Vol. 5(1), 35-43

Journal of Energy & Environmental Policy Options

The Role of China's Foreign Direct Investments in Energy Within the Belt and Road Initiative

Chen Lu[a], Peng Xing[b]

Abstract
Since 2011, China has emerged as the world's largest energy consumer, with its industrial sector accounting for approximately two-thirds of the country's total energy consumption. This heavy reliance on energy, especially oil, is largely due to China's status as a net importer of energy. The substantial investments in energy, particularly in foreign direct investment, are crucial not only for meeting domestic demands but also for ensuring the security of energy supplies. Among the key subjects of this paper is the role of Chinese foreign investments in the energy sector, which is the largest and most strategically important sector in China's global investment portfolio. To assess the scale and impact of these investments, the study employs bibliometric analysis using the WoS Viewer program, which helps in analyzing global trends, key authors, influential countries, and the most frequently used keywords related to FDI in the energy sector. This approach allows for a comprehensive understanding of the global landscape in which China's investments are situated. The paper further relies on a combination of scientific methods such as observation, analysis, synthesis, comparison, exploration, and explanation to analyze Chinese investments from 2013 onward. The primary focus is on the Belt and Road Initiative (BRI), which has become a vehicle for China to expand its influence globally, particularly in sectors such as energy. Under the BRI, China has invested heavily in projects across various sectors, most notably in energy. These investments include oil, hydropower, alternative energy, natural gas, and coal. The nature of these investments often involves loans that come with certain geopolitical strings attached, sometimes creating what critics refer to as "debt traps." These situations allow China to gain control over valuable assets in participating countries if they fail to repay their debts. While these projects have significantly increased China's geopolitical leverage, they have also raised concerns regarding the sustainability of such investments for both China and the recipient countries. The energy sector has remained the cornerstone of China's investments within the BRI framework. However, there has been a noticeable diversification of Chinese capital since the late 2010s. While energy continues to dominate, Chinese investments have expanded into other sectors, including transportation, real estate, technology and innovation, and tourism. This diversification reflects China's broader strategy to increase its global footprint and influence in sectors that are critical for long-term economic development and sustainability. A major setback occurred after 2019, when Chinese investments in the BRI regions, particularly in the energy sector, experienced a sharp decline due to the COVID-19 pandemic. The global economic disruptions caused by the pandemic led to a slowdown in both new projects and the completion of ongoing investments, particularly in high-risk areas. While the energy sector remains the primary focus of Chinese investments under the BRI, the trend of diversification into other sectors signals a shift in China's investment strategy. The next phase of China's Belt and Road Initiative should consider a stronger emphasis on renewable energy sources as part of its broader commitment to sustainability and global climate goals. Such a pivot would not only help mitigate the environmental impact of China's investments but also align with global calls for sustainable development in the post-pandemic era.

Keywords: Chinese FDI, Belt and Road Initiative, Energy Sector, Renewable Energy
JEL Codes: F21, Q48, O53, Q42

1. INTRODUCTION

Foreign direct investments play a pivotal role in stimulating economic growth and fostering development by facilitating access to new, lucrative markets, encouraging the transfer of advanced technologies, promoting the production of high-value-added goods, and supporting the growth of small and medium-sized enterprises (Gorus & Groeneveld, 2018; Kumar, 2018; Ali et al., 2021). The influx of capital through FDI also contributes to economic stability and drives the creation of employment opportunities. One of the most significant initiatives of this kind is China's Belt and Road Initiative, which has become a global economic and geopolitical force, involving 151 countries across Asia, Europe, Africa, and Latin America. Among the many global initiatives, the BRI stands out not only for its scope and ambition but also for its strategic vision and the potential it holds for transforming infrastructure development across continents. In contrast to the BRI, there are two primary counter-initiatives spearheaded by the West, the Partnership for Global Infrastructure and Investments and the Indo-Pacific Economic

[a] China Economics and Management Academy, Central University of Finance and Economics, Beijing, China
[b] China Economics and Management Academy, Central University of Finance and Economics, Beijing, China

Framework. Both were introduced in 2022 during the G7 summit as attempts to offer alternatives to the BRI's influence, but they are still in their early stages compared to the long history and far-reaching impact of the Chinese-led initiative. This extensive reach and its historical depth make the BRI a compelling subject for further examination. The Belt and Road Initiative, also known as the Modern Silk Road, is one of the most ambitious and significant infrastructure projects ever launched globally. Introduced in 2013 by Chinese President Xi Jinping, the initiative initially focused on connecting East Asia and Europe through large-scale infrastructure development projects, including highways, railways, ports, and energy infrastructure. Over the past decade, however, the scope of the BRI has expanded significantly, incorporating projects across Africa, Oceania, and Latin America, effectively transforming China into a dominant global player. Through these investments, China has sought to enhance its economic and political influence, thereby solidifying its status as a key global power (Audi & Ali, 2017; Wu et al., 2019). The strategic vision behind the BRI is often described as geopolitically ambitious. The initiative is viewed as China's attempt to reshape global trade routes and establish itself as a leader in global economic governance. Some scholars argue that the BRI is more than just an economic development project—it is a geopolitical strategy designed to elevate China to global hegemon status (Zhang, 2022). By investing in critical infrastructure across developing countries, China aims to secure favorable trade agreements, expand its markets, and assert its influence on a global scale. Importantly, the BRI is also a carefully crafted marketing strategy, through which China seeks to reposition itself in the global arena. The initiative presents China as a provider of global public goods, positioning itself as an essential player in the global economy. This narrative not only promotes China's economic power but also its political vision, projecting China as a benevolent partner to developing nations while strengthening its soft power through cultural exchanges, infrastructure projects, and enhanced bilateral relations.

At its core, the BRI is about building infrastructure on an unprecedented scale, with the goal of creating an interconnected global economic system. This grand vision has transformed the landscape of global trade and investment, making China a key player in shaping the future of global commerce and geopolitics. As the initiative continues to unfold, it will likely have far-reaching implications for international trade patterns, political alliances, and global economic power structures. While the BRI's investments primarily focus on infrastructure, the long-term goals also include fostering economic integration, enhancing global connectivity, and addressing the development needs of countries in the BRI's orbit. However, the initiative is not without its critics, especially regarding its potential to create dependency among participating nations through debt traps, environmental concerns, and its lack of transparency in project implementation. Despite these criticisms, the BRI remains a cornerstone of China's strategy to assert its dominance in the global arena, offering both opportunities and challenges for the countries involved. As the BRI evolves, it will likely continue to shape the trajectory of global development, prompting further studies into its economic, political, and social impacts on the countries that participate in this ambitious project.

The Belt and Road Initiative is increasingly becoming a cornerstone of China's foreign policy, reflecting its ambitions to expand its global influence through massive infrastructure investments and economic cooperation. However, a significant concern surrounding the BRI is the risk of creating unsustainable debt for the participating countries. This risk arises primarily because most of the investments made under the BRI are in the form of loans, which are typically financed by China's state-owned banks, commercial banks, and the State Investment Fund (Yukhanaev et al., 2014). These loans often come with terms that could be difficult for the borrowing countries to repay, particularly if the expected returns on the infrastructure projects do not materialize as anticipated. Many of the countries involved in the BRI, particularly those in developing regions such as Africa and Southeast Asia, were in dire need of investment in infrastructure but were unable to attract funding from other sources. This has left them with little choice but to accept Chinese financing, despite the potential risks involved (Latief and Lefen, 2019; Dunning, 2000; Liang et al., 2021). In many cases, the funds provided by China fill a gap that other international investors, including Western countries and financial institutions, have been reluctant to address. China's willingness to finance projects in economically underdeveloped regions has thus positioned it as a critical player in global development.

However, the underlying objective of the BRI has raised questions about its true intentions. While China markets the initiative as a means to promote global economic growth and connectivity, some analysts argue that the BRI's real goal is not necessarily to improve the economies of the participating countries but to drive economic growth within China itself. By investing heavily in infrastructure and securing long-term contracts for Chinese firms, the BRI supports the growth of China's domestic market, industries, and global economic influence (ASEAN, 2019). The initiative not only facilitates the export of Chinese capital, goods, and services but also reinforces China's geopolitical strategy by creating economic dependencies through large-scale infrastructure projects. Despite these concerns, participating countries often find themselves in a difficult position. They face significant infrastructure gaps and are eager to modernize their economies, but at the same time, they must navigate the complexities of borrowing from China, which can potentially lead to debt burdens that are hard to manage. Some critics have referred to this dynamic as a "debt trap" in which countries become reliant on Chinese financing, potentially compromising their sovereignty and long-term economic stability. This situation has led to growing scrutiny and debate about the long-term implications of the BRI, particularly as many of the loans are backed by strategic assets such as natural resources, ports, or land, which could be used as collateral. The risks associated with these debt-driven investments are compounded by the lack of transparency in the BRI's financing and implementation processes. In some cases, the terms of the loans and the projects themselves are not fully disclosed to the public, leading to concerns about accountability, corruption, and the social and environmental impacts of the projects.

While the BRI has been instrumental in filling critical infrastructure gaps in many developing countries, it also raises significant questions about the sustainability of these investments and the long-term consequences for the countries involved. It is important for participating nations to carefully manage their debt levels and work toward ensuring that the infrastructure projects funded by the BRI deliver tangible economic benefits without jeopardizing their financial stability. According to Chow-Bing (2022), the Belt and Road Initiative (BRI) has five key goals: policy coordination, infrastructure connectivity, free trade, integration of financial systems, and connecting cultures. These goals are designed to promote deeper cooperation between China and participating countries by addressing economic, political, and cultural factors that can enable successful investments and sustainable growth. By focusing on building new infrastructure, the BRI aims to enhance the exchange of capital, goods, and services between China and the countries involved, facilitating trade and investment flows. Infrastructure development, including land, sea, and air routes, is a central feature of the initiative, which seeks to create a seamless network that connects Asia, Europe, Africa, and other regions. The goal of policy coordination is to align the economic and development strategies of BRI participant countries, ensuring that the projects are harmonized with national priorities. This would help smooth the implementation of infrastructure projects and align them with the specific needs of each country. Similarly, integrating financial systems across participating countries and creating a more unified economic framework is intended to ease transactions, increase investment, and enhance cooperation on regional and global economic challenges. Cultural exchange is another key element, and it is expected to strengthen ties among BRI countries by fostering understanding and mutual respect. Through cultural exchanges, the BRI aims to break down social and political barriers, which could, in turn, support investment flows and political cooperation. While China has positioned cultural exchange as an official goal of the BRI, there are contradictions when it comes to the reality of China's internal approach to globalization. As noted, while China seeks to spread its culture, ideas, and influence abroad, it is less open to external cultures, ideas, and political influence. This inward focus has created tension between China's push for cultural integration under the BRI and its more restrictive domestic policies.

Despite these contradictions, the BRI has significantly contributed to infrastructure development and economic cooperation on a global scale. However, the extent to which cultural integration and political trust can be achieved through the BRI remains uncertain. For example, while infrastructure projects have created new trade routes and connected distant regions, the lack of political openness and the controlled flow of information within China may limit the depth of the cultural exchange and policy coordination goals of the initiative. Some critics argue that the BRI is less about fostering genuine cultural exchange and more about advancing China's geopolitical and economic interests. Thus, while the BRI has made notable strides in connecting regions through infrastructure and boosting trade, its political and cultural objectives may not be as easily realized. The reality is that the initiative's goals of connecting cultures and building policy coordination may face significant challenges, particularly given China's reluctance to engage with external cultures and ideas on its own soil. The Belt and Road Initiative (BRI) can indeed be viewed through a critical lens, drawing parallels with dystopian visions like George Orwell's *1984* due to its centralized control and China's efforts to assert influence over participating countries. Much like the totalitarian surveillance state in Orwell's novel, China's approach to the BRI reflects its desire for dominance, both economically and geopolitically. The BRI is not just an infrastructure project but a strategic initiative to expand China's global footprint, leveraging its surplus production capacity and expertise in large-scale infrastructure development.

The BRI includes two major components: the "Economic Belt," which focuses on land-based infrastructure across Asia and into Europe, and the "Maritime Road," which connects key ports and trade routes by sea. The aim of these economic corridors is to enhance connectivity and strengthen the international logistics network, ultimately fostering trade between China and the regions involved. As China has excess production capacity, the BRI serves as both a solution to its domestic economic challenges and a way to create long-term demand for Chinese goods and services. By investing in countries that need infrastructure, China is securing markets for its own industries while simultaneously contributing to the development of other nations. However, the initiative has faced scrutiny regarding its potential to create "debt traps" in developing countries. Critics argue that China, by providing loans to countries with weak or unstable economies, risks trapping them in unsustainable debt, which may leave them vulnerable to political influence. Various reports and studies, however, have cast doubt on this notion, suggesting that while some projects may indeed be financially risky or not as viable as claimed, the idea of intentional "debt-trapping" is often exaggerated (Ho & Ran, 2018; Khan & Hassan, 2019; Desiree, 2019; Ahmad & Ali, 2019; Khan & Bae, 2020; Bakht, 2020). Nonetheless, the loans extended under the BRI often lack thorough cost-benefit analysis, and the projects themselves may be poorly planned or ill-suited to the needs of the recipient countries, leading to financial instability in the long term.

The BRI has also been likened to a "Chinese Marshall Plan" due to its ambitious scale and its role in promoting China's global influence. Similar to the Marshall Plan, which aimed to rebuild post-war Europe and counter Soviet influence, the BRI is seen as an economic stimulus package for China, designed to boost its slowing economy while positioning the country as a leader in global development (Luna & Luna, 2018; Kumar, 2018; Toth & Paskal, 2019; Anwar & Akhtar, 2019). However, unlike the Marshall Plan, which was focused on economic recovery through aid, the BRI is more strategically focused on fostering Chinese political and economic interests. It is designed to connect Asia with Europe and Africa, improving regional integration, facilitating trade, and driving economic growth—but it also allows China to gain greater leverage in international organizations and secure votes for its political objectives. China's growing influence through the BRI is not without controversy. On the one hand, it is portrayed as a way for China to be seen as a socially responsible nation, contributing to global development. On the other hand, its political motives cannot be ignored. By tying loans and infrastructure projects to political agreements, China is strengthening its position on the global stage, aligning countries with its interests, and gaining a foothold in international governance. This dual strategy—economic expansion coupled with political maneuvering—reveals the true nature of the BRI as both a development initiative and a geopolitical tool. The Belt and Road Initiative serves as a vehicle for China to exert its influence globally while addressing its own economic needs. It presents a complex combination of opportunities and risks for participating countries, with many reaping the benefits of infrastructure development while others face the potential downside of growing indebtedness and increasing political dependence on China. The initiative is not just about economic growth; it is also about shaping the future of global geopolitics, with China playing a central role in redefining international relations.

2. METHODOLOGY

The methodology employed in this paper was designed to systematically summarize and analyze data related to foreign direct investment (FDI) outflows within Belt and Road Initiative (BRI) countries. To ensure a comprehensive understanding of the topic, the study utilized a variety of methods, drawing on a combination of scientific data sources and expert databases such as Web of Science (WOS), the American Enterprise Institute (2022), the US Energy Information Administration (2022), BP (2021), MOFCOM (2021), OECD (2018), the World Bank (2019), and the International Energy Agency (IEA, 2022). These sources provided a rich body of qualitative and quantitative data, which was analyzed using several techniques to uncover patterns, trends, and key insights. The first method used was observation, which allowed for the systematic and purposeful perception of the subject matter. Observation in this context involved closely monitoring and recording the key elements associated with the outflow of Chinese Foreign Direct Investment (ODFDI), particularly in relation to the Belt and Road Initiative. This included the identification of specific processes and the collection of factual data on both the qualitative and quantitative aspects of Chinese investments globally and within the BRI framework.

Next, the method of analysis was applied to break down the complex issue of FDI flows into its constituent parts. This method enabled the study to examine individual Chinese foreign investments and understand their distribution and impact, both globally and within the scope of the BRI. Through this approach, the study was able to reveal important characteristics of Chinese investment, such as sectoral allocation, regional trends, and the economic contexts in which these investments are made. Following this, the synthesis method was employed to investigate the connections and relationships between the various elements uncovered during the analysis phase. This method aimed to bring together the individual components of the research to form a coherent understanding of the broader trends in Chinese FDI, its role in global trade, and its strategic alignment with China's geopolitical and economic objectives.

The method of comparison was then used to contrast the different data sets, providing insights into the volume of Chinese FDI outflows within the BRI and across various sectors. By comparing the distribution of Chinese foreign investments in different industries and regions, the study aimed to highlight key sectors that are receiving the most investment, such as energy, infrastructure, and technology, and to identify patterns in the allocation of resources that align with China's strategic goals under the BRI. Before diving into the data analysis, a bibliometric analysis was carried out. This analysis involved examining the subject of Foreign Direct Investment (FDI) in greater detail, specifically focusing on Chinese investments in the context of the BRI. The data for this analysis was extracted from the Web of Science (WOS), one of the leading independent scientific databases globally. The search term "Direct Foreign Investments" was used to gather relevant articles and studies. WOSviewer, a software tool that allows for advanced bibliometric analysis, was employed to visualize and map the relationships between key terms, authors, countries, and themes in the literature. The text mining functionality of WOSviewer enabled the construction of co-occurrence networks, helping to identify the most frequently discussed topics, trends, and scholarly relationships within the field of Chinese FDI and the Belt and Road Initiative.

By employing these methods, the paper was able to provide a well-rounded analysis of Chinese foreign investments, focusing not only on the volume and sectoral distribution of these investments but also on the strategic motivations behind them. The combination of observation, analysis, synthesis, comparison, and bibliometric techniques ensured that the study was comprehensive, data-driven, and grounded in a broad understanding of both the historical context and current trends in global foreign direct investment, particularly in the context of China's Belt and Road Initiative.

3. OUTCOMES

The Belt and Road Initiative (BRI) is a geopolitical project that plays a central role in China's ambition to become a global hegemon. As one of the most significant foreign policy and economic strategies of the 21st century, the BRI has garnered widespread attention due to its massive scale and scope, particularly in infrastructure and energy investments. Before focusing on the energy sector, which is the largest in terms of investment volume under the BRI, it is important to first understand the broader trends in Chinese outward foreign direct investment (OFDI). Chinese foreign direct investment in countries along the BRI corridor has grown significantly since the initiative was launched. In fact, Chinese FDI nearly doubled in 2019 compared to 2014. However, recent years have seen a decline in the volume of Chinese outward direct investment, as illustrated by data from the International Energy Agency (IEA, 2022). This decrease in investment outflows can be attributed to several factors, including shifting global economic conditions, changes in Chinese domestic policy, and external challenges such as the COVID-19 pandemic and rising geopolitical tensions. Despite this recent dip, the long-term trend remains one of expansion,

reflecting China's broader strategy to establish deeper economic and political ties with BRI countries.
The core focus of the paper, however, is the energy sector, which has consistently attracted the largest share of Chinese investment. Since 2011, China has been the world's largest energy consumer, with its industrial sector consuming two-thirds of the total energy used. One of the key drivers of China's energy investments is its status as a net importer of energy, particularly oil. Despite possessing substantial domestic reserves, China's national oil companies have not been able to meet the rapidly increasing demand for oil. Since 2000, China's oil consumption has surged dramatically, and by 2016, imports accounted for approximately 70% of the country's total oil supply. By 2021, this figure had risen to 72% (EIA, 2022). China's dependency on oil imports has made energy investments a top priority. These investments, especially in the BRI countries, are driven by the need to secure stable energy sources and reduce vulnerability to global market fluctuations. As shown in Figure 6, China's total energy investment (including in non-BRI countries) was $550 billion, marking a 25% decrease from the $740 billion invested during the previous 5-year plan (2016-2020). The projected contract volume for the current 5-year period is expected to decrease further, from $800 billion in the prior plan to $700 billion (MOFCOM, 2021). Despite the decrease in the overall volume of energy investments, the oil consumption trend in China is expected to remain high in the short and medium term, which will continue to shift the country's energy balance further in favor of imports. This trend underscores the ongoing strategic importance of the energy sector within the BRI, which is designed to secure the long-term energy needs of China. Approximately one-third of all investments under the BRI initiative are directed toward the energy sector (Hou et al., 2021). These investments are concentrated in areas such as oil and gas exploration, infrastructure for energy transmission, and renewable energy projects (William & Adam, 2018; Singh & Kumar, 2018), which are not only designed to meet domestic energy needs but also to enhance China's influence over global energy markets. The energy sector thus represents a crucial aspect of the BRI, aligning with China's broader economic goals while also serving as a tool for increasing geopolitical leverage. Through energy investments, China aims to build strategic relationships with BRI countries, ensuring access to critical resources while also positioning itself as a leading global energy player. These investments are not just about securing oil and gas supplies—they are also a means to influence the political and economic landscapes of participating countries, reinforcing China's role as a key player in shaping global energy and infrastructure markets.
The Chinese government has recognized foreign investment as a vital strategy to enhance energy security, integrating it into its long-term energy plans and five-year development strategies. By increasing oil and gas reserves, expanding domestic production, and diversifying supply sources, China seeks to reduce its dependence on foreign energy while ensuring a steady supply of critical resources. This emphasis on energy security is reflected in China's energy investments, which have been a key component of its foreign policy and economic outreach, especially under the Belt and Road Initiative (BRI) (ASEAN, 2019; Telnova et al., 2020; IEA, 2021). Since the launch of the BRI in 2013, nearly all of China's energy-related investments have been directed to countries along the initiative's path (American Enterprise Institute, 2022). The volume of Chinese energy investments saw a remarkable upward trend between 2013 and 2015, with direct investments by Chinese energy enterprises in BRI countries increasing from $5.96 billion in 2013 to $22.69 billion in 2015, a nearly fourfold growth over just three years. This surge in investments highlights China's growing commitment to securing energy resources and bolstering its influence in key regions across Asia, Africa, and beyond. China's energy investments span multiple sectors, including oil, hydropower, natural gas, coal, and increasingly, alternative energy. Despite the overall expansion of its energy investment footprint, Chinese investments in the energy sector experienced a sharp decline after 2019, primarily due to the COVID-19 pandemic, which disrupted global markets and investment flows (Chow-Bing, 2020; Rauf et al., 2021; Huang, 2022). Nonetheless, energy remains the primary sector for Chinese investments within the BRI, with Chinese capital gradually diversifying into other sectors such as transportation, real estate, technology and innovation, and tourism. This diversification indicates a broader shift in China's foreign investment strategy as the BRI expands beyond energy into more varied sectors.
One of the most notable Chinese energy investments within the BRI is the 2015 deal between Malaysia's 1MDB and China General Nuclear Power Corporation and China Southern Power Grid. In this transaction, China acquired power assets worth $5.26 billion, marking a significant step in China's energy acquisition strategy in Southeast Asia (Figure 8). Another important investment is the 2019 purchase by China National Petroleum Corp. (CNPC) and China National Offshore Oil Corp. (CNOOC) of a 20% stake in the $4.04 billion Arctic-2 liquefied natural gas (LNG) project led by Russian gas producer Novatek (EIA, 2022; OECD, 2018). These investments underscore China's growing influence in the global energy market, particularly in natural gas, as the country looks to secure long-term energy supplies through major projects. While the BRI initiative has historically focused on traditional energy sources such as oil and gas, China has also shifted its attention toward renewable energy in recent years. In fact, China has not engaged in any new coal-related investments since 2020, signaling a shift toward cleaner energy options (American Enterprise Institute, 2022; OECD, 2018; Singh & Kumar, 2018; World Bank, 2019). This move aligns with China's broader environmental goals and its desire to lead the global transition toward low-carbon technologies. As the world's largest producer of solar panels, wind turbines, batteries, and electric vehicles, China is well positioned to export these low-carbon technologies to emerging markets and developing economies as part of the BRI initiative (Wang, 2022; Green Finance and Development Center, 2022). These technologies are increasingly becoming more affordable, and their adoption is expected to rise globally, driven by both environmental imperatives and cost reduction. By integrating renewable energy technologies into its BRI investments, China aims to solidify its role as a global leader in green energy solutions while simultaneously fostering deeper economic ties with participating countries. This dual strategy not only strengthens China's energy security but also enhances its geopolitical influence as it helps partner countries transition to more sustainable energy systems.

While China's BRI investments in energy have traditionally focused on oil, gas, and coal, the shift toward alternative energy sources and the export of green technologies demonstrates China's commitment to sustainability and its evolving role in the global energy transition. By continuing to diversify its energy portfolio within the BRI, China seeks to secure its energy future, influence global energy markets, and promote the use of low-carbon technologies in emerging economies, all while deepening its economic and political influence across the globe. In recent years, China has made significant strides in redirecting its foreign energy investments towards renewable sources such as solar, wind, and hydropower. By 2020, renewable energy investments accounted for more than half (52%) of China's overseas energy investments, up from 35% in 2019. This shift is especially pertinent in light of global energy challenges, including rising fossil fuel prices and energy shortages exacerbated by the geopolitical tensions, such as the conflict in Ukraine. These rising energy costs have had a particularly severe impact on poorer energy-importing countries, making renewable energy investments even more critical for both sustainability and energy security (Mahmood, 2019; Iqbal & Khan, 2020; Zaheer & Nasir, 2020; Habibullah, 2020).

A notable example of China’s growing focus on renewable energy is the Nam Ou Hydropower Project in Laos, which Power Construction Corporation of China (PCCC) initiated in 2016 with a $2.03 billion investment. This project, consisting of seven cascade hydropower plants along the Nam Ou River, is owned 85% by PCCC, showcasing China’s substantial role in the region’s energy infrastructure development. Similarly, China Three Gorges South Asia Investment Ltd. invested $1.65 billion in the Karot Hydroelectric Project in Pakistan as part of the China-Pakistan Economic Corridor (CPEC), which aims to promote sustainable economic growth and support Pakistan’s renewable energy goals. The Karot project is a joint venture where China Three Gorges holds a 93% stake and highlights China’s focus on both regional development and renewable energy (Latief and Lefen, 2019; Yukhanaev et al., 2014). This type of investment has had a measurable impact on local economies. For example, China’s investments in renewable energy projects in Pakistan have created approximately 8,905 jobs and generated $39.8 million in manufacturing value (Latief and Lefen, 2019). Furthermore, as Africa seeks to expand its renewable energy capacity, China is increasingly investing in energy projects across Sub-Saharan Africa. China's investment in renewable energy in the region is steadily growing, driven by a desire to meet increasing energy demands while also fostering China’s geopolitical influence. For instance, China Energy Investment has invested $1.64 billion in acquiring a 75% stake in four wind farms in Greece, underlining China’s ambition to expand its influence not only in Africa but also in Europe (IEA, 2021; Parente et al., 2019).

In line with these investments, there is also a growing call for robust green infrastructure to meet the global Sustainable Development Goals (SDGs) by 2030 and the Net Zero Emissions by 2050 target. Renewable energy investments from China are essential to achieving these goals, and the need for significant capital infusion into green energy infrastructure has become more urgent. China’s foreign investments in renewable energy are essential for developing economies, particularly in regions like Africa. As these countries industrialize, the demand for electricity is growing at three times the rate of developed economies (American Enterprise Institute, 2022; IEA, 2021). From 2020 to 2050, global energy consumption is expected to increase by about 50%, which underscores the importance of investments in sustainable energy infrastructure. Notably, China has made a commitment to not build new coal-fired power plants abroad as part of its support for green energy initiatives (MOFCOM, 2022). However, this shift towards green energy investments presents a challenge, as many host countries lack the technical know-how to manage and maintain these complex green energy infrastructures. In many cases, the projects are constructed and managed by Chinese firms, with local communities and governments often lacking sufficient training and capacity to take over operations once the projects are completed.

One of the most compelling arguments for further Chinese investment in renewable energy, particularly in Africa, is the continent’s vast renewable energy potential. Africa is home to 60% of the world’s solar energy resources but only has 1% of global solar photovoltaic capacity, creating a massive opportunity for expansion. Similarly, Africa has significant wind energy potential, while China has one of the world’s most efficient supply chains for wind turbines (IEA, 2022). By leveraging its position as the world’s largest producer of solar panels and wind turbines, China could further invest in the development of solar and wind energy technologies in Africa. Such investments would not only help meet the growing energy demands of African countries but could also foster technological innovation and strengthen Africa’s capacity for sustainable energy production. Moreover, by focusing on research and development (R&D) partnerships with African countries, China could help create an innovative platform that accelerates the adoption and deployment of sustainable technologies in Africa. This collaborative approach would benefit both China—by expanding its clean energy exports—and Africa, which would gain access to low-carbon technologies, improved energy infrastructure, and greater technical expertise in renewable energy. China’s growing investment in renewable energy, particularly within the Belt and Road Initiative, is reshaping global energy dynamics. The shift away from traditional fossil fuels towards solar, wind, and hydropower marks a significant move towards sustainability and reflects China’s leadership in the transition to a low-carbon future. While challenges remain, particularly around the technical capacity of host countries, the potential for renewable energy to drive economic development and help meet global climate goals is immense. As China continues to invest in renewable energy projects, particularly in regions like Sub-Saharan Africa, its role as a key player in the global energy transition will only become more prominent.

4. CONCLUSIONS AND DISCUSSION

International trade plays a critical role in fostering long-term development and cooperation between countries. By facilitating trade between nations within regions, subregions, or continents, it significantly contributes to economic growth and prosperity. The Belt and Road Initiative (BRI), launched by China in 2013, is a strategic endeavor designed to enhance connectivity and create new pathways for trade and investment between participating countries. Through the development of land, sea, and air routes, the BRI aims to increase economic integration, improve logistical infrastructure, and create accessible trade areas that will help deepen political trust and strengthen economic ties across the globe. The BRI is not only about infrastructure development but also about creating a long-term partnership for mutual economic benefits. The initiative focuses on improving trade routes, facilitating international trade, and fostering economic cooperation. By enhancing connectivity, the BRI aims to promote more accessible markets, improve economic integration, and boost investments in infrastructure projects. This, in turn, encourages closer economic cooperation and political alignment between China and the participating countries. At its core, the BRI is strategically designed to benefit both China and the participating countries.

China, with its excess production capacity, sees the BRI as a way to open new markets for its goods and services while also forging stronger trade channels with other nations. By investing in the infrastructure of developing countries, especially in Africa and other emerging markets, China not only helps build the economies of these nations but also secures the markets for its own goods and services. As these countries grow, they will eventually require the products and services that China manufactures, thus creating a symbiotic relationship where both parties stand to gain. A key aspect of China's foreign policy through the BRI is its ability to use its expertise in infrastructure development to help failing economies. By providing much-needed infrastructure, such as roads, railways, ports, and energy facilities, the BRI enhances economic growth and creates sustainable development in areas that are often underserved by traditional Western investments. China's investment in these countries often comes in the form of loans or partnerships, which, while sometimes criticized for potentially creating debt dependency, ultimately aim to strengthen the economic standing of developing countries and integrate them more fully into the global economy. In the energy sector, for instance, China's investment has been particularly significant. Countries participating in the BRI have benefitted from Chinese investment in both traditional energy sources (oil, natural gas, coal) and renewable energy (solar, wind, and hydropower). China's energy investments in BRI countries not only serve to boost the energy infrastructure of these nations but also ensure that China, as a major consumer of energy, secures access to energy resources and strengthens its global energy footprint. Moreover, the BRI is designed to make China an economic partner for many of the developing nations around the world, particularly those in Africa. Through the BRI, China is aiming to deepen its presence and influence across Africa, where it has become one of the continent's largest trading partners. By providing infrastructure, fostering trade, and building stronger economic ties, China is positioning itself as a key partner for African nations looking to modernize their economies and improve their infrastructure. Through this strategic approach, China also seeks to secure political leverage in international organizations.

As BRI countries expand, their influence in international forums—such as the United Nations and World Trade Organization—grows. By investing in these countries and helping to advance their economies, China effectively gains the support of nations that might otherwise not have the resources to assert themselves on the global stage. This helps China bolster its position as a leading global player while furthering its broader geopolitical goals. In conclusion, the Belt and Road Initiative is a multifaceted strategy that enhances international trade, facilitates economic development, and fosters long-term cooperation between China and the participating countries. While it is true that critics have raised concerns about the potential for debt dependency and unsustainable financing, the initiative's focus on infrastructure development, trade expansion, and market integration has proven to be a powerful tool for economic growth. Through strategic investments in energy, transportation, and other critical sectors, the BRI continues to drive China's global economic influence while creating opportunities for long-term development and cooperation in regions across Asia, Africa, and beyond. As the initiative continues to evolve, it will undoubtedly shape the future of global trade and economic development for decades to come. China's increasing assertiveness on the global stage has led to the launch of several influential geopolitical projects, with the Belt and Road Initiative (BRI) being the largest and most ambitious of them. Officially, the BRI is framed as a project aimed at improving regional integration, boosting trade, and stimulating economic growth for all parties involved. However, beneath these lofty goals lies the reality of China's economic needs and strategic interests. The real motivations behind the initiative stem from China's excessive industrial capacity, low domestic demand, and stagnant exports—challenges that have prompted China to seek new international markets, particularly in Africa, Asia, and South America.

For China, the BRI is not just about altruism or global development; it is a strategic tool designed to address its own economic imbalances. As its domestic market has matured, China faces challenges related to overcapacity in key industries such as steel, manufacturing, and construction. These sectors are producing more goods than can be consumed within the country. As a result, China is aggressively seeking new outlets for its products, particularly in the poorer developing countries of the Global South, where infrastructure development is often lacking and economic growth is rapidly needed. However, many of the countries that are part of the BRI face severe limitations in their infrastructure, particularly when it comes to logistics and transportation. This gap in infrastructure creates a challenge for Chinese trade, as the logistical systems in many of these countries cannot effectively accommodate the volume of trade required. To address this issue, China has used the BRI to finance large-scale infrastructure projects, particularly in roads, railways, ports, and airports. These projects, often funded by Chinese loans, aim to bridge the logistical gap, improve transportation systems, and enhance trade capacity in these regions. Yet, this also introduces a risk: many participating countries are already struggling with high debt-to-GDP ratios and lack the financial resources to repay large-scale infrastructure loans. The structure of the BRI loans, while enabling these countries to develop much-needed infrastructure, has raised concerns about creating debt traps. These traps refer to situations in which the borrowing countries are unable to repay their debts and are forced to concede key assets to China, which may lead to long-term economic dependence. In some cases, countries have been accused of giving China strategic control over critical infrastructure, such as ports or railways, as a way to secure debt repayment. The most frequently cited example of this is Sri Lanka, which leased its Hamatota port to a Chinese company for 99 years after struggling to pay back loans. Critics argue that this pattern of debt diplomacy could lead to a long-term loss of sovereignty for participating nations. Despite the risks, there are undeniable benefits to the BRI. The infrastructure projects—especially in transportation—have the potential to transform economies by improving trade routes, reducing transportation costs, and increasing connectivity within regions. In many areas, transportation infrastructure is outdated, inefficient, and unsafe, which severely limits economic activity. By investing in modern transportation systems, the BRI could help open up remote regions, reduce travel times, and stimulate local economies, particularly in sectors like tourism and agriculture, which can benefit from improved access to international markets.

Beyond infrastructure, China's BRI investments extend into several key sectors, including energy, technology, agriculture, and more. The energy sector is particularly significant, as it not only supports China's global energy interests but also addresses the growing energy needs of developing countries. Energy infrastructure, including oil, gas, hydro, and renewable energy projects, is vital for stimulating economic growth in BRI countries, many of which suffer from unreliable or inadequate energy supply. China has become a major investor in the energy sector, with investments in both traditional and renewable energy sources. However, the focus of the BRI energy investments has shifted in recent years, with a growing emphasis on renewable energy sources like solar, wind, and hydropower. This shift is partly due to increasing global concern over climate change and the need for cleaner, more sustainable energy sources. While China's energy investments in the BRI countries have been predominantly in fossil fuels—such as coal and natural gas—there has been a notable shift toward renewables in recent years. In 2020, for example, China's investments in renewable energy projects like solar and wind power accounted for a growing share of its overseas energy investment. This is significant, given the rising global demand for cleaner energy alternatives and China's efforts to position itself as a leader in green energy technologies. China is already the world's largest producer of solar panels, wind turbines, and batteries, and it aims to leverage this expertise to build renewable energy infrastructure in developing economies, particularly those in Africa, Asia, and Latin America. Overall, the Belt and Road Initiative serves as a powerful geopolitical tool for China, helping the country expand its economic footprint globally and secure markets for its goods and services. However, the initiative is not without its challenges. While it provides much-needed infrastructure and development to poorer countries, it also raises concerns about debt sustainability and long-term dependence. The key to the success of the BRI lies in balancing China's strategic objectives with the development needs of the participating countries. Moving forward, a stronger focus on sustainable and green energy investments, along with a commitment to transparent and fair lending practices, could help mitigate some of the risks and ensure that the BRI delivers lasting benefits to both China and the developing world.

REFERENCES

Ahmad, H., & Ali, R. (2019). Optimizing Coal Reserves for Sustainable Energy Solutions: A Comparative Analysis among Selected Countries. *Journal of Energy and Environmental Policy Options*, *2*(4), 101-108.

Ali, A., Audi, M., & Roussel, Y. (2021). Natural resources depletion, renewable energy consumption and environmental degradation: A comparative analysis of developed and developing world. *International Journal of Energy Economics and Policy*, *11*(3), 251-260.

Anwar, W., & Akhtar, M. (2019). Evaluating Industrial Financial Performance Amid Energy Shortages in Pakistan. *Journal of Energy and Environmental Policy Options*, *2*(4), 95-100.

ASEAN. (2019). Belt and Road Projects: Past, Present, Future.

Audi, M., & Ali, A. (2017). *Environmental Degradation, Energy consumption, Population Density and Economic Development in Lebanon: A time series Analysis (1971-2014)*. University Library of Munich, Germany.

Bae, H.S. (2020). The relationships between orientation, collaboration, and performance for supply chain management of Korean FDI firms for sustainable growth. *Sustainability, 12*(24), 10311.

Bakht, Z. (2020). The Nexus between Economic Growth, Energy Consumption, and Environmental Pollution in Bangladesh. *Journal of Energy and Environmental Policy Options*, *3*(1), 1-8.

BP. (2021). Statistical Review of World Energy.

Chow-Bing, N. (2020). COVID-19, Belt and Road Initiative and the Health Silk Road: Implications for Southeast Asia.

Desiree, B. (2019). Dynamic Analysis of Energy Consumption and Environmental Impact on GDP in Sub-Saharan Africa. *Journal of Energy and Environmental Policy Options*, *2*(1), 18-26.

Dunning, H.J. (2000). The eclectic paradigm as an envelope for economic and business theories of MNE activity. *International Business Review, 9*(2), 163–190.

EBRD. (2013). Belt and Road Initiative (BRI).

EIA. (2022). Annual Energy Outlook 2022.

Gorus, S., & Groeneveld, R. (2018). Vietnam's Development Trajectory: Threshold Cointegration and Causality Analysis of Energy Consumption and Economic Growth. *Journal of Energy and Environmental Policy Options*, *1*(2), 28-35.

Green Finance & Development Center. (2022). Chinese Investments in Countries of the Belt and Road Initiative (BRI) from 2013 to 2021 (in Billion US Dollars).

Habibullah, M. (2020). Understanding Energy Consumption Dynamics in Malaysia: An Empirical Analysis. *Journal of Energy and Environmental Policy Options*, *3*(1), 9-19.

Ho, Y. J., & Ran, H. (2018). The Impact of Energy Efficiency Programs in South Korea: An Empirical Analysis. *Journal of Energy and Environmental Policy Options*, *1*(4).

Hou, F., Su, H., Li, Y., Qian, W., Xiao, J., & Guo, S. (2021). The impact of foreign direct investment on China's carbon emissions. *Sustainability*, *13*, 11911.

Huang, Y.Y. (2022). Environmental risks and opportunities for countries along the Belt and Road: Location choice of China's investment. *Journal of Cleaner Production*, *211*, 14–26.

Iqbal, A., & Khan, J. (2020). Assessing the Symmetric Nature of the Energy-Led Growth Hypothesis in Pakistan. *Journal of Energy and Environmental Policy Options*, *3*(3), 72-77.

Khan, M. N., & Hassan, T. (2019). Balancing Economic Growth and Environmental Sustainability through Energy Consumption in Pakistan. *Journal of Energy and Environmental Policy Options*, *2*(4), 109-116.

Kumar, J. (2018). Examining the Causality of Energy Between Growth in Asian Countries: Panel Data Analysis. *Journal of Energy and Environmental Policy Options*, *1*(4), 103-109.

Kumar, N. (2018). Examining Total Factor Productivity and Energy Intensity in the Landscape of Indian Manufacturing. *Journal of Energy and Environmental Policy Options*, *1*(2), 44-53.

Latief, R., & Lefen, L. (2019). Foreign direct investment in the power and energy sector, energy consumption, and economic growth: Empirical evidence from Pakistan. *Sustainability*, *11*(1), 192.

Liang, P.N., Wu, M.Y., & Jiang, L.C. (2021). Energy investment risk assessments for nations along China's Belt & Road initiative: A deep learning method. *Applied Sciences*, *11*(5), 2406.

Luna, A., & Luna, G. (2018). Exploring Investment Dynamics in Renewable Energy for Low-Carbon Economies through a Global Comparative Analysis. *Journal of Energy and Environmental Policy Options*, *1*(3), 73-79.

Mahmood, H. (2019). Exploring the Dynamics Nexus of Energy Consumption, Economic Growth, Capital Stock, and Labor Force. *Journal of Energy and Environmental Policy Options*, *2*(3), 78-83.

MOFCOM. (2021). The 14th Five-Year Plan for Business Development.

MOFCOM. (2022). Statistical Bulletin of China's Outward Foreign Direct Investment.

OECD. (2018). The Belt and Road Initiative in the Global Trade, Investment, and Finance Landscape. *OECD Business and Finance Outlook*.

Parente, R., Rong, K., Geleilate, J.M.G., & Misati, E. (2019). Adapting and sustaining operations in weak institutional environments: A business ecosystem assessment of a Chinese MNE in Central Africa. *Journal of International Business Studies, 50*(1), 275–291.

Rauf, A., Ozturk, I., Ahmad, F., Shehzad, K., Chandiao, A.A., Irfan, M., Abid, S., & Jikai, L. (2021). Do tourism development, energy consumption, and transportation demolish sustainable environments? Evidence from Chinese Provinces. *Sustainability, 13*(22), 12361.

Singh, J., & Kumar, K. (2018). Socio-Economic Dynamics of Energy: A Micro-Level Regression Approach to Domestic Consumption in India. *Journal of Energy and Environmental Policy Options*, *1*(3), 60-64.

Telnova, H., Kolodiziev, O., Kuzheliev, M., Krupka, I., & Boiko, N. (2021). Foreign direct investment in the Eurozone countries: Stochasticity of the financial influence factors. *Financial and Credit Activity: Problems of Theory and Practice*, *4*(35), 107–120.

Toth, P., & Paskal, D. (2019). Role of Energy R&D in Shaping the Environmental Kuznets Curve Among OECD Countries. *Journal of Energy and Environmental Policy Options*, *2*(1), 11-17.

Wang, C.N. (2022). China Belt and Road Initiative (BRI) Investment Report 2021.

William, C., & Adam, A. (2018). Sustainable Power Choices: An Analysis of CO2 Mitigation and Renewable Energy in USA. *Journal of Energy and Environmental Policy Options*, *1*(3), 54-59.

World Bank. (2019). Belt and Road Economics: Opportunities and Risks of Transport Corridors. Washington, DC: World Bank.

Wu, S.H., Liu, L.L., Liu, Y.H., Gao, J.B., Dai, E.F., Feng, A.G., & Wang, W.T. (2019). The Belt and Road: Geographical pattern and regional risks. *Journal of Geographical Sciences, 29*(4), 483–495.

Yukhanaev, A., Sharma, S., & Nevidimova, A. (2014). Subnational determinants of foreign direct investments in the Russian Federation. *Journal of Eastern European and Central Asian Research*, *1*(2), 10.

Zaheer, A., & Nasir, W. (2020). Exploring the Relationship Between Economic Freedom and Energy Consumption in Pakistan. *Journal of Energy and Environmental Policy Options*, *3*(2), 56-64.

Zhang, S. (2022). Protection of foreign investment in China: The foreign investment law and the changing landscape. *European Business Organization Law Review, 23*, 1049–1076.