of infrastructure development.

To achieve optimal benefits, further research is needed to explore more efficient ways to improve the effectiveness of infrastructure investments in various regional contexts. With a better understanding of the factors that affect the success of infrastructure development, more appropriate policies can be designed to ensure that infrastructure functions optimally in driving sustainable and inclusive economic growth.

References

- [1] B. Surya, H. Saleh, H. Hamsina, M. Idris, and D. N. A. Ahmad, "Rural agribusiness-based agropolitan area development and environmental management sustainability: Regional economic growth perspectives," *Int. J. Energy Econ. Policy*, vol. 11, no. 1, pp. 142–157, 2021, doi: 10.32479/ijeeep.10184.
- [2] M. Han, J. Lao, Q. Yao, B. Zhang, and J. Meng, "Carbon inequality and economic development across the Belt and Road regions," *J. Environ. Manage.*, vol. 262, no. October 2019, p. 110250, 2020, doi: 10.1016/j.jenvman.2020.110250.
- [3] Y. Miao and J. Liu, "Occupation of Cultivated Land for Urban – Rural Expansion in," 2021.
- [4] W. Tang, X. Zhao, S. Zhai, and L. Cao, "Local government debt and corporate tax burden: A perspective based on the trade-off of government tax collection and management," *PLoS One*, vol. 18, no. 7 July, pp. 1–23, 2023, doi: 10.1371/journal.pone.0287763.
- [5] J. Ma *et al.*, "The 2021 battery technology roadmap," *J. Phys. D. Appl. Phys.*, vol. 54, no. 18, 2021, doi: 10.1088/1361-6463/abd353.
- [6] A. Razmjoo, L. Gakenia Kaigutha, M. A. Vaziri Rad, M. Marzband, A. Davarpanah, and M. Denai, "A Technical analysis investigating energy sustainability utilizing reliable renewable energy sources to reduce CO2 emissions in a high potential area," *Renew. Energy*, vol. 164, pp. 46–57, 2021, doi: 10.1016/j.renene.2020.09.042.
- [7] Y. K. Dwivedi *et al.*, "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy," *Int. J. Inf. Manage.*, vol. 71, no. March, 2023, doi: 10.1016/j.ijinfomgt.2023.102642.
- [8] O. J. Oladunni and O. A. Olanrewaju, "Effects of the Impact Factors on Transportation Sector's CO2-eq Emissions: Panel Evaluation on South Africa's Major Economies," *Atmosphere (Basel)*, vol. 13, no. 10, 2022, doi: 10.3390/atmos13101705.
- [9] H. Li, K. Chen, L. Yan, Y. Zhu, L. Liao, and Y. Chen, "Urban land use transitions and the economic spatial spillovers of central cities in china's urban agglomerations," *Land*, vol. 10, no. 6, 2021, doi: 10.3390/land10060644.
- [10] V. Lazović, M. Jovović, T. Backović, T. Djuričković, and B. Rondović, "Is Digital Economy a Good Samaritan to Developing Countries?," *Sustain.*, vol. 14, no. 14, pp. 1–22, 2022, doi: 10.3390/su14148471.
- [11] V. Vogl, M. Åhman, and L. J. Nilsson, "The making of green steel in the EU: a policy evaluation for the early commercialization phase," *Clim. Policy*, vol. 21, no. 1, pp. 78–92, 2021, doi: 10.1080/14693062.2020.1803040.
- [12] H. Sseguya *et al.*, "The impact of demonstration plots on improved agricultural input purchase in Tanzania: Implications for policy and practice," *PLoS One*, vol. 16, no. 1 January, pp. 1–16, 2021, doi: 10.1371/journal.pone.0243896.
- [13] A. Rampa, Y. Gadanakis, and G. Rose, "Land reform in the era of global warming—can land reforms help agriculture be climate-smart?," *Land*, vol. 9, no. 12, pp. 1–24, 2020, doi: 10.3390/land9120471.
- [14] J. U. Ahmed, N. Talukder, and A. Ahmed, "Infrastructure Development Company Limited Solar Home System Program: A Sustainable Solution for Energizing Rural Bangladesh," *South Asian J. Bus. Manag. Cases*, vol. 9, no. 2, pp. 219–236, 2020, doi: 10.1177/2277977920905305.

- [15] B. Y. Alkhaldeh, A. W. Al-Smadi, A. Y. A. B. Ahmad, S. M. El-Dalalmeh, N. Alsuwais, and M. N. Almarshad, "Macroeconomic Determinants of Renewable Energy Production in Jordan," *Int. J. Energy Econ. Policy*, vol. 14, no. 3, pp. 473–481, 2024, doi: 10.32479/ijecp.15552.
- [16] J. A. van Zanten and R. van Tulder, "Towards nexus-based governance: defining interactions between economic activities and Sustainable Development Goals (SDGs)," *Int. J. Sustain. Dev. World Ecol.*, vol. 28, no. 3, pp. 210–226, 2021, doi: 10.1080/13504509.2020.1768452.
- [17] V. Gorochnaya and A. Mikhaylov, "Spatial configuration of rostov agglomeration in southwestern russia – territorial, demographical and functional dynamics," *Hum. Geogr.*, vol. 14, no. 2, pp. 301–320, 2020, doi: 10.5719/hgeo.2020.142.8.
- [18] Z. Wang, C. Zhang, Y. Ding, H., "Applied Mathematics and Nonlinear Sciences," *Appl. Math. Nonlinear Sci.*, vol. 8, no. 2, pp. 3383–3392, 2023.
- [19] T. Rydén Sonesson, J. Johansson, and A. Cedergren, "Governance and interdependencies of critical infrastructures: Exploring mechanisms for cross-sector resilience," *Saf. Sci.*, vol. 142, no. April, 2021, doi: 10.1016/j.ssci.2021.105383.
- [20] A. Du, "Implications of 5G rollout on post-earthquake functionality of regional telecommunication infrastructure," *J. Infrastruct. Intell. Resil.*, vol. 3, no. 1, 2024, doi: 10.1016/j.iintel.2024.100084.
- [21] W. Zhang, S. Z. Id, X. Wan, and Y. Yao, "Study on the effect of digital economy on high-quality economic development in China," pp. 1–27, 2021, doi: 10.1371/journal.pone.0257365.
- [22] Z. Fu, Y. Zhou, W. Li, and K. Zhong, "Impact of digital finance on energy efficiency : empirical findings from China," *Environ. Sci. Pollut. Res.*, pp. 2813–2835, 2023, doi: 10.1007/s11356-022-22320-5.
- [23] X. Du, H. Zhang, and Y. Han, "How Does New Infrastructure Investment Affect Economic Growth Quality ? Empirical Evidence from China," pp. 1–30, 2022.
- [24] W. Ul, H. Shah, G. Hao, H. Yan, R. Yasmeen, and Y. Jie, "The role of energy policy transition , regional energy efficiency , and technological advancement in the improvement of China ' s environmental quality," *Energy Reports*, vol. 8, pp. 9846–9857, 2022, doi: 10.1016/j.egy.2022.07.161.
- [25] F. M. Wuaten, "The Role of Sustainable Finance and Technology at Bank BJB in Supporting the " Sustainable Development Goals " , " vol. 5, no. 1, pp. 97–108, 2023.
- [26] A. Issn, I. Scientific, C. Chief, H. Assessment, and D. B. Review, "MELAWI REGENCY ECONOMIC PILLAR : BUILDING FROM TRADITION TO INNOVATION," pp. 1–26, 2024.
- [27] Y. Almansoub, M. Zhong, A. Raza, M. Safdar, A. Dahou, and M. A. A. Al-qaness, "Exploring the Effects of Transportation Supply on Mixed Land-Use at the Parcel Level," 2022.
- [28] I. Henke, A. Carten, C. Moliterno, and A. Errico, "Decision-Making in the Transport Sector : A Sustainable Evaluation Method for Road Infrastructure," 2020.
- [29] Z. Wu and Y. Zhang, "Integrated Network Design and Demand Forecast for On-Demand Urban Air Mobility," *Engineering*, vol. 7, no. 4, pp. 473–487, 2021, doi: 10.1016/j.eng.2020.11.007.
- [30] A. P. Cohen, S. A. Shaheen, and E. M. Farrar, "Urban Air Mobility: History, Ecosystem, Market Potential, and Challenges," *IEEE Trans. Intell. Transp. Syst.*, vol. 22, no. 9, pp. 6074–6087, 2021, doi: 10.1109/TITS.2021.3082767.
- [31] F. Taghizadeh-Hesary, E. Rasoulizhad, and H. Phoumin, "Ways to achieve universal access to sustainable electricity in Southeast Asia," *Econ. Chang. Restruct.*, vol. 55, no. 4, pp. 2031–2050, 2022, doi: 10.1007/s10644-022-09386-4.
- [32] D. H. Vo, N. T. Nguyen, and L. Thi-Hong Van, "Financial inclusion and stability in the Asian region using bank-level data," *Borsa Istanbul Rev.*, vol. 21, no. 1, pp. 36–43, 2021, doi: 10.1016/j.bir.2020.06.003.
- [33] P. J. Landrigan *et al.*, "The Minderoo-Monaco Commission on Plastics and Human Health," *Ann. Glob. Heal.*, vol. 89, no. 1, 2023, doi: 10.5334/aogh.4056.
- [34] T. Qin, L. Wang, Y. Zhou, L. Guo, G. Jiang, and L. Zhang, "Digital Technology-and-Services-Driven Sustainable Transformation of Agriculture: Cases of China and the EU," *Agric.*, vol. 12, no. 2, pp. 1–16, 2022, doi: 10.3390/agriculture12020297.
- [35] A. Liby, "ORNL's Advanced Manufacturing Initiative," *Core Univ. Liaison Meet.*, 2013.
- [36] A. Ayub Khan, A. A. Wagan, A. A. Laghari, A. R. Gilal, I. A. Aziz, and B. A. Talpur, "BloMT: A State-of-the-Art Consortium Serverless Network Architecture for Healthcare System Using Blockchain Smart Contracts," *IEEE Access*, vol. 10, no. August, pp. 78887–78898, 2022, doi: 10.1109/ACCESS.2022.3194195.
- [37] W. Cheng and O. O. Adejumo, "Entrepreneurship channels and sustainable development: Directions for the asian economy," *J. Bus. Econ. Manag.*, vol. 22, no. 3, pp. 799–822, 2021, doi: 10.3846/jbem.2021.14252.
- [38] J. R. Souza, J. G. de Oliveira, J. E. B. Neto, and J. L. Pinheiro, "Efficiency and profitability of development finance agencies," *Rev. Adm. Publica*, vol. 55, no. 4, pp. 969–994, 2021, doi: 10.1590/0034-761220200111.
- [39] Z. Fritz, J. L. Huppert, K. Liddell, R. Holton, and J. P. Fuld, "Ethical principles and a practical approach to support policy making through the next phases of the COVID-19 pandemic and beyond," *Clin. Med. J. R. Coll. Physicians London*, vol. 21, no. 2, pp. E122–E125, 2021, doi: 10.7861/CLINMED.2020.0843.
- [40] B. Surya, A. Salim, H. Hernita, S. Suriani, H. Abubakar, and H. Saleh, "Handling Slum Settlement Based on Community Participation and Socio-Cultural Change: Perspective of Sustainable Development of Makassar City, Indonesia," *Geogr. Pannonica*, vol. 25, no. 4, pp. 300–316, 2021, doi: 10.5937/gp25-33038.
- [41] D. Fuente, M. Allaire, M. Jeuland, and D. Whittington, "Forecasts of mortality and economic losses from poor water and sanitation in sub-Saharan Africa," *PLoS One*, vol. 15, no. 3, 2020, doi: 10.1371/journal.pone.0227611.
- [42] P. A. Khan, S. K. Johl, S. Akhtar, M. Asif, A. A. Salameh, and T. Kanesan, "Open Innovation of Institutional Investors

