Environmental impact assessment of CPEC: a way forward for sustainable development

Iram Khalid
Department of Political Science, University of the Punjab, Lahore, Pakistan
Tooba Ahmad
Department of Humanities, COMSATS University Islamabad – Lahore Campus, Lahore, Pakistan, and
Sami Ullah
Faculty of Management Studies, University of Central Punjab, Lahore, Pakistan

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Abstract

Purpose – Human-induced changes in climate have affected the environment to the extent that any more economic development at the cost of the environment will be too costly. Thus, sustainable development options posing no additional harm to the environment are the only viable option. This study aims to examine the likely environmental impacts of infrastructural developments through the China–Pakistan Economic Corridor (CPEC).

Design/methodology/approach – There is a scarcity of academic debate and discussion on the environmental impact of CPEC developments in laws and policies on the environment. The qualitative approach is followed in this study and official documents and reports are used to investigate the environmental challenges posed by CPEC.

Findings – The findings show three possible environmental concerns which could increase the climate change vulnerability of Pakistan. The coal-fired power plants are the most prominent threat based on their CO_2 contributions and smog. Second, cutting more than 54,000 trees for roads infrastructure will increase CO_2 concentration along the CPEC route. Third, increasing vehicle trafficking by up to 7,000 trucks per day on Karakorum Highway alone will release 36.5 million tons of additional CO_2.

Originality/value – It is essential to rethink the environmental cost of CPEC. The study suggests economic and legal cooperation between Pakistan and China as a way forward to deal with climate change issues. Environmental laws should be a vital part of CPEC projects to ensure their safety, security and sustainability.

Keywords CPEC, Climate change, Environmental challenges, Environmental impact assessment, Environmental laws, Sustainable development, BRI

Paper type Research paper

Introduction

The history of environmental hazards, threatening human and non-human life in different forms, dates to the beginning of human history on earth (Du, 2016). Even before the industrial revolution, the environment changed because of anthropogenic activities (Stearns, 2020). However, these changes became rapid because of human-induced changes in climate and gained global attention. The increase in the number of pollutants in the air, water and soil has threatened the natural ecosystem (Hao *et al.*, 2018). Therefore, global leaders have realized that policies, reforms and laws to protect the environment should be a priority for

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achieving sustainable development and leaving a livable world for the generations to come (Kouser *et al.*, 2020; Zhang *et al.*, 2018).

It has become a global norm to assess the environmental impact of development projects before implementation (Chang *et al.*, 2018). Belt and Road Initiative (BRI) is a mega-investment project worth multibillion dollar that will connect China with Asia, the Middle East, Africa and Europe. Several projects for developing roads, railways, power plants, maritime routes and communication are targeted under BRI (Zhang *et al.*, 2017a, 2017b). This project is expected to transform the regional cooperation among the participating countries.

The political leadership of China advocates BRI as a driver of continued economic growth through revisiting their trade and economic ties with neighboring countries in the region (Cai, 2017; Zhang *et al.*, 2018). BRI presents joint economic cooperation and development opportunities by constructing roads, intensive transportation and maritime routes to connect the Central Asian States to the Indian Ocean (Zhang *et al.*, 2017a, 2017b). Thus, the economic competitiveness of the regions is likely to increase by eliminating trade barriers and promoting people-to-people relations (Szczudlik-Tatar, 2013). All the beneficiaries of BRI have high expectations of this project in terms of improvement in economic integration and regional connectivity. According to Global Capital (2015), more than 63% of the world population lives in countries part of BRI, contributing more than 29% of global gross domestic product (GDP). Thus, the influence of China through this multibillion-dollar investment has transformed the world order and revolutionized the diplomatic, economic and bilateral relations of countries part of BRI.

China–Pakistan Economic Corridor (CPEC) is a pioneer project of BRI and it has been repeatedly termed as a gamechanger by both China and Pakistan. This project is crucial for China to gain direct access to the Middle East, which means the security of 52% of the Chinese oil supply (Rahman and Shurong, 2017; Zhang *et al.*, 2017a, 2017b). Moreover, CPEC is the lifeline of the fragile economy of Pakistan by providing direly needed economic and infrastructural development (Mir *et al.*, 2017; Kouser *et al.*, 2020) . Construction of airports (Gwadar international airport), ports (Gwadar port), roads network, railway lines, power projects, hospitals (Pak–China friendship hospital), special economic zones, industrial parks and industries is part of CPEC (Javaid and Chawla, 2019).