- and Higher Education System in Creating Open Approach for SDG-4 Quality Education: A Conceptual Review," *J. Open Innov. Technol. Mark. Complex.*, vol. 8, no. 1, p. 49, 2022, doi: 10.3390/joitmc8010049.
- [43] N. Kapoor, N. Ahmad, S. K. Nayak, S. P. Singh, P. V. Ilavarasan, and P. Ramamoorthy, "Identifying infrastructural gap areas for smart and sustainable tribal village development: A data science approach from India," *Int. J. Inf. Manag. Data Insights*, vol. 1, no. 2, p. 100041, 2021, doi: 10.1016/j.ijmei.2021.100041.
- [44] M. Henaway, "Amazon's distribution space: Constructing a 'labour fix' through digital Taylorism and corporate Keynesianism," *ZFW - Adv. Econ. Geogr.*, vol. 67, no. 4, pp. 202–216, 2023, doi: 10.1515/zfw-2022-0017.
- [45] J. van Dijk, "Governing digital societies: Private platforms, public values," *Comput. Law Secur. Rev.*, vol. 36, 2020, doi: 10.1016/j.clsr.2019.105377.
- [46] A. S. Genkin and A. A. Mikheev, "Influence of coronavirus crisis on food industry economy," *Foods Raw Mater.*, vol. 8, no. 2, pp. 204–215, 2020, doi: 10.21603/2308-4057-2020-2-204-215.
- [47] A. S. Green, "Of Revenue Without Rulers: Public Goods in the Egalitarian Cities of the Indus Civilization," *Front. Polit. Sci.*, vol. 4, no. April, pp. 1–19, 2022, doi: 10.3389/fpos.2022.823071.
- [48] L. Lin and Y. Hong, *Developing a Green Bonds Market: Lessons from China*, vol. 23, no. 1. Springer International Publishing, 2022, doi: 10.1007/s40804-021-00231-1.
- [49] N. J. E. van Vooren, B. M. Steenkamer, C. A. Baan, and H. W. Drewes, "Transforming towards sustainable health and wellbeing systems: Eight guiding principles based on the experiences of nine Dutch Population Health Management initiatives," *Health Policy (New York)*, vol. 124, no. 1, pp. 37–43, 2020, doi: 10.1016/j.healthpol.2019.11.003.
- [50] A. Aerts and D. Bogdan-Martin, "Leveraging data and AI to deliver on the promise of digital health," *Int. J. Med. Inform.*, vol. 150, p. 104456, 2021, doi: 10.1016/j.ijmedinf.2021.104456.
- [51] S. Vanino *et al.*, "Barriers and opportunities of soil knowledge to address soil challenges: Stakeholders' perspectives across Europe," *J. Environ. Manage.*, vol. 325, no. October 2022, 2023, doi: 10.1016/j.jenvman.2022.116581.
- [52] H. E. Power, A. W. M. Pomeroy, M. A. Kinsela, and T. P. Murray, "Research Priorities for Coastal Geoscience and Engineering: A Collaborative Exercise in Priority Setting From Australia," *Front. Mar. Sci.*, vol. 8, no. April, 2021, doi: 10.3389/fmars.2021.645797.
- [53] C. M. Rogerson, "Using municipal tourism assets for leveraging local economic development in south africa," *Bull. Geogr. Socio-economic Ser.*, vol. 48, no. 48, pp. 47–63, 2020, doi: 10.2478/bog-2020-0013.
- [54] S. Datta and J. Roy, "Threats from weather events, urbanization and resilience: A case study of a coastal geography in India," *J. Integr. Environ. Sci.*, vol. 20, no. 1, 2023, doi: 10.1080/1943815X.2023.2218474.
- [55] F. Trentini *et al.*, "Modeling the interplay between demography, social contact patterns, and SARS-CoV-2 transmission in the South West Shewa Zone of Oromia Region, Ethiopia," *BMC Med.*, vol. 19, no. 1, pp. 1–13, 2021, doi: 10.1186/s12916-021-01967-w.
- [56] M. Altaaweel, J. Hanson, and A. Squitieri, "The structure, centrality, and scale of urban street networks: Cases from pre-industrial Afro-Eurasia," *PLoS One*, vol. 16, no. 11 November, pp. 1–23, 2021, doi: 10.1371/journal.pone.0259680.
- [57] D. E. Ufua, O. J. Olujobi, H. Tahir, M. A. S. Al-Faryan, O. A. Matthew, and E. Osabuohien, "Lean Entrepreneurship and SME Practice in a Post COVID-19 Pandemic Era: A Conceptual Discourse from Nigeria," *Glob. J. Flex. Syst. Manag.*, vol. 23, no. 3, pp. 331–344, 2022, doi: 10.1007/s40171-022-00304-1.
- [58] E. A. Rienette, "FORCE FIELD ANALYSIS OF SUPPORTING AND INHIBITING FACTORS PRODUCERS' INCOME IN THE RI-PNG BORDER AREA ANÁLISE DO CAMPO DE FORÇAS DOS FATORES DE APOIO E I," *J. Profess. Bus. Rev. | Miami*, pp. 1–19, 2022.
- [59] M. Appiah, S. T. Onifade, and B. A. Gyamfi, "Analysing governance-led infrastructural development nexus in sub-Saharan Africa: Does the moderating role of institutional quality matter?," *Growth Change*, vol. 55, no. 1, pp. 1–17, 2024, doi: 10.1111/grow.12709.
- [60] L. Löschner *et al.*, "RegioFEM – Informing future-oriented flood risk management at the regional scale (Part I)," *J. Flood Risk Manag.*, vol. 15, no. 1, pp. 1–17, 2022, doi: 10.1111/jfr3.12754.
- [61] North Coast Primary Health Network, "North coast primary health network general population needs assessment," pp. 1–59, 2018.
- [62] L. A. Bernacchi, A. S. Fernandez-Bou, J. H. Viers, J. Valero-Fandino, and J. Medellín-Azuara, "A glass half empty: Limited voices, limited groundwater security for California," *Sci. Total Environ.*, vol. 738, p. 139529, 2020, doi: 10.1016/j.scitotenv.2020.139529.
- [63] P. Karmakar, S. Kastha, P. Sarkar, and M. Chakraborty, "An Assessment of Intra-Regional Infrastructural Inequality of Ranibandh Block, Bankura, West Bengal, India," in *Social Morphology, Human Welfare, and Sustainability*, Cham: Springer International Publishing, 2022, pp. 263–301, doi: 10.1007/978-3-030-96760-4_11.
- [64] S. Liu, Y. Wan, and A. Zhang, "Does China's high-speed rail development lead to regional disparities? A network perspective," *Transp. Res. Part A Policy Pract.*, vol. 138, no. June, pp. 299–321, 2020, doi: 10.1016/j.tra.2020.06.010.
- [65] A. Bigoni *et al.*, "Brazil's health system functionality amidst of the COVID-19 pandemic: An analysis of resilience," *Lancet Reg. Heal. - Am.*, vol. 10, p. 100222, 2022, doi: 10.1016/j.lana.2022.100222.
- [66] Z. Chen and X. Li, "Economic impact of transportation infrastructure investment under the Belt and Road Initiative," *Asia Eur. J.*, vol. 19, pp. 131–159, 2021, doi: 10.1007/s10308-021-00617-3.
- [67] H. Abdelli, Z. Gheraia, H. Sekrafi, and M. Abid, "The asymmetric impact of government expenditure on economic growth: Evidence from a NARDL model," *Int. J. Adv. Appl. Sci.*, vol. 11, no. 3, pp. 92–101, 2024, doi:

- 10.21833/jjaas.2024.03.010.
- [68] L. Chandra Voumik, M. Ridwan, M. Hasanur Rahman, and A. Raihan, "An investigation into the primary causes of carbon dioxide releases in Kenya: Does renewable energy matter to reduce carbon emission?," *Renew. Energy Focus*, vol. 47, no. August, p. 100491, 2023, doi: 10.1016/j.ref.2023.100491.
- [69] Y. Giat and D. Bouhnik, "A decision support system and warehouse operations design for pricing products and minimizing product returns in a food plant," *Interdiscip. J. Information, Knowledge, Manag.*, vol. 16, pp. 39–54, 2021, doi: 10.28945/4692.
- [70] R. X. De Lima, E. F. Nobre Júnior, and P. G. P. S. Fernandes, "Optimization of Earthmoving Operations Planning: A Novel Approach Considering Interferences," *J. Eng. Proj. Prod. Manag.*, vol. 11, no. 2, pp. 158–168, 2021, doi: 10.2478/jepm-2021-0016.
- [71] S. S. Doliente and S. Samsatli, "Integrated production of food, energy, fuels and chemicals from rice crops: Multi-objective optimisation for efficient and sustainable value chains," *J. Clean. Prod.*, vol. 285, p. 124900, 2021, doi: 10.1016/j.jclepro.2020.124900.
- [72] S. Castelo, M. Amado, and F. Ferreira, "Challenges and Opportunities in the Use of Nature-Based Solutions for Urban Adaptation," *Sustain.*, vol. 15, no. 9, 2023, doi: 10.3390/su15097243.
- [73] A. de Bekker, P. Reckman, P. Kemper, and L. Lemmens, "Intersectional collaboration and the development of prevention infrastructures: a qualitative study," *Int. J. Heal. Gov.*, vol. 29, no. 2, pp. 112–126, 2024, doi: 10.1108/IJHG-11-2023-0100.
- [74] A. Parker et al., "Undertaking Studies Within A Trial to evaluate recruitment and retention strategies for randomised controlled trials: lessons learnt from the PROMETHEUS research programme," *Health Technol. Assess. (Rockv.)*, vol. 28, no. 2, pp. 1–114, 2024, doi: 10.3310/HTQW3107.
- [75] A. Putra, I. Dewata, D. Hermon, E. Barlian, and G. Umar, "Sustainable Development-Based Coastal Management Policy Development: a Literature Review," *J. Sustain. Sci. Manag.*, vol. 18, no. 1, pp. 237–245, 2023, doi: 10.46754/jssm.2023.01.015.
- [76] S. A. Flannigan and M. Khayesi, "Content analysis of reported activities of the united nations road safety collaboration members during the decade of action for road safety 2011-2020," *BMJ Open*, vol. 11, no. 3, pp. 1–8, 2021, doi: 10.1136/bmjopen-2020-042409.
- [77] Z. Pupp and B. Filep, "The impact of global socio-economic changes on the regional role of universities," *Econ. Ann.*, vol. 190, no. 5–6, pp. 33–47, 2021, doi: 10.21003/EA.V190-04.
- [78] M. Funduk, I. Biondić, and A. L. Simonić, "Revitalizing Rural Tourism: A Croatian Case Study in Sustainable Practices," *Sustain.*, vol. 16, no. 1, 2024, doi: 10.3390/su16010031.
- [79] Q. Xu, X. Cheng, and H. Zhao, *Does the selection of high-quality scenic spots promote the growth of tourism economy? evidence from China's 5A-rated tourist attractions*, vol. 19, no. 6 June. 2024. doi: 10.1371/journal.pone.0304108.
- [80] T. Q. Tran, T. A. Dang, and N. A. Thu Tran, "Factors affecting foreign direct investment: Evidence on Tay Ninh Province," *J. Asian Financ. Econ. Bus.*, vol. 7, no. 9, pp. 263–269, 2020, doi: 10.13106/JAFEB.2020.VOL7.NO9.263.
- [81] D. G. Rodionov, E. A. Konnikov, and M. N. Nasrutdinov, "A transformation of the approach to evaluating a region's investment attractiveness as a consequence of the COVID-19 pandemic," *Economies*, vol. 9, no. 2, pp. 1–20, 2021, doi: 10.3390/economies9020059.
- [82] E. Ż. B. Roszko-Wójtowicz and M. M. Grzelak, "Multi-dimensional analysis of regional investment attractiveness in Poland," *Equilibrium. Q. J. Econ. Econ. Policy*, vol. 16, no. 1, pp. 103–138, 2021, doi: 10.24136/eq.2021.004.
- [83] J. Aman, J. Abbas, G. Shi, N. U. Ain, and L. Gu, "Community Wellbeing Under China-Pakistan Economic Corridor: Role of Social, Economic, Cultural, and Educational Factors in Improving Residents' Quality of Life," *Front. Psychol.*, vol. 12, no. March, pp. 1–16, 2022, doi: 10.3389/fpsyg.2021.816592.
- [84] J. Crawford and J. Cifuentes-Faura, "Sustainability in Higher Education during the COVID-19 Pandemic: A Systematic Review," *Sustain.*, vol. 14, no. 3, pp. 1–11, 2022, doi: 10.3390/su14031879.
- [85] W. S. Alaloul, M. Altaf, M. A. Musarat, M. F. Javed, and A. Mosavi, "Systematic review of life cycle assessment and life cycle cost analysis for pavement and a case study," *Sustain.*, vol. 13, no. 8, pp. 1–38, 2021, doi: 10.3390/su13084377.
- [86] L. Y. Tay, H. T. Tai, and G. S. Tan, "Digital financial inclusion: A gateway to sustainable development," *Heliyon*, vol. 8, no. 6, p. e09766, 2022, doi: 10.1016/j.heliyon.2022.e09766.
- [87] W. Fei et al., "The critical role of the construction industry in achieving the sustainable development goals (Sdgs): Delivering projects for the common good," *Sustain.*, vol. 13, no. 16, 2021, doi: 10.3390/su13169112.
- [88] J. Dai, R. Alvarado, S. Ali, Z. Ahmed, and M. S. Meo, "Transport infrastructure, economic growth, and transport CO2 emissions nexus: Does green energy consumption in the transport sector matter?," *Environ. Sci. Pollut. Res.*, vol. 30, no. 14, pp. 40094–40106, 2023, doi: 10.1007/s11356-022-25100-3.
- [89] A. Kwilinski, O. Lyulyov, and T. Pimonenko, "Inclusive Economic Growth: Relationship between Energy and Governance Efficiency," *Energies*, vol. 16, no. 6, pp. 1–16, 2023, doi: 10.3390/en16062511.
- [90] M. Zhou, K. Govindan, and X. Xie, "How fairness perceptions, embeddedness, and knowledge sharing drive green innovation in sustainable supply chains: An equity theory and network perspective to achieve sustainable development goals," *J. Clean. Prod.*, vol. 260, p. 120950, 2020, doi: 10.1016/j.jclepro.2020.120950.
- [91] L. Petach and D. Tavani, "Income shares, secular stagnation and the long-run distribution of wealth," *Metroeconomica*, vol. 71, no. 1, pp. 235–255, 2020, doi: 10.1111/meca.12277.

- [92] N. Alam Khan, O. Abdul Razzaq, F. Riaz, A. Ahmadian, and N. Senu, "Dynamics of fractional order nonlinear system: A realistic perception with neurotrophic fuzzy number and Allee effect," *J. Adv. Res.*, vol. 32, pp. 109–118, Sep. 2021, doi: 10.1016/j.jare.2020.11.015.
- [93] A. Glover and J. Short, "Can capital deepening explain the global decline in labor's share?," *Rev. Econ. Dyn.*, vol. 35, no. 2020, pp. 35–53, 2020, doi: 10.1016/j.red.2019.04.007.
- [94] O. Marinina, A. Nechitailo, G. Stroykov, A. Tsvetkova, E. Reshneva, and L. Turovskaya, "Technical and Economic Assessment of Energy Efficiency of Electrification of Hydrocarbon Production Facilities in Underdeveloped Areas," *Sustain.*, vol. 15, no. 12, 2023, doi: 10.3390/su15129614.
- [95] Z. Janipour, R. de Nooij, P. Scholten, M. A. J. Huijbregts, and H. de Coninck, "What are sources of carbon lock-in in energy-intensive industry? A case study into Dutch chemicals production," *Energy Res. Soc. Sci.*, vol. 60, no. November 2018, p. 101320, 2020, doi: 10.1016/j.erss.2019.101320.
- [96] B. Hong, X. Li, S. Song, S. Chen, C. Zhao, and J. Gong, "Optimal planning and modular infrastructure dynamic allocation for shale gas production," *Appl. Energy*, vol. 261, no. December 2019, p. 114439, 2020, doi: 10.1016/j.apenergy.2019.114439.
- [97] B. K. Sovacool, A. Hook, M. Martiskainen, A. Brock, and B. Turnheim, "The decarbonisation divide: Contextualizing landscapes of low-carbon exploitation and toxicity in Africa," *Glob. Environ. Chang.*, vol. 60, no. December 2019, p. 102028, 2020, doi: 10.1016/j.gloenvcha.2019.102028.
- [98] J. Sobieraj and D. Metelski, "Economic determinants of total factor productivity growth: The Bayesian modelling averaging approach," *Entrep. Bus. Econ. Rev.*, vol. 9, no. 4, pp. 147–171, 2021, doi: 10.15678/EBER.2021.090410.
- [99] B. K. Sovacool *et al.*, "Conflicted transitions: Exploring the actors, tactics, and outcomes of social opposition against energy infrastructure," *Glob. Environ. Chang.*, vol. 73, no. January, p. 102473, 2022, doi: 10.1016/j.gloenvcha.2022.102473.
- [100] F. Jenkins and J. Smith, "Work-from-home during COVID-19: Accounting for the care economy to build back better," *Econ. Labour Relations Rev.*, vol. 32, no. 1, pp. 22–38, 2021, doi: 10.1177/1035304620983608.
- [101] C. Johnson, "Is demand side response a woman's work? Domestic labour and electricity shifting in low income homes in the United Kingdom," *Energy Res. Soc. Sci.*, vol. 68, no. May, p. 101558, 2020, doi: 10.1016/j.erss.2020.101558.
- [102] A. Bhatia *et al.*, "Networked control system with MANET communication and AODV routing," *Heliyon*, vol. 8, no. 11, p. e11678, 2022, doi: 10.1016/j.heliyon.2022.e11678.
- [103] L. Shostak, V. Goi, O. Timchenko, L. Yastrubetska, and M. Derhaliuk, "The Impact of Digital Transformation on the Economy: Technological Innovation and Efficiency," *Econ. Aff. (New Delhi)*, vol. 68, no. 4, pp. 2081–2093, 2023, doi: 10.46852/0424-2513.4.2023.19.
- [104] C. D. F. Rogers, "Briefing: Plexus: Priming Laboratory Experiments on Infrastructure and Urban Systems," *Proc. Inst. Civ. Eng. Smart Infrastruct. Constr.*, vol. 175, no. 1, pp. 3–9, 2022, doi: 10.1680/jsmic.21.00017.
- [105] M. De Jong, S. Joss, and A. Taeiagh, "Smart city development as spatial manifestations of 21st century capitalism," *Technol. Forecast. Soc. Change*, vol. 202, no. March, p. 123299, 2024, doi: 10.1016/j.techfore.2024.123299.
- [106] M. Grömling, "COVID-19 and the Growth Potential," *Intereconomics*, vol. 56, no. 1, pp. 45–49, 2021, doi: 10.1007/s10272-021-0950-4.
- [107] M. Busu, M. V. Vargas, and S. Anagnoste, "Navigating the Intricate Relationship between Investments and Global Output: A Leontief Matrix Case Study of Romania," *J. Risk Financ. Manag.*, vol. 16, no. 12, 2023, doi: 10.3390/jrfm16120521.
- [108] Z. Gong, Y. Wang, and M. Li, "Determining the drivers of global innovation under COVID-19: An FSQCA approach," *PLoS One*, vol. 19, no. 2 February, pp. 1–15, 2024, doi: 10.1371/journal.pone.0295403.
- [109] R. V. Gordeev, A. I. Pyzhev, and M. A. Yagolnitsker, "Drivers of spatial heterogeneity in the Russian forest sector: A multiple factor analysis," *Forests*, vol. 12, no. 12, 2021, doi: 10.3390/f12121635.
- [110] P. Coppola, A. Carbone, C. Aveta, and P. Stangherlin, "Assessing transport policies for tourist mobility based on accessibility indicators," *Eur. Transp. Res. Rev.*, vol. 12, no. 1, 2020, doi: 10.1186/s12544-020-00444-4.
- [111] I. Jonek-Kowalska and R. Wolniak, "The influence of local economic conditions on start-ups and local open innovation system," *J. Open Innov. Technol. Mark. Complex.*, vol. 7, no. 2, p. 110, 2021, doi: 10.3390/foitmc7020110.
- [112] V. Ramos, M. Ruiz-pérez, and B. Alorda, "A proposal for assessing digital economy spatial readiness at tourism destinations," *Sustain.*, vol. 13, no. 19, pp. 1–15, 2021, doi: 10.3390/su131911002.
- [113] Ł. Brzeziński and M. K. Wyrwicka, "Fundamental Directions of the Development of the Smart Cities Concept and Solutions in Poland," *Energies*, vol. 15, no. 21, 2022, doi: 10.3390/en15218213.
- [114] H. H. Coban, W. Lewicki, R. Miśkiewicz, and W. Drożdż, "The Economic Dimension of Using the Integration of Highway Sound Screens with Solar Panels in the Process of Generating Green Energy," *Energies*, vol. 16, no. 1, 2023, doi: 10.3390/en16010178.
- [115] E. D. Fournier, F. Federico, R. Cudd, and S. Pincetl, "Building an interactive web mapping tool to support distributed energy resource planning using public participation GIS," *Appl. Geogr.*, vol. 152, no. March 2022, p. 102877, 2023, doi: 10.1016/j.apgeog.2023.102877.
- [116] H. R. Bharadwaj *et al.*, "Challenges and opportunities in prostate cancer surgery in South America: Insights into robot-assisted radical prostatectomies—A perspective," *Heal. Sci. Reports*, vol. 6, no. 8, pp. 1–7, 2023, doi: 10.1002/hsr2.1519.

- [117] Y. Choi, S. Li, and W. Zhao, "Sustainable Governance for Promotional Market Competitiveness in Chinese Airports after COVID-19," *Sustain.*, vol. 16, no. 11, 2024, doi: 10.3390/su16114713.
- [118] X. Tan, J. Jiao, M. Jiang, M. Chen, W. Wang, and Y. Sun, "Digital Policy, Green Innovation, and Digital-Intelligent Transformation of Companies," *Sustain.*, vol. 16, no. 16, 2024, doi: 10.3390/su16166760.
- [119] K. Borsekova and S. Korony, "Resilience and vulnerability of regional labour markets: principal component analysis of labour market efficiency in the EU," *Reg. Stud.*, vol. 57, no. 12, pp. 2373–2390, 2023, doi: 10.1080/00343404.2022.2042507.
- [120] Y. Zhou, Y. Wang, and Q. Wang, "Utilization of foreign investment in the productive service industry in Hubei province, China and its optimization counter-measures," *PLoS One*, vol. 19, no. 6, pp. 1–18, 2024, doi: 10.1371/journal.pone.0302494.
- [121] I. Jipa-Muşat, M. Prevezer, and L. Campling, "Elite agency in the growth of offshore business services in Romania," *Environ. Plan. A*, vol. 56, no. 1, pp. 80–99, 2024, doi: 10.1177/0308518X231181126.
- [122] V. N. Xuan, "Factors affecting foreign direct investment: Evidence at foreign technology enterprises in Vietnam," *Int. J. Adv. Appl. Sci.*, vol. 7, no. 4, pp. 21–28, 2020, doi: 10.21833/ijaas.2020.04.004.
- [123] M. Afzalan and F. Jazizadeh, "Prosumers and Consumers : Community Self-Sufficiency," vol. 14, 2021.
- [124] R. Hartwell, G. Coult, and M. Overend, "Mapping the flat glass value-chain: a material flow analysis and energy balance of UK production," *Glas. Struct. Eng.*, vol. 8, no. 2, pp. 167–192, 2023, doi: 10.1007/s40940-022-00195-9.
- [125] A. Habib, B. Bouchaib, and S. Housni, "A critical analysis of water economics in public water and sanitation services in Morocco," *Arab Gulf J. Sci. Res.*, vol. 40, no. 3, pp. 280–301, 2022, doi: 10.1108/AGJSR-04-2022-0034.
- [126] H. Guo, F. Gu, Y. Peng, X. Deng, and L. Guo, "Does Digital Inclusive Finance Effectively Promote Agricultural Green Development?—A Case Study of China," *Int. J. Environ. Res. Public Health*, vol. 19, no. 12, 2022, doi: 10.3390/ijerph19126982.
- [127] A. Kwilinski, O. Lyulyov, and T. Pimonenko, "Spillover Effects of Green Finance on Attaining Sustainable Development: Spatial Durbin Model," *Computation*, vol. 11, no. 10, 2023, doi: 10.3390/computation11100199.
- [128] F. Magrinyà, J. Mercadé-Aloy, and B. Ruiz-Apilánez, "Merging Green and Active Transportation Infrastructure towards an Equitable Accessibility to Green Areas: Barcelona Green Axes," *Land*, vol. 12, no. 4, 2023, doi: 10.3390/land12040919.
- [129] L. Li, C. Pan, S. Ling, and M. Li, "Ecological Efficiency of Urban Industrial Land in Metropolitan Areas: Evidence from China," *Land*, vol. 11, no. 1, 2022, doi: 10.3390/land11010104.
- [130] X. Hua, H. Lv, and X. Jin, "Research on high-quality development efficiency and total factor productivity of regional economies in China," *Sustain.*, vol. 13, no. 15, pp. 1–22, 2021, doi: 10.3390/su13158287.
- [131] E. Martínez-Hernández, J. Sadhukhan, J. Aburto, M. A. Amezcua-Allieri, S. Morse, and R. Murphy, "Modelling to analyse the process and sustainability performance of forestry-based bioenergy systems," *Clean Technol. Environ. Policy*, vol. 24, no. 6, pp. 1709–1725, 2022, doi: 10.1007/s10098-022-02278-1.
- [132] T. AL-Saadi, A. Cherepovitsyn, and T. Semenova, "Iraq Oil Industry Infrastructure Development in the Conditions of the Global Economy Turbulence," *Energies*, vol. 15, no. 17, 2022, doi: 10.3390/en15176239.
- [133] V. Pilkington, S. M. Keestra, and A. Hill, "Global COVID-19 Vaccine Inequity: Failures in the First Year of Distribution and Potential Solutions for the Future," *Front. Public Heal.*, vol. 10, no. March, pp. 1–8, 2022, doi: 10.3389/fpubh.2022.821117.
- [134] B. Remenyik, A. Barcza, J. Csapó, B. Szabó, G. Fodor, and L. D. Dávid, "Overtourism in Budapest: Analysis of spatial process and suggested solutions," *Reg. Stat.*, vol. 11, no. 3, pp. 179–197, 2021, doi: 10.15196/RS110303.
- [135] A. Straubinger, E. T. Verhoef, and H. L. F. de Groot, "Will urban air mobility fly? The efficiency and distributional impacts of UAM in different urban spatial structures," *Transp. Res. Part C Emerg. Technol.*, vol. 127, no. February, p. 103124, 2021, doi: 10.1016/j.trc.2021.103124.
- [136] C. Scarpone, S. T. Brinkmann, T. Große, D. Sonnenwald, M. Fuchs, and B. B. Walker, "A multimethod approach for county-scale geospatial analysis of emerging infectious diseases: A cross-sectional case study of COVID-19 incidence in Germany," *Int. J. Health Geogr.*, vol. 19, no. 1, pp. 1–17, 2020, doi: 10.1186/s12942-020-00225-1.
- [137] H. Zhang, C. J. R. Sheppard, T. E. Lipman, T. Zeng, and S. J. Moura, "Charging infrastructure demands of shared-use autonomous electric vehicles in urban areas," *Transp. Res. Part D Transp. Environ.*, vol. 78, no. January, p. 102210, 2020, doi: 10.1016/j.trd.2019.102210.
- [138] M. Chaudhary, P. R. Sodani, and S. Das, "Effect of COVID-19 on Economy in India: Some Reflections for Policy and Programme," *J. Health Manag.*, vol. 22, no. 2, pp. 169–180, 2020, doi: 10.1177/0972063420935541.
- [139] D. Oviedo and L. A. Guzman, "Revisiting accessibility in a context of sustainable transport: Capabilities and inequalities in Bogota," *Sustain.*, vol. 12, no. 11, 2020, doi: 10.3390/su12114464.
- [140] T. Bundervoet, M. E. Dávalos, and N. Garcia, "The short-term impacts of COVID-19 on households in developing countries: An overview based on a harmonized dataset of high-frequency surveys," *World Dev.*, vol. 153, p. 105844, 2022, doi: 10.1016/j.worlddev.2022.105844.
- [141] H. Wang, Y. Li, and B. He, "Spatial Spillover Effects of Digital Finance on Corporate ESG Performance," *Sustain.*, vol. 16, no. 16, 2024, doi: 10.3390/su16166987.
- [142] S. Tahmasseby, "The Implementation of Smart Mobility for Smart Cities: A Case Study in Qatar," *Civ. Eng. J.*, vol. 8, no. 10, pp. 2154–2171, 2022, doi: 10.28991/CEJ-2022-08-10-09.

- [143] F. Škulčtý, D. Beňová, and J. Gnap, "City logistics as an imperative smart city mechanism: Scrutiny of clustered eu27 capitals," *Sustain.*, vol. 13, no. 7, 2021, doi: 10.3390/su13073641.
- [144] A. Cahyadi and R. Magda, "Digital leadership in the economies of the G20 countries: A secondary research," *Economies*, vol. 9, no. 1, 2021, doi: 10.3390/economies9010032.
- [145] N. Rawindaran, A. Jayal, E. Prakash, and C. Hewage, "Cost benefits of using machine learning features in NIDS for cyber security in UK small medium enterprises (SME)," *Futur. Internet*, vol. 13, no. 8, 2021, doi: 10.3390/foi13080186.
- [146] I. Shevchenko, O. Lysak, A. Zalievska-Shyshak, I. Mazur, M. Korotun, and V. Nestor, "Digital Economy in a Global Context: World Experience," *Int. J. Prof. Bus. Rev.*, vol. 8, no. 4, pp. 1–16, 2023, doi: 10.26668/businessreview/2023.v8i4.1551.
- [147] Y. Frolov and T. Bosenko, "The impact of armed conflict on economic performance and enterprise value in the country," *Econ. Ann.*, vol. 182, no. 3–4, pp. 49–55, 2020, doi: 10.21003/EA.V182-09.
- [148] M. Acosta-Morel, V. P. McNulty, M. W. Beck, N. Lummen, and S. R. Schill, "Shoreline solutions: Guiding efficient data selection for coastal risk modeling and the design of adaptation interventions," *Water (Switzerland)*, vol. 13, no. 6, pp. 1–22, 2021, doi: 10.3390/w13060875.
- [149] H. Terorotua, V. K. E. Duvat, A. Maspataud, and J. Ouriqua, "Assessing Perception of Climate Change by Representatives of Public Authorities and Designing Coastal Climate Services: Lessons Learnt From French Polynesia," *Front. Mar. Sci.*, vol. 7, no. March, pp. 1–16, 2020, doi: 10.3389/fmars.2020.00160.
- [150] R. Paulik, S. A. Stephens, R. G. Bell, S. Wadhwa, and B. Popovich, "National-scale built-environment exposure to 100-year extreme sea levels and sea-level rise," *Sustain.*, vol. 12, no. 4, pp. 1–16, 2020, doi: 10.3390/su12041513.
- [151] A. Pathak, P. E. van Beynen, F. A. Akiwumi, and K. C. Lindeman, "Impacts of climate change on the tourism sector of a Small Island Developing State: A case study for the Bahamas," *Environ. Dev.*, vol. 37, no. August 2020, p. 100556, 2021, doi: 10.1016/j.envdev.2020.100556.
- [152] R. Sorgho *et al.*, "Climate change policies in 16 west african countries: A systematic review of adaptation with a focus on agriculture, food security, and nutrition," *Int. J. Environ. Res. Public Health*, vol. 17, no. 23, pp. 1–21, 2020, doi: 10.3390/ijerph17238897.
- [153] M. Wu, B. Yan, Y. Huang, and M. N. I. Sarker, "Big Data-Driven Urban Management: Potential for Urban Sustainability," *Land*, vol. 11, no. 5, 2022, doi: 10.3390/land11050680.
- [154] M. A. Musarat, A. Sadiq, W. S. Alaloul, and M. M. Abdul Wahab, "A Systematic Review on Enhancement in Quality of Life through Digitalization in the Construction Industry," *Sustain.*, vol. 15, no. 1, pp. 1–20, 2023, doi: 10.3390/su15010202.
- [155] J. Solórzano, F. Morante-Carballo, N. Montalván-Burbano, J. Briones-Bitar, and P. Carrión-Mero, "A Systematic Review of the Relationship between Geotechnics and Disasters," *Sustain.*, vol. 14, no. 19, 2022, doi: 10.3390/su141912835.
- [156] X. Yang, Y. Zhao, Y. Zhong, and X. Duan, "The efficacy of XEN gel stent implantation in glaucoma: a systematic review and meta-analysis," *BMC Ophthalmol.*, vol. 22, no. 1, pp. 1–15, 2022, doi: 10.1186/s12886-022-02502-y.
- [157] L. Jaber, C. Stírbyš, J. Scott, and E. Foong, "Indigenous Women's Experiences of Lateral Violence: A Systematic Literature Review," *Trauma, Violence, Abus.*, vol. 24, no. 3, pp. 1763–1776, 2023, doi: 10.1177/15248380221077316.
- [158] B. Gaspar, A. C. Moreira, C. Cercas, R. Queirós, and S. Campos, "The Internationalization of Nongovernmental Organizations: Characteristics and Challenges," *Adm. Sci.*, vol. 12, no. 4, 2022, doi: 10.3390/admsci12040140.
- [159] M. Cerezo-Pizarro, F. I. Revuelta-Domínguez, J. Guerra-Antequera, and J. Melo-Sánchez, "The Cultural Impact of Video Games: A Systematic Review of the Literature," *Educ. Sci.*, vol. 13, no. 11, 2023, doi: 10.3390/educsci13111116.
- [160] J. Wang, X. Yang, and S. Kumari, "Investigating the Spatial Spillover Effect of Transportation Infrastructure on Green Total Factor Productivity," *Energies*, vol. 16, no. 6, pp. 1–12, 2023, doi: 10.3390/en16062733.
- [161] B. S. Sergi, V. D'Aleo, S. Konecka, K. Szopik-Depczyńska, I. Dembińska, and G. Ioppolo, "Competitiveness and the Logistics Performance Index: The ANOVA method application for Africa, Asia, and the EU regions," *Sustain. Cities Soc.*, vol. 69, no. January, 2021, doi: 10.1016/j.scs.2021.102845.
- [162] G. Albanese, G. de Blasio, and A. Locatelli, "Does EU regional policy promote local TFP growth? Evidence from the Italian Mezzogiorno," *Pap. Reg. Sci.*, vol. 100, no. 2, pp. 327–348, 2021, doi: 10.1111/pirs.12574.
- [163] H. Liu, X. Wang, Z. Wang, and Y. Cheng, "Does digitalization mitigate regional inequalities? Evidence from China," *Geogr. Sustain.*, vol. 5, no. 1, pp. 52–63, 2024, doi: 10.1016/j.geosus.2023.09.007.
- [164] G. Antonacci, L. Lennox, J. Barlow, L. Evans, and J. Reed, "Process mapping in healthcare: a systematic review," *BMC Health Serv. Res.*, vol. 21, no. 1, pp. 1–15, 2021, doi: 10.1186/s12913-021-06254-1.
- [165] O. Di Vincenzo, M. Marra, A. Di Gregorio, F. Pasanisi, and L. Scalfi, "Bioelectrical impedance analysis (BIA) -derived phase angle in sarcopenia: A systematic review," *Clin. Nutr.*, vol. 40, no. 5, pp. 3052–3061, 2021, doi: 10.1016/j.clnu.2020.10.048.
- [166] A. Behl, N. Jayawardena, V. Pereira, N. Islam, M. Del Giudice, and J. Choudrie, "Gamification and e-learning for young learners: A systematic literature review, bibliometric analysis, and future research agenda," *Technol. Forecast. Soc. Change*, vol. 176, no. December 2021, p. 121445, 2022, doi: 10.1016/j.techfore.2021.121445.
- [167] F. Y. Mpofo, "Industry 4.0 in Finance, Digital Financial Services and Digital Financial Inclusion in Developing Countries: Opportunities, Challenges, and Possible Policy Responses," *Int. J. Econ. Financ. Issues*, vol. 14, no. 2, pp. 120–135, 2024, doi: 10.32479/ijefi.15081.

- [168] J. Barroco, "Designing financeable ancillary services revenue contracts in developing economies: Learnings from the Philippines," *Energy Policy*, vol. 152, no. February, p. 112218, 2021, doi: 10.1016/j.enpol.2021.112218.
- [169] S. S. Arnob, A. I. M. S. Arefin, A. Y. Saber, and K. A. Mamun, "Energy Demand Forecasting and Optimizing Electric Systems for Developing Countries," *IEEE Access*, vol. 11, no. February, pp. 39751–39775, 2023, doi: 10.1109/ACCESS.2023.3250110.
- [170] Y. Zhao, S. Peng, Q. Zhang, Y. Wang, C. Gong, and X. Lu, "Land Finance, Local Government Debt and Economic Green Transformation," *Land*, vol. 13, no. 7, p. 975, 2024, doi: 10.3390/land13070975.
- [171] K. Zhang, Z. Pan, K. Zhang, and F. Ji, "The effect of digitalization transformation on greenwashing of Chinese listed companies: an analysis from the dual perspectives of resource-based view and legitimacy," *Front. Environ. Sci.*, vol. 11, no. June, 2023, doi: 10.3389/fenvs.2023.1179419.
- [172] I. K. Mensah and D. S. Mwakapesa, "The Drivers of the Behavioral Adoption Intention of BITCOIN Payment from the Perspective of Chinese Citizens," *Secur. Commun. Networks*, vol. 2022, 2022, doi: 10.1155/2022/7373658.
- [173] A. M. Kanaya et al., "Knowledge Gaps, Challenges, and Opportunities in Health and Prevention Research for Asian Americans, Native Hawaiians, and Pacific Islanders: A Report From the 2021 National Institutes of Health Workshop," *Ann. Intern. Med.*, vol. 175, no. 4, pp. 574–589, Apr. 2022, doi: 10.7326/M21-3729.
- [174] A. Achim et al., "The changing culture of silviculture," *Forestry*, vol. 95, no. 2, pp. 143–152, 2022, doi: 10.1093/forestry/cpab047.
- [175] K. Pawlak and M. Kołodziejczak, "The role of agriculture in ensuring food security in developing countries: Considerations in the context of the problem of sustainable food production," *Sustain.*, vol. 12, no. 13, 2020, doi: 10.3390/su12135488.
- [176] S. Maranghi, M. L. Parisi, A. Facchini, A. Rubino, O. Kordas, and R. Basosi, "Integrating urban metabolism and life cycle assessment to analyse urban sustainability," *Ecol. Indic.*, vol. 112, no. December 2019, p. 106074, 2020, doi: 10.1016/j.ecolind.2020.106074.
- [177] A. K. Yazdi, P. F. Wanke, T. Hanne, F. Abdi, and A. H. Sarfaraz, "Supplier selection in the oil & gas industry: A comprehensive approach for Multi-Criteria Decision Analysis," *Socioecon. Plann. Sci.*, vol. 79, no. August 2021, p. 101142, 2022, doi: 10.1016/j.seps.2021.101142.
- [178] E. H. Klijn, S. Metselaar, and R. Warsen, "The effect of contract- and network management on performance and innovation in infrastructure projects," *Public Money Manag.*, vol. 44, no. 5, pp. 428–437, 2024, doi: 10.1080/09540962.2023.2204533.
- [179] S. Vatavu, M. Dogaru, N. C. Moldovan, and O. R. Lobont, "The impact of entrepreneurship on economic development through government policies and citizens' attitudes," *Econ. Res. Istraz.*, vol. 35, no. 1, pp. 1604–1617, 2022, doi: 10.1080/1331677X.2021.1985566.
- [180] L. Xu, D. Wang, and J. Du, "The heterogeneous influence of infrastructure construction on china's urban green and smart development—the threshold effect of urban scale," *Land*, vol. 10, no. 10, 2021, doi: 10.3390/land10101015.
- [181] F. He, X. Miao, C. W. Y. Wong, and Y. Tang, "Corporate social responsibility and operating performance: The role of local character in emerging economies," *Sustain.*, vol. 12, no. 12, 2020, doi: 10.3390/SU12124874.
- [182] X. Du and F. Jiao, "How the rural infrastructure construction drives rural economic development through rural living environment governance—case study of 285 cities in China," *Front. Environ. Sci.*, vol. 10, no. September, pp. 1–18, 2023, doi: 10.3389/fenvs.2023.1280744.
- [183] S. Wasiq and A. Golroo, "Probabilistic pavement performance modeling using hybrid Markov Chain: A case study in Afghanistan," *Case Stud. Constr. Mater.*, vol. 20, no. November 2023, p. e03023, 2024, doi: 10.1016/j.cscm.2024.e03023.
- [184] F. O. Amadu, P. E. McNamara, and D. C. Miller, "Understanding the adoption of climate-smart agriculture: A farm-level typology with empirical evidence from southern Malawi," *World Dev.*, vol. 126, p. 104692, 2020, doi: 10.1016/j.worlddev.2019.104692.
- [185] J. Coenen, S. Bager, P. Meyfroidt, J. Newig, and E. Challies, "Environmental Governance of China's Belt and Road Initiative," *Environ. Policy Gov.*, vol. 31, no. 1, pp. 3–17, 2021, doi: 10.1002/et.1901.
- [186] O. Saidani Neffati et al., "Migrating from traditional grid to smart grid in smart cities promoted in developing country," *Sustain. Energy Technol. Assessments*, vol. 45, no. February, p. 101125, 2021, doi: 10.1016/j.seta.2021.101125.
- [187] D. D'Ayala et al., "Resilient communities through safer schools," *Int. J. Disaster Risk Reduct.*, vol. 45, p. 101446, 2020, doi: 10.1016/j.ijdr.2019.101446.
- [188] L. Vasudevan et al., "Using digital health to facilitate compliance with standardized pediatric cancer treatment guidelines in Tanzania: Protocol for an early-stage effectiveness-implementation hybrid study," *BMC Cancer*, vol. 20, no. 1, pp. 1–14, 2020, doi: 10.1186/s12885-020-6611-3.
- [189] E. Kasonkanji et al., "Clinical Characteristics and Outcomes of Acute Lymphoblastic Leukemia in Adolescents and Young Adults in Malawi," *JCO Glob. Oncol.*, no. 8, pp. 1–8, 2022, doi: 10.1200/go.2021.00388.
- [190] J. Adler-Milstein, A. Linden, J. M. Hollingsworth, and A. M. Ryan, "Association of Primary Care Engagement in Value-Based Reform Programs with Health Services Outcomes: Participation and Synergies," *JAMA Heal. Forum*, vol. 3, no. 2, pp. 1–12, 2022, doi: 10.1001/jamahealthforum.2022.0005.
- [191] J. M. Finlay, J. E. Gaugler, and R. L. Kane, "Ageing in the margins: Expectations of and struggles for 'a good place to grow old' among low-income older Minnesotans," *Ageing Soc.*, vol. 40, no. 4, pp. 759–783, 2020, doi: 10.1017/S0144686X1800123X.

- [192] E. J. Oughton and A. Jha, "Supportive 5G Infrastructure Policies are Essential for Universal 6G: Assessment Using an Open-Source Techno-Economic Simulation Model Utilizing Remote Sensing," *IEEE Access*, vol. 9, pp. 101924–101945, 2021, doi: 10.1109/ACCESS.2021.3097627.
- [193] F. Wang, M. Wang, and S. Yuan, "Spatial diffusion of e-commerce in china's counties: Based on the perspective of regional inequality," *Land*, vol. 10, no. 11, 2021, doi: 10.3390/land10111141.
- [194] N. Potrafke and F. Roesel, "The urban–rural gap in healthcare infrastructure: does government ideology matter?," *Reg. Stud.*, vol. 54, no. 3, pp. 340–351, 2020, doi: 10.1080/00343404.2019.1623390.
- [195] M. Wolff, S. Scheuer, and D. Haase, "Looking beyond boundaries: Revisiting the rural-urban interface of Green Space Accessibility in Europe," *Ecol. Indic.*, vol. 113, no. May 2019, 2020, doi: 10.1016/j.ecolind.2020.106245.
- [196] M. Chaniebate, H. He, C. Guo, B. Abrahamgeremew, and Y. Huang, "Examining the Relationship between Transportation Infrastructure, Urbanization Level and Rural-Urban Income Gap in China," *Sustain.*, vol. 15, no. 10, 2023, doi: 10.3390/su15108410.
- [197] L. Haefner and R. Sternberg, "Spatial implications of digitization: State of the field and research agenda," *Geogr. Compass*, vol. 14, no. 12, 2020, doi: 10.1111/gec3.12544.
- [198] M. van der Schaar *et al.*, "How artificial intelligence and machine learning can help healthcare systems respond to COVID-19," *Mach. Learn.*, vol. 110, no. 1, pp. 1–14, 2021, doi: 10.1007/s10994-020-05928-x.
- [199] F. Brunetti, D. T. Matt, A. Bonfanti, A. De Longhi, G. Pedrini, and G. Orzes, "Digital transformation challenges: strategies emerging from a multi-stakeholder approach," *TQM J.*, vol. 32, no. 4, pp. 697–724, 2020, doi: 10.1108/TQM-12-2019-0309.
- [200] D. Ellström, J. Holtström, E. Berg, and C. Josefsson, "Dynamic capabilities for digital transformation," *J. Strateg. Manag.*, vol. 15, no. 2, pp. 272–286, 2022, doi: 10.1108/JMA-04-2021-0089.
- [201] S. H. Mian, B. Salah, W. Ameen, K. Moiduddin, and H. Alkhalefah, "Adapting universities for sustainability education in industry 4.0: Channel of challenges and opportunities," *Sustain.*, vol. 12, no. 15, 2020, doi: 10.3390/su12156100.
- [202] M. Y. Chin, S. L. Ong, D. B. Y. Ooi, and C. H. Pua, "The impact of green finance on environmental degradation in BRI region," *Environ. Dev. Sustain.*, vol. 26, no. 1, pp. 303–318, 2024, doi: 10.1007/s10668-022-02709-5.
- [203] R. Faulkner-Gurstein and D. Wyatt, "Platform NHS: Reconfiguring a Public Service in the Age of Digital Capitalism," *Sci. Technol. Hum. Values*, vol. 48, no. 4, pp. 888–908, 2023, doi: 10.1177/01622439211055697.
- [204] L. U. Okoye *et al.*, "Analyzing the energy consumption and economic growth nexus in nigeria," *Int. J. Energy Econ. Policy*, vol. 11, no. 1, pp. 378–387, 2021, doi: 10.32479/ijeeep.10768.
- [205] C. Sénquiz-Díaz, "The Effect of Transport and Logistics on Trade Facilitation and Trade: A PLS-SEM Approach," *Econ. - Innov. Econ. Res. J.*, vol. 9, no. 2, pp. 11–24, 2021, doi: 10.2478/eoik-2021-0021.
- [206] C. Sénquiz-Díaz, "Transport Infrastructure Quality and Logistics Performance in Exports," *Econ. - Innov. Econ. Res. J.*, vol. 9, no. 1, pp. 107–124, 2021, doi: 10.2478/eoik-2021-0008.
- [207] J. Hoxha, M. Y. Çodur, E. Mustafaraj, H. Kanj, and A. El Masri, "Prediction of transportation energy demand in Türkiye using stacking ensemble models: Methodology and comparative analysis," *Appl. Energy*, vol. 350, no. May, p. 121765, 2023, doi: 10.1016/j.apenergy.2023.121765.
- [208] G. Ševčenko-Kozlovská and K. Čižiničienė, "The Impact of Economic Sustainability in the Transport Sector on GDP of Neighbouring Countries: Following the Example of the Baltic States," *Sustain.*, vol. 14, no. 6, 2022, doi: 10.3390/su14063326.
- [209] W. S. Alaloul, M. A. Musarat, M. B. A. Rabbani, Q. Iqbal, A. Maqsoom, and W. Farooq, "Construction sector contribution to economic stability: Malaysian gdp distribution," *Sustain.*, vol. 13, no. 9, pp. 1–26, 2021, doi: 10.3390/su13095012.
- [210] A. Ali and A. A. Salameh, "Role of travel and tourism sector in the attainment of Vision 2030 in Saudi Arabia: An analytical study," *Probl. Perspect. Manag.*, vol. 19, no. 2, pp. 276–290, 2021, doi: 10.21511/ppm.19(2).2021.23.
- [211] S. U. Anwar, Z. Wuyi, S. Z. Ali Shah, Q. Ullah, S. M. Amir, and A. Syed, "The resilient economic impact of CPEC and future of MNCs: Evidence from Pakistan," *Front. Environ. Sci.*, vol. 10, no. August, pp. 1–14, 2022, doi: 10.3389/fenvs.2022.912975.
- [212] M. J. Economides and D. A. Wood, "The state of natural gas," *J. Nat. Gas Sci. Eng.*, vol. 1, no. 1–2, pp. 1–13, Jul. 2009, doi: 10.1016/j.jngse.2009.03.005.
- [213] L. F. Mesquita and S. G. Lazzarini, "Horizontal and Vertical Relationships in Developing Economies: Implications for SMEs' Access to Global Markets," *Acad. Manag. J.*, vol. 51, no. 2, pp. 359–380, Apr. 2008, doi: 10.5465/amj.2008.31767280.
- [214] J. Kjærstad and F. Johnsson, "The European power plant infrastructure—Presentation of the Chalmers energy infrastructure database with applications," *Energy Policy*, vol. 35, no. 7, pp. 3643–3664, Jul. 2007, doi: 10.1016/j.enpol.2006.12.032.
- [215] G. Jain, H. Singh, K. R. Chaturvedi, and S. Rakesh, "Blockchain in logistics industry: in fizza customer trust or not," *J. Enterp. Inf. Manag.*, vol. 33, no. 3, pp. 541–558, Mar. 2020, doi: 10.1108/JEIM-06-2018-0142.
- [216] Y. J. Mgale and Y. Yunxian, "Marketing efficiency and determinants of marketing channel choice by rice farmers in rural Tanzania: Evidence from Mbeya region, Tanzania," *Aust. J. Agric. Resour. Econ.*, vol. 64, no. 4, pp. 1239–1259, Oct. 2020, doi: 10.1111/1467-8489.12380.
- [217] Z. Shao, N. S. Sumari, A. Portnov, F. Ujoh, W. Musakwa, and P. J. Mandela, "Urban sprawl and its impact on sustainable urban development: a combination of remote sensing and social media data," *Geo-spatial Inf. Sci.*, vol. 24,

- no. 2, pp. 241–255, Apr. 2021, doi: 10.1080/10095020.2020.1787800.
- [218] C. F. Agu, J. Stewart, N. McFarlane-Stewart, and T. Rae, “COVID-19 pandemic effects on nursing education: looking through the lens of a developing country,” *Int. Nurs. Rev.*, vol. 68, no. 2, pp. 153–158, Jun. 2021, doi: 10.1111/inr.12663.
- [219] A. Marshall, M. Dezuanni, J. Burgess, J. Thomas, and C. K. Wilson, “Australian farmers left behind in the digital economy – Insights from the Australian Digital Inclusion Index,” *J. Rural Stud.*, vol. 80, pp. 195–210, Dec. 2020, doi: 10.1016/j.jrurstud.2020.09.001.
- [220] G. Palozzi, I. Schettini, and A. Chirico, “Enhancing the Sustainable Goal of Access to Healthcare: Findings from a Literature Review on Telemedicine Employment in Rural Areas,” *Sustainability*, vol. 12, no. 8, p. 3318, Apr. 2020, doi: 10.3390/su12083318.
- [221] Y. Lai, S. Chen, M. Li, C. O. L. Ung, and H. Hu, “Policy Interventions, Development Trends, and Service Innovations of Internet Hospitals in China: Documentary Analysis and Qualitative Interview Study,” *J. Med. Internet Res.*, vol. 23, no. 7, p. e22330, Jul. 2021, doi: 10.2196/22330.
- [222] N. Al Mudawi, N. Beloff, and M. White, “Issues and challenges: Cloud computing e-government in developing countries,” *Int. J. Adv. Comput. Sci. Appl.*, vol. 11, no. 4, pp. 7–11, 2020, doi: 10.14569/IJACSA.2020.0110402.
- [223] J. Muvuna et al., “Information integration in a smart city system—a case study on air pollution removal by green infrastructure through a vehicle smart routing system,” *Sustain.*, vol. 12, no. 12, 2020, doi: 10.3390/su12125099.
- [224] A. Al-Maskari, T. Al Riyami, and S. Ghnimi, “Factors affecting students’ preparedness for the fourth industrial revolution in higher education institutions,” *J. Appl. Res. High. Educ.*, vol. 16, no. 1, pp. 246–264, 2024, doi: 10.1108/JARHE-05-2022-0169.
- [225] A. T. Amorim-Maia, I. Anguelovski, E. Chu, and J. Connolly, “Governing intersectional climate justice: Tactics and lessons from Barcelona,” *Environ. Policy Gov.*, vol. 34, no. 3, pp. 256–274, 2024, doi: 10.1002/ect.2075.
- [226] J. Jouzdani and K. Govindan, “On the sustainable perishable food supply chain network design: A dairy products case to achieve sustainable development goals,” *J. Clean. Prod.*, vol. 278, p. 123060, 2021, doi: 10.1016/j.jclepro.2020.123060.
- [227] T. Sanislav, G. D. Mois, S. Zeadally, and S. C. Folea, “Energy Harvesting Techniques for Internet of Things (IoT),” *IEEE Access*, vol. 9, pp. 39530–39549, 2021, doi: 10.1109/ACCESS.2021.3064066.
- [228] A. O. Acheampong, J. Dzoror, M. Dzoror, and R. Salim, “Unveiling the effect of transport infrastructure and technological innovation on economic growth, energy consumption and CO2 emissions,” *Technol. Forecast. Soc. Change*, vol. 182, no. November 2021, p. 121843, 2022, doi: 10.1016/j.techfore.2022.121843.
- [229] H. Saarnisaari, A. Chaoub, M. Heikkilä, A. Singhal, and V. Bhatia, “Wireless Terrestrial Backhaul for 6G Remote Access: Challenges and Low Power Solutions,” *Front. Commun. Networks*, vol. 2, no. November, pp. 1–16, 2021, doi: 10.3389/frcmn.2021.710781.
- [230] Z. Gao et al., “Exploring tourist spatiotemporal behavior differences and tourism infrastructure supply–demand pattern fusing social media and nighttime light remote sensing data,” *Int. J. Digit. Earth*, vol. 17, no. 1, pp. 1–22, 2024, doi: 10.1080/17538947.2024.2310723.
- [231] A. P. P. Hartoyo, A. Sunkar, R. Ramadani, S. Faluthi, and S. Hidayati, “Normalized difference vegetation index (Ndvi) analysis for vegetation cover in leuser ecosystem area, sumatra, indonesia,” *Biodiversitas*, vol. 22, no. 3, pp. 1160–1171, 2021, doi: 10.13057/biodiv/d220311.
- [232] S. G. Lazzarini and A. Musacchio, “Leviathan as a partial cure? Opportunities and pitfalls of using the state-owned apparatus to respond to the covid-19 crisis,” *Rev. Adm. Publica*, vol. 54, no. 4, pp. 561–577, 2020, doi: 10.1590/0034-761220200120x.
- [233] M. E. Chang, Z. Q. Zhao, H. T. Chang, and B. Shu, “Urban green infrastructure health assessment, based on landsat 8 remote sensing and entropy landscape metrics,” *Eur. J. Remote Sens.*, vol. 54, no. 1, pp. 417–430, 2021, doi: 10.1080/22797254.2021.1948357.
- [234] K. Wang, L. Zhang, M. Cai, L. Liu, H. Wu, and Z. Peng, “Measuring Urban Poverty Spatial by Remote Sensing and Social Sensing Data: A Fine-Scale Empirical Study from Zhengzhou,” *Remote Sens.*, vol. 15, no. 2, 2023, doi: 10.3390/rs15020381.
- [235] I. Emissions, “An Assessment of the Possibility of Using Unmanned Aerial.pdf,” 2024.
- [236] L. K. Wright, S. Jatrana, and D. Lindsay, “Remote area nurses’ experiences of workplace safety in very remote primary health clinics: A qualitative study,” *J. Adv. Nurs.*, vol. 80, no. 8, pp. 3298–3308, 2024, doi: 10.1111/jan.16028.
- [237] Mafrisal, M. Y. Jincea, M. S. S. Ali, and M. Asdar, “Strategies for Enhancing Inter-Island Transportation Performance in Makassar, Indonesia: An Integrated Planning Approach,” *Int. J. Transp. Dev. Integr.*, vol. 8, no. 1, pp. 79–89, 2024, doi: 10.18280/ijtidi.080107.
- [238] Y. A. Singgalen, “Land Use, Built-Up, and Vegetation Index in North Halmahera Regency through Spatio-Temporal Analysis,” *J. Manaj. Hutan Trop.*, vol. 30, no. 1, pp. 70–83, 2024, doi: 10.7226/jtfm.30.1.70.
- [239] W. Shijin, Q. Wenli, and L. Qiaoxia, “Key Pathways to Achieve Sustainable Development Goals in Three Polar Regions,” *Sustain.*, vol. 15, no. 2, pp. 1–13, 2023, doi: 10.3390/su15021735.
- [240] N. Ndili, “Unprecedented economic attack on Sub-Saharan African economies: coronavirus: How severe is the perceived slump?,” *Environ. Syst. Decis.*, vol. 40, no. 2, pp. 244–251, 2020, doi: 10.1007/s10669-020-09780-1.
- [241] S. Roy, S. Hore, S. Mitra, and G. Chaberek, “Delineating Regional Differentiation on the Development of the Railway Infrastructure in Northeast India Through an Efficient Synthetic Indicator,” *Transp. Probl.*, vol. 17, no. 3, pp. 149–162, 2022, doi: 10.20858/tp.2022.17.3.13.

- [242] J. Ricart-Huguet, "The Origins of Colonial Investments in Former British and French Africa," *Br. J. Polit. Sci.*, vol. 52, no. 2, pp. 736–757, 2022, doi: 10.1017/S0007123420000678.
- [243] H. Zon, M. Pavlova, and W. Groot, "Regional health disparities in Burkina Faso during the period of health care decentralization. Results of a macro-level analysis," *Int. J. Health Plann. Manage.*, vol. 35, no. 4, pp. 939–959, 2020, doi: 10.1002/hpm.2979.
- [244] F. R. Muharram *et al.*, "Distribution of catheterisation laboratories in Indonesia 2017–2022: a nationwide survey," *Lancet Reg. Heal. - Southeast Asia*, vol. 26, p. 100418, 2024, doi: 10.1016/j.lansea.2024.100418.
- [245] J. Parish, "Fiduciary Activism From Below: Green Gentrification, Pension Finance, and the Possibility of Just Urban Futures," *Urban Plan.*, vol. 8, no. 1, pp. 414–425, 2023, doi: 10.17645/up.v8i1.6119.
- [246] C. Van Zyl, M. Badenhorst, S. Hanekom, and M. Heine, "Unravelling € low-resource settings': A systematic scoping review with qualitative content analysis," *BMJ Glob. Heal.*, vol. 6, no. 6, pp. 1–14, 2021, doi: 10.1136/bmjgh-2021-005190.
- [247] J. Zhang, T. Chandola, and N. Zhang, "Understanding the longitudinal dynamics of rural–urban mental health disparities in later life in China," *Ageing Ment. Heal.*, vol. 27, no. 7, pp. 1419–1428, 2023, doi: 10.1080/13607863.2022.2098912.
- [248] H. Jiao, C. Li, Y. Yu, and Z. Peng, "Urban public green space equity against the context of high-speed urbanization in Wuhan, central China," *Sustain.*, vol. 12, no. 22, pp. 1–21, 2020, doi: 10.3390/su12229394.
- [249] F. A. Kitole, E. Mkuna, and J. K. Sesabo, "Digitalization and agricultural transformation in developing countries: Empirical evidence from Tanzania agriculture sector," *Smart Agric. Technol.*, vol. 7, no. December 2023, p. 100379, 2024, doi: 10.1016/j.atech.2023.100379.
- [250] A. Verma, P. S. Dandgawhal, and A. K. Giri, "Impact of ICT diffusion and financial development on economic growth in developing countries," *J. Econ. Financ. Adm. Sci.*, vol. 28, no. 55, pp. 27–43, 2023, doi: 10.1108/JEFAS-09-2021-0185.
- [251] M. Alam, M. Herrera Dappe, M. Melecky, and R. Goldblatt, "Wider economic benefits of transport corridors: Evidence from international development organizations," *J. Dev. Econ.*, vol. 158, no. February 2020, p. 102900, 2022, doi: 10.1016/j.jdevco.2022.102900.
- [252] C. Novaglio *et al.*, "Deep aspirations: towards a sustainable offshore Blue Economy," *Rev. Fish Biol. Fish.*, vol. 32, no. 1, pp. 209–230, 2022, doi: 10.1007/s11160-020-09628-6.
- [253] J. G. Burke, S. Baumann, J. Jones, N. Joshi, and P. Lhaki, "Empowerment Among Adolescent Girls in Nepal: A Concept Mapping Exploratory Study," *Glob. Heal. Sci. Pract.*, vol. 12, no. 3, pp. 1–12, 2024, doi: 10.9745/GHSP-D-23-00010.
- [254] C. Mager and M. Wagner, "A 'Motor' for the Neighbourhood? Urban Planning and the Challenges of Relocating Cultural Infrastructures," *Urban Plan.*, vol. 7, no. 4, pp. 470–485, 2022, doi: 10.17645/up.v7i4.5733.
- [255] G. A. Yudarwati and A. Gregory, "Improving government communication and empowering rural communities: Combining public relations and development communication approaches," *Public Relat. Rev.*, vol. 48, no. 3, p. 102200, 2022, doi: 10.1016/j.pubrev.2022.102200.
- [256] K. Hikima, M. Tsujimoto, M. Takeuchi, and Y. Kajikawa, "Transition analysis of budgetary allocation for projects on hydrogen-related technologies in Japan," *Sustain.*, vol. 12, no. 20, pp. 1–15, 2020, doi: 10.3390/su12208546.
- [257] A. Karimu and R. Bali Swain, "Implication of electricity taxes and levies on sustainable development goals in the European Union," *Energy Policy*, vol. 177, no. April, p. 113553, 2023, doi: 10.1016/j.enpol.2023.113553.
- [258] J. Schwabe, "Regime-driven niches and institutional entrepreneurs: Adding hydrogen to regional energy systems in Germany," *Energy Res. Soc. Sci.*, vol. 108, no. October 2023, p. 103357, 2024, doi: 10.1016/j.erss.2023.103357.
- [259] A. Lahnaoui, S. Venghaus, and W. Kuckshinrichs, "Assessing the drivers of energy supply and demand in Sub-Saharan Africa," *Energy Strateg. Rev.*, vol. 54, no. June, p. 101483, 2024, doi: 10.1016/j.esr.2024.101483.
- [260] S. Lipiäinen, K. Kuparinen, E. Semyagina, and E. Vakkilainen, "Pulp and paper industry in energy transition: Towards energy-efficient and low carbon operation in Finland and Sweden," *Sustain. Prod. Consum.*, vol. 29, pp. 421–431, 2022, doi: 10.1016/j.spc.2021.10.029.
- [261] Ö. Kabak, Ş. Önsel Ekici, and F. Ülengin, "Analyzing two-way interaction between the competitiveness and logistics performance of countries," *Transp. Policy*, vol. 98, no. May 2019, pp. 238–246, 2020, doi: 10.1016/j.tranpol.2019.10.007.
- [262] T. Akyazi, I. Alvarez, E. Alberdi, A. Oyarbide-Zubillaga, A. Goti, and F. Bayon, "Skills needs of the civil engineering sector in the European Union countries: Current situation and future trends," *Appl. Sci.*, vol. 10, no. 20, pp. 1–24, 2020, doi: 10.3390/app10207226.
- [263] J. Lata-García, L. Flores-Bastidas, P. P. Rosero, and F. Jurado, "Social, Environmental and Techno-Economic Impact of Rural Electrification Isolated With Photovoltaic Systems," *Rev. Gest. Soc. e Ambient.*, vol. 18, no. 2, pp. 1–19, 2024, doi: 10.24857/rgsa.v18n2-124.
- [264] M. Makate, "Turning the page on energy poverty? Quasi-experimental evidence on education and energy poverty in Zimbabwe," *Energy Econ.*, vol. 137, no. June, p. 107784, 2024, doi: 10.1016/j.eneco.2024.107784.
- [265] S. G. Simoes *et al.*, "Water availability and water usage solutions for electrolysis in hydrogen production," *J. Clean. Prod.*, vol. 315, no. November 2020, 2021, doi: 10.1016/j.jclepro.2021.128124.
- [266] J. Wu *et al.*, "The moving of high emission for biomass burning in China: View from multi-year emission estimation and human-driven forces," *Environ. Int.*, vol. 142, no. May, p. 105812, 2020, doi: 10.1016/j.envint.2020.105812.
- [267] R. Duarte, S. Miranda-Buetas, and C. Sarasa, "Household consumption patterns and income inequality in EU countries:

- Scenario analysis for a fair transition towards low-carbon economies,” *Energy Econ.*, vol. 104, p. 105614, 2021, doi: 10.1016/j.eneco.2021.105614.
- [268] D. Bienvenido-Huertas, D. Marín-García, M. J. Carretero-Ayuso, and C. E. Rodríguez-Jiménez, “Climate classification for new and restored buildings in Andalusia: Analysing the current regulation and a new approach based on k-means,” *J. Build. Eng.*, vol. 43, p. 102829, 2021, doi: 10.1016/j.jobe.2021.102829.
- [269] J. R. Iglesias, B. H. F. Cardoso, and S. Gonçalves, “Inequality, a scourge of the XXI century,” *Commun. Nonlinear Sci. Numer. Simul.*, vol. 95, 2021, doi: 10.1016/j.cnsns.2020.105646.
- [270] L. M. Grigoryev, I. A. Makarov, A. K. Sokolova, V. A. Pavlyushina, and I. A. Stepanov, “Climate Change and Inequality: How to Solve These Problems Jointly?,” *Int. Organ. Res. J.*, vol. 15, no. 1, pp. 7–30, 2020, doi: 10.17323/1996-7845-2020-01-01.
- [271] Y. Xue, C. M. Lindkvist, and A. Temeljotov-Salaj, “Barriers and potential solutions to the diffusion of solar photovoltaics from the public-private-people partnership perspective – Case study of Norway,” *Renew. Sustain. Energy Rev.*, vol. 137, no. February 2020, p. 110636, 2021, doi: 10.1016/j.rser.2020.110636.
- [272] L. Chunling, J. A. Memon, T. Le Thanh, M. Ali, and D. Kirikkaleli, “The impact of public-private partnership investment in energy and technological innovation on ecological footprint: The case of Pakistan,” *Sustain.*, vol. 13, no. 18, 2021, doi: 10.3390/su131810085.
- [273] A. Anwar et al., “The asymmetric effect of public private partnership investment on transport CO2 emission in China: Evidence from quantile ARDL approach,” *J. Clean. Prod.*, vol. 288, p. 125282, 2021, doi: 10.1016/j.jclepro.2020.125282.
- [274] O. Alp, T. Tan, and M. Udenio, “Transitioning to sustainable freight transportation by integrating fleet replacement and charging infrastructure decisions,” *Omega (United Kingdom)*, vol. 109, p. 102595, 2022, doi: 10.1016/j.omega.2022.102595.
- [275] S. Sankaran, S. Clegg, R. Müller, and N. Drouin, “Energy justice issues in renewable energy megaprojects: implications for a socioeconomic evaluation of megaprojects,” *Int. J. Manag. Proj. Bus.*, vol. 15, no. 4, pp. 701–718, May 2022, doi: 10.1108/IJMPB-06-2021-0147.
- [276] Z. Cranmer, L. Steinfield, J. Miranda, and T. Stohler, “Energy distributive injustices: Assessing the demographics of communities surrounding renewable and fossil fuel power plants in the United States,” *Energy Res. Soc. Sci.*, vol. 100, no. October 2022, p. 103050, 2023, doi: 10.1016/j.erss.2023.103050.
- [277] H. Yu, B. Wen, I. Zahidi, M. F. Chow, D. Liang, and D. Ø. Madsen, “The critical role of energy transition in addressing climate change at COP28,” *Results Eng.*, vol. 22, no. February, 2024, doi: 10.1016/j.rineng.2024.102324.
- [278] S. Sareen, “Legitimizing power: Solar energy rollout, sustainability metrics and transition politics,” *Environ. Plan. E Nat. Sp.*, vol. 5, no. 3, pp. 1014–1034, 2022, doi: 10.1177/25148486211024903.
- [279] C. J. Lindsell et al., “Learning From What We Do, and Doing What We Learn: A Learning Health Care System in Action,” *Acad. Med.*, vol. 96, no. 9, pp. 1291–1299, Sep. 2021, doi: 10.1097/ACM.0000000000004021.
- [280] H. J. Teede et al., “Recommendations from the 2023 International Evidence-based Guideline for the Assessment and Management of Polycystic Ovary Syndrome,” *Fertil. Steril.*, vol. 120, no. 4, pp. 767–793, 2023, doi: 10.1016/j.fertnstert.2023.07.025.
- [281] H. J. Teede et al., “Recommendations from the 2023 international evidence-based guideline for the assessment and management of polycystic ovary syndrome,” *Eur. J. Endocrinol.*, vol. 189, no. 2, pp. G43–G64, 2023, doi: 10.1093/ajeendo/lvad096.
- [282] H. J. Teede et al., “Recommendations From the 2023 International Evidence-based Guideline for the Assessment and Management of Polycystic Ovary Syndrome,” *J. Clin. Endocrinol. Metab.*, vol. 108, no. 10, pp. 2447–2469, 2023, doi: 10.1210/clinem/dgad463.
- [283] L. Doshmangir, B. Najafi, H. Mostafavi, and E. Moshiri, “Future development through the past: Pathology of the financing dimension of Iran’s health transformation plan,” *Clin. Outcomes Res.*, vol. 12, pp. 345–354, 2020, doi: 10.2147/CEOR.S253601.
- [284] C. B. Agaton, A. A. Collera, and C. S. Guno, “Socio-economic and environmental analyses of sustainable public transport in the Philippines,” *Sustain.*, vol. 12, no. 11, pp. 1–14, 2020, doi: 10.3390/su12114720.
- [285] M. Galecka, L. Patrzalek, I. Kuropka, and E. Szabela-Pasierbińska, “The fiscal capacity of local government versus government expenditure, and its impact on eliminating inter-regional social inequalities in Poland,” *Region.*, vol. 9, no. 1, pp. 51–67, 2022, doi: 10.18335/region.v9i1.368.
- [286] S. K. Ngangnon, “Impact of the volatility of resource revenue on non-resource revenue volatility,” *J. Econ. Dev.*, vol. 23, no. 2, pp. 102–115, 2020, doi: 10.1108/JED-07-2020-0094.
- [287] K. Gooding, M. P. Bertone, G. Loffreda, and S. Witter, “How can we strengthen partnership and coordination for health system emergency preparedness and response? Findings from a synthesis of experience across countries facing shocks,” *BMC Health Serv. Res.*, vol. 22, no. 1, pp. 1–19, 2022, doi: 10.1186/s12913-022-08859-6.
- [288] N. Fonseca Arenas and M. Shafique, “Recent progress on BIM-based sustainable buildings: State of the art review,” *Dev. Built Environ.*, vol. 15, no. May, p. 100176, 2023, doi: 10.1016/j.dibe.2023.100176.
- [289] S. Knuth, “Rentiers of the low-carbon economy? Renewable energy’s extractive fiscal geographies,” *Environ. Plan. A*, vol. 55, no. 6, pp. 1548–1564, 2023, doi: 10.1177/0308518X211062601.
- [290] H. C. Demirel, W. Leendertse, and L. Volker, “Mechanisms for protecting returns on private investments in public infrastructure projects,” *Int. J. Proj. Manag.*, vol. 40, no. 3, pp. 155–166, 2022, doi: 10.1016/j.ijproman.2021.11.008.

- [291] B. Govaerts *et al.*, “One CGIAR and the Integrated Agri-food Systems Initiative: From short-termism to transformation of the world’s food systems,” *PLoS One*, vol. 16, no. 6 June, pp. 1–15, 2021, doi: 10.1371/journal.pone.0252832.
- [292] A. Razmjoo *et al.*, “A Comprehensive Study on the Expansion of Electric Vehicles in Europe,” *Appl. Sci.*, vol. 12, no. 22, 2022, doi: 10.3390/app122211656.
- [293] Y. Zhou, M. Evans, S. Yu, X. Sun, and J. Wang, “Linkages between policy and business innovation in the development of China’s energy performance contracting market,” *Energy Policy*, vol. 140, no. February, 2020, doi: 10.1016/j.enpol.2019.111208.
- [294] R. D. Harrison, T. Swinfield, A. Ayat, S. Dewi, M. Silalahi, and I. Heriansyah, “Restoration concessions: a second lease on life for beleaguered tropical forests?,” *Front. Ecol. Environ.*, vol. 18, no. 10, pp. 567–575, 2020, doi: 10.1002/fee.2265.
- [295] X. Guo, B. Chen, and Y. Feng, “Public-Private Partnership Transportation Investment and Low-Carbon Economic Development: An Empirical Study Based on Spatial Spillover and Project Characteristics in China,” *Sustain.*, vol. 14, no. 15, 2022, doi: 10.3390/su14159574.
- [296] H. Haider *et al.*, “Life Cycle Assessment of Construction and Demolition Waste Management in Riyadh, Saudi Arabia,” *Int. J. Environ. Res. Public Health*, vol. 19, no. 12, 2022, doi: 10.3390/ijerph19127382.
- [297] M. Al-Saidi and E. Zaidan, “Smart cities and communities in the GCC region: from top-down city development to more local approaches,” *Front. Built Environ.*, vol. 10, no. April, 2024, doi: 10.3389/fbuil.2024.1341694.
- [298] A. Buonomano, G. F. Giuzio, R. Maka, A. Palombo, and G. Russo, “Empowering sea ports with renewable energy under the enabling framework of the energy communities,” *Energy Convers. Manag.*, vol. 314, no. July, p. 118693, 2024, doi: 10.1016/j.enconman.2024.118693.
- [299] H. Kryshstal, V. Tomakh, T. Ivanova, V. Metelytsia, M. Yermolaieva, and Y. Panin, “Eco-Innovative Transformation of the Urban Infrastructure of Ukraine on the Way To Post-War Recovery,” *Financ. Credit Act. Probl. Theory Pract.*, vol. 2, no. 55, pp. 391–408, 2024, doi: 10.55643/fcactp.2.55.2024.4281.
- [300] T. Schmitt and A. Haarmann, “Financing health promotion, prevention and innovation despite the rising healthcare costs: How can the new German government square the circle?,” *Z. Evid. Fortbild. Qual. Gesundheitswes.*, vol. 177, pp. 95–103, 2023, doi: 10.1016/j.zefq.2022.10.001.
- [301] S. M. Piacentini and R. Rossetto, “Attitude and actual behaviour towards water-related green infrastructures and sustainable drainage systems in four north-western mediterranean regions of Italy and France,” *Water (Switzerland)*, vol. 12, no. 5, 2020, doi: 10.3390/w12051474.
- [302] S. Sarfarazi, S. Mohammadi, D. Khastieva, M. R. Hesamzadeh, V. Bertsch, and D. Bunn, “An optimal real-time pricing strategy for aggregating distributed generation and battery storage systems in energy communities: A stochastic bilevel optimization approach,” *Int. J. Electr. Power Energy Syst.*, vol. 147, no. October 2022, p. 108770, 2023, doi: 10.1016/j.ijepes.2022.108770.
- [303] W. S. Lazarini, F. Sodré, T. D. Sarti, and M. A. C. Andrade, “Health policies in Brazil: an analysis of projects financed by the World Bank during the Lula and Dilma governments,” *Saude e Soc.*, vol. 30, no. 1, pp. 1–12, 2021, doi: 10.1590/S0104-12902021190747.
- [304] P. D. Necochea-Porras, A. López, and J. C. Salazar-Elena, “Deregulation in the energy sector and its economic effects on the power sector: A literature review,” *Sustain.*, vol. 13, no. 6, 2021, doi: 10.3390/su13063429.
- [305] J. Wang *et al.*, “Forty years of irrigation development and reform in China,” *Aust. J. Agric. Resour. Econ.*, vol. 64, no. 1, pp. 126–149, 2020, doi: 10.1111/1467-8489.12334.
- [306] L. Zhao, D. Wang, X. Wang, and Z. Zhang, “Impact of green finance on total factor productivity of heavily polluting enterprises: Evidence from green finance reform and innovation pilot zone,” *Econ. Anal. Policy*, vol. 79, no. 2022, pp. 765–785, 2023, doi: 10.1016/j.eap.2023.06.045.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