The debate about the different positive and negative effects of CPEC is not just a bilateral or regional phenomenon; rather, several global leaders have an interest and are anxious about this project (Javaid, 2016). Because CPEC has been called a gamechanger and once-in-a-lifetime opportunity for development and economic transformation, it is equally important to contemplate and ponder upon the environmental impacts of this project. The infrastructural developments under this project are unprecedented; however, effects of roads construction, increased consumption of fossil fuels, coal-fired power plants, industrial zones and increased traffic on the climate of the sixth most vulnerable country of the world cannot be ignored (Kouser *et al.*, 2020). The effects of changes in the environment will affect the air and water quality, biodiversity and climate of Pakistan and the whole region.

There is a scarcity of studies determining the environmental impacts of CPEC projects. We have adopted a qualitative approach to investigate the impact assessment strategies adopted by stakeholders to determine the environmental implications of CPEC. In addition, this research highlights the importance of impact assessment strategies for global climate change governance. The environmental laws and policies of China and Pakistan are analyzed to determine the future course of action. Pragmatic solutions are provided at the end so that stakeholders can review and make necessary amendments until it becomes too late for any intervention.

Scope of China–Pakistan Economic Corridor

The CPEC is a multibillion-dollar investment agreement between China and Pakistan. It was officially announced in 2015 and completion of the projects was expected by 2030. The road and railway networks developed under this project would connect China to the Middle East (Abid and Ashfaq, 2015; McCartney, 2020). Several industrial and economic zones, infrastructure development projects, power plants and communication networks are part of this project. CPEC is believed to further strengthen China and Pakistan's time-tested bilateral military and diplomatic relations through its trade and economic benefits. The salient features of CPEC are presented briefly in Table 1.

A long list of economic and development benefits is claimed to be achieved through CPEC investments. Therefore, it is more likely that adverse effects on the environment because of cutting trees for roads network, burning fossil fuels and installing coal-fired power plants to meet energy demand will not be easy to ignore. Although it will happen in

Names of the projects	Description
Proposed infrastructure development routes	Infrastructure development in roads, railways and special economic zones is proposed in the eastern, central and western corridors. The eastern corridor will connect Lahore and Karachi through a network of roads/motorways. The central corridor will create a link between the provinces of KPK and Baluchistan. The western corridor is a vital part of CPEC, connecting Gwadar Port to KPK and Baluchistan and Xinjiang province of China through the Khunjrab pass
Railway network	A project of upgrading the railway line from Karachi to Peshawar and extending its connection with Kashgar city of Xinjiang province of China will complete by 2022. The upgradation of the railway line will increase the train speed up to 143 km/h. Therefore, transit will become more efficient
Road network	The network of roads to be developed under CPEC is more than 4,000 km long. Several routes to connect eastern, central and western parts of Pakistan are underway. Also, road connections with the Xinjiang province of China and Gwadar port will be developed to gain access to the Middle East
Energy projects	Pakistan was facing the worst energy crisis before the start of CPEC. There are 22 energy projects planned under CPEC; many have been completed on the fast track to eliminate the electricity shortage. The energy projects under CPEC will strengthen the national grid by contributing more than 1,400 MW of electricity with an estimated investment of approximately US$ 27bn. Power generation will be done using coal, solar, wind, hydro and fuel as a primary source
Special economic zones	The infrastructural development under CPEC will be supported by the establishment of special economic zones (SEZ) to strengthen the economy of Pakistan and maintain a balance in trade between both countries and other regional stakeholders connected through BRI. The SEZs will be developed in Gilgit, Mirpur, Islamabad and Karachi. These SEZs will promote industrial activity, technology development and transfer and information and communication technologies
Oil and gas pipeline	China is using the CPEC route to transport oil and gas from the Middle East by building a network of pipelines. These oil and gas pipelines will reduce the distance from 12,537 miles to 2,295 miles, making it less costly and efficient as the time to consignment delivery will reduce to 3 days from the current 16 days delivery time. Thus, China will use CPEC as an energy corridor too

Source: Created by authors based on information obtained from MPDR (2020)

Table 1.
Brief description of projects planned in CPEC

the future, the environmental cost can significantly threaten the local ecological system (Kouser *et al.*, 2020). Therefore, careful planning to mitigate the effects of CPEC on the environment at this early phase through concerted efforts is needed (Durani and Khan, 2018). The forecasts about the effect of CPEC developments in the climate of Pakistan are grim; thus, coordinated efforts to formulate policies for mitigation and adaptation should be the appropriate course of action.

All these climate changes are happening at a crucial juncture when Pakistan is already dealing with changing weather patterns, unpredictable seasonal variations, rapid glacial melting and rising sea level (Nabi *et al.*, 2018). Moreover, the frequency and length of the smog period is increasing every year and suspended dust particles because of roads construction and increased traffic will make it worse and difficult to handle (Kouser *et al.*, 2020; Zhang *et al.*, 2018). Therefore, it is the right time to assess environmental impacts and choose appropriate policies to mitigate the adverse effects of CPEC projects for achieving the target of sustainable development.

Pakistan's quest for energy production: using local coal reserves

More than US$62bn investment is promised under CPEC, out of which US$35bn will be invested in energy projects (Husain, 2018). The capacity to produce energy through coal, wind, hydro and solar sources will be enhanced to fulfil the rising demand. These projects are expected to bring Pakistan out of the energy crisis in the shortest possible time with minimum possible investment. Moreover, these developments will also diversify the energy portfolio of Pakistan, which is currently dominated by petroleum products contributing up to 90% in power generation (Downs *et al.*, 2017).

The dependence on imported petroleum products for power generation is proving too costly. Therefore, the government is gradually shifting to coal-fired power plants using cheap indigenous sources (MPDR, 2020). There are coal reserves of more than 186 billion tons in Pakistan and the government plans to increase annual coal production from 4.5 to 60 million tons. This transformation will be a massive relief for the fragile economy of Pakistan. However, it is essential to mention here that China has reduced carbon emissions by closing its coal-fired power plants in China. Therefore, installing coal-fired power plants in Pakistan through an FDI project completely disregards international environmental standards (Hadi *et al.*, 2018). Thus, it can be inferred without a doubt that environmental degradation caused by these power plants will make Pakistan one of the major emitters of greenhouse gases (GHGs) (Kouser *et al.*, 2020).

Projected climate impacts of China–Pakistan Economic Corridor

Climate change in Pakistan is already visible and the frequency and impact of natural disasters have increased significantly in the past two decades (Hussain *et al.*, 2020). The infrastructural developments, including coal-fired power plants, cutting trees for roads and railways networks and increased consumption of fossil fuels, will have lasting impacts on the climate change trends of Pakistan. According to the IUCN 2020, more than 54,000 trees are cut for construction of roads under CPEC projects in KPK only (Durani and Khan, 2018; Khan and Chang, 2021). This large-scale cutting of trees can prove threatening to the climate and agriculture sector of the region. In addition, only on Karakorum Highway, vehicle trafficking will increase by 7,000 trucks per day and release 36.5 million tons of CO_2 (Kouser *et al.*, 2020). The negative and positive effects of CPEC trade and investment activities are presented in Table 2.

There are 21 energy projects in CPEC, and under the early harvest stage (2015–19), 10,000 MW of electricity has been added to the national grid through these energy projects

Activity	Negative effects	Positive effects
Investment	Pollution haven effect: As a result of stringent domestic policies in China, pollution-intensive industries will shift to Pakistan and other developing countries offering relaxed environmental regulations for attracting FDI (Khan et al., 2019a, 2019b) A race to the bottom – governments show willingness to compromise on environmental regulations to attract FD – will prove too costly for global environment	Pollution halo effect: In CPEC projects, foreign companies will come up with latest technologies and adhere to international environmental standards, which spread to local industry and stakeholders Environmental leapfrogging will emerge if China uses its experience to implement sustainable development processes in Pakistan and other developing countries and dirty stage of industrialization could be avoided/minimized
Trade	Shanghai effect: Shifting of exporters from a country with stringent environmental regulations to a country with laxed regulations can undermine the social, health and environmental conditions of host country (Adolph *et al.*, 2017)	Race to the top effect: More stringent environmental regulations are enacted to remain competitive in markets with higher regulatory standards (Vogel, 2009). This could also be applicable in local consumer markets with higher consciousness for environment

Source: Created by authors

Table 2. Potential environmental effects of CPEC trade and investment activities

with a mix of coal, hydro, solar and wind. The hydropower project will contribute 2,700 MW of electricity along with some other minor renewable energy projects. The only exception is Quaid-e-Azam Solar Park which will contribute 1,000 MW to the national grid. On the other hand, coal-fired power plants will add 8,800 MW of electricity to the national grid (Ali, 2018). Therefore, concerns about the carbon emission of these coal-fired power plants are real. However, these projects will replace the existing fossil fuel-based power plants; therefore, net carbon emissions will not increase.

The timing of these changes in the environment is vital as Pakistan is already in a weak position and changes in weather patterns have caused seasonal variations. The temperature rise has increased the speed of glacial melting, which can harm the agroecology of Pakistan (Nabi *et al.*, 2018), causing the issue of water and food security. The seasonal variations will decrease the agricultural yield. The only step in the right direction is the Billion Tree plantation in Khyber Pakhtunkhwa (KPK) to mitigate the effects of climate change (Khan *et al.*, 2019a, 2019b).

Environmental impact assessment in Pakistan and China

Environment Impact Assessment (EIA) is a mandatory legal requirement in Pakistan and China under the national policy on the environment (Saeed *et al.*, 2017). Moreover, it is also obligatory as per the United Nations Declaration on Environment and Development, which both countries have ratified. Under EIA, every project is assessed for its effects on the environment and ecological segments and approval is granted if adequate control measures to mitigate the adverse effects on the environment are part of the project. Pakistan Environment Protection Act 1997 is active in Pakistan and Section 12 requires submitting a detailed environmental impact assessment report of every project before its commencement. The non-compliance can result in penalties of several kinds.

Similarly, it is mandatory in China to get an EIA conformance certificate for all projects related to the construction sector (Khan and Chang, 2018). This approval is mandatory not just before the start of a project but also for any modification, extension or renovation. The violation of any EIA requirements may result in the disproval of EIA and affect the project's

continuity (Chang *et al.*, 2018; Zhu and Ru, 2008). The salient features of the EIA system of China and Pakistan are summarized in Table 3.

Based on this system of EIA, the projects under CPEC should have been thoroughly assessed for their impact on the natural climate, migration and socioeconomic conditions of local people before the projects are executed (Zhang *et al.*, 2018). The EIA of these projects is a legal requirement under the sustainable development goals (SDG) under UNFCC, to which Pakistan is a signatory (Sohail *et al.*, 2014). However, because of a lack of effort in assessing the environmental impacts of CPEC projects and more focus on economic and infrastructural benefits, the environmental footprints of CPEC investments are unpredictable. Also, lack of transparency and ambiguous terms and conditions for investment have raised doubt about the EIA of CPEC projects.

China claims to ensure sustainable development through BRI by adopting renewables for power generation and reducing carbon emissions (Zubedi *et al.*, 2018). However, the establishment of coal-fired power plants under CPEC is contrary to this claim of China and the adverse effects of these power plants may force the government of Pakistan to shut down these projects (Reynolds *et al.*, 2018). However, all is not lost yet and it is not too late to conduct an EIA and choose the appropriate course of action to mitigate the effects of these projects.

Development and enforcement of environmental legislation

Pakistan should learn from China for better control over climate change mitigation and adaptation efforts. China has persistently revised legislation and enforced Environment Protection Act in 2015 and Environmental Protection Tax Act in 2018 to control carbon emission and enhance capacity to mitigate and adapt to changes in climate (Zahar, 2018). In contrast, the legislation and regulations related to environmental protection in Pakistan are

Table 3. Environmental impact assessment system and prominent feature of relevant laws

Country	System for environmental impact assessment (EIA)	Main features and status
China	Environment Impact Assessment Act (2009), Revised environment protection law (2014)	The EIA process varies at the domestic level for different provinces and municipalities. The environment impact assessment is mandatory for quality control purposes and half of the group members involved in this process should be area experts Various plans are used to comprehensively analyze the environmental impacts are applicable with a separate chapter on environmental impact assessment (Ali *et al.*, 2018; Ali and Geng, 2018)
Pakistan	Pakistan environment protection act (1997), provincial environment protection acts, federal and provincial agencies enforcing environmental protection laws	The agencies responsible for the enforcement of environmental protection laws are weak and inefficient The technical capacity of these agencies is not according to international standards The lowest budget is allocated for research and development in environmental impact assessment leading to a lack of expertise in the field (Monteiro *et al.*, 2018) Lack of coordination among the stakeholders during strategic environmental assessment or impact assessment Strategic environmental assessment is not a mandatory requirement for projects as per law

Source: Created by authors

still not enforced with the required level of vigor. The vulnerability of Pakistan has been increasing rapidly in the past five years, moving from 10th to the 6th most vulnerable country in the Global Climate Risk Index (Fahad and Wang, 2020).

The climate vulnerability of Pakistan warrants strict enforcement of environmental protection laws and infrastructural and economic development and the Chinese experience could be a valuable source of guidance. However, unfortunately, the government's priority is to ensure development without paying any attention to environmental problems and the capacity to adapt to changes in climate. Also, China is closing its coal-fired power plants but installing them in Pakistan to help produce cheap electricity with environmental cost (Rehman *et al.*, 2019). Both countries have ratified Paris Agreement and are supposed to reduce carbon emissions. Therefore, adopting renewable energy in place of coal-fired power plants could have been a better alternative. However, the cost associated with renewable energy makes it a difficult choice, especially in the context of the fragile economy of Pakistan (Shah and Solangi, 2019; Shakeel *et al.*, 2016).

International emission reduction obligations and alternatives of coal

Both China and Pakistan have ratified Paris Agreement and China has voluntarily committed to GHG emissions reduction targets. In this regard, China has shown a persistent decrease in the use of coal to meet its international commitment (Ali and Geng, 2018; Saeed *et al.*, 2017). However, Chinese investment in coal-fired power plants of Pakistan is a violation of the principle of shared responsibilities under the Paris Agreement. According to Naureen *et al.* (2017), 5,580 MW of electricity produced through coal-fired power plants under CPEC has resulted in 75,979,636.4 tons emission of CO_2. Therefore, both Pakistan and China should adopt the principle of shared responsibilities and choose environment-friendly power generation methods.

According to Asian Development Bank (ADB, 2018), the evaluation of power projects under CPEC shows that every 10 GW electricity production will further intensify CO_2 emissions and significantly affect the mitigation and adaptation efforts. Moreover, the ash handling and disposal problems for coal-fired power plants will increase the intensity of smog. In addition, coal production will increase from 4.5 to 60 million tons per year and affect environmental degradation. However, Asian Development Bank has itself provided funds of US$900m for a coal-fired power plant of 600 MW capacity in Jamshoro (Khan and Chang, 2021).

In contrast, the global investments in renewable energy sources have increased up to US $241.6bn for generating electricity of more than 138.5 GW (UNEP, 2017). Comparing this global trend of promoting renewables to Pakistan's adoption of coal-fired power plants, it would not be unfair to say that Pakistan is moving in the opposite direction. The choices thus made could have profound environmental implications. It is pertinent to mention that Pakistan is estimated to have the potential to generate 167.7 GW of electricity through renewables, which is more than the total demand. However, it is a costly option with long-term benefits (Rafique and Rehman, 2017). However, despite this massive potential, Pakistan generates only 1% of its energy demand through renewable sources (Sheikh, 2010).

Discussion

Road to sustainable development

In 2003, the Chinese government launched a Green GDP program in seven provinces to account for the carbon emissions of the development projects (Bodansky *et al.*, 2016). Under this program, emissions reduction targets and emission quotas were assigned to each province. Despite the resistance from local administrators and challenges in measuring

emissions, the initiative proved effective in controlling carbon emissions (Duan *et al.*, 2014; Zhang *et al.*, 2017a, 2017b). National Development and Reforms Commission (NDRC) released a report on "Interim Measures on Chinese Voluntary Emissions Trading" to support the voluntary adoption of environment-friendly measures in development projects to offset GHG emissions in pilot project provinces (Khan and Chang, 2018). In addition to these pilot projects, the NDRC also established a trading market for carbon emissions to encourage the adoption of clean development mechanisms for sustainable development (Liu *et al.*, 2015). These institutional developments in China have significantly improved the capacity of the government to address the environmental challenges.

CPEC is a joint venture project of Pakistan and China with a primary focus on developing Gwadar Port, power plants, roads and railways infrastructure, industrial zones and other projects related to the development of communication networks (McCartney, 2020). Even though FDI through CPEC is massive, its environmental impacts should be appropriately assessed because Pakistan is already the sixth most vulnerable country to climate change. Therefore, sustainable development objectives should not be compromised because of the attraction of huge investments under CPEC. Pakistan is surrounded by the world's high emitters, China and India, and the region is on the verge of acceleration in CO_2 emissions because of rapid industrialization and economic development (Newell and Lane, 2020). Therefore, it is imperative to look for sustainable development initiatives to be able to reduce environmental degradation. Considering the climate vulnerability of Pakistan and targeted SDGs, green ICT-based infrastructural development should be targeted through CPEC to reduce the adverse effects of infrastructure development on the environment.

However, it has been observed that greenwashing is extensively used by the private sector and the government to promote an environment-friendly outlook (Harlan, 2021). Thus, the environmental hazards are overshadowed by vast publicity of projects' developmental effects and public support is gained through extensive advertisement (White, 2003). Therefore, the ideological campaign to increase public awareness about the environment remains ineffective and environmental degradation continues (Harlan, 2021).

As per law, the residents have the right to point out the effects of any project on the environment and greenwashing efforts of the project executing authority so that regulators and policymakers could review the environmental impact assessment and set the facts straight. This process expects residents to be aware of environmental concerns and have information regarding projects, but these prerequisites are lacking in Pakistan. Thus, it becomes the responsibility of stakeholders from both countries to rethink the projects under CPEC to diagnose, deter and protect the people of Pakistan from environmental threats. Such efforts can convert CPEC into a clean and sustainable development project (Nitza-Makowska, 2020).

Connecting environmental protection with trade benefits

There are international examples of taking the trade and the environment together. For example, the Comprehensive Economic and Trade Agreement between EU–Canada pays significant attention to environmental concerns related to mutual trade activities (McCauley and Heffron, 2018). Similarly, the USA and Mexico have signed North American Agreement on Environmental Cooperation, which ensures that mutual trade follows the legal and regulatory aspects of environment protection laws (Allen, 2018). These agreements are meant for collaboration in trade without compromising environmental protection and encouraging enforcement of laws related to environmental protection. However, these agreements are bilateral, whereas, in the domain of international law, World Trade Organization (WTO) has no specific requirements regarding environmental issues related to

trade. There are few indirect requirements in Article XIV (a), (b) and (c) and Article XX for encouraging not binding the parties to consider environmental protection as part of trade activity (Colgan, 2019; Trachtman, 2018).

The trade and economic development activities under CPEC should not be made at the cost of environmental degradation. The lesson should be learned from the bilateral agreements mentioned above. Pakistan and China should make CPEC a sustainable development initiative by discouraging trade activities that threaten the environment. The data on efforts to ensure environmental protection under CPEC should be publicly available (Masood *et al.*, 2020; McCartney, 2020). Moreover, the provisions of WTO regarding environment protection should be made part of CPEC projects and stakeholders should be encouraged to follow environmental protection laws to reduce any further damage to the climate of the region.

Moreover, environmental protection regulations and frameworks at the domestic level in China and Pakistan should harmonize with international laws regulating trade and the environment. It is vital for further developments under BRI that domestic laws on the environment are in harmony with international laws so that the global leadership role of China in climate change governance gets the endorsement. The existing inconsistencies should be addressed; for example, the Foreign Trade Law of China pays no attention to environment protection, which is against international norms. The problems in the environmental laws of Pakistan are similar. As a first step, both countries should introduce legislative reforms in their environmental protection laws, particularly in medical waste, waste disposal and elimination of products causing ozone depletion (Khan and Chang, 2018). Later, the scope of environment protection laws should be enhanced to enforce these laws and eliminate practical challenges regarding the application of environment protection. The ambiguities in legal principles should be addressed. As the last step, technical standard operating procedures in domestic laws for environment protection should be aligned with international laws of trade and environment.

Conclusions and recommendations

The regional development through BRI is a pragmatic approach to achieve the Chinese vision of sustainable, peaceful rise in the global economic landscape. The projects such as CPEC and BRI have potential to reshape regional as well as global economic leadership structure. However, the environmental concerns raised in this study cannot be ignored and stakeholders should prioritize the environment for the long-term benefits of these megaprojects.

China has planned massive infrastructural development projects in BRI partner countries; however, there are very few Free Trade Agreements (FTAs) with these countries. These inter-country networks will be mutually beneficial only if FTAs with China are not unilateral (Huang, 2016). Similarly, a mutual trade agreement between Pakistan and China should be prepared with long-term objectives to gain actual benefits from these economic and infrastructural developments. However, the differences in the stages of economic development and institutional structures of countries partnering in BRI cannot be ignored. Therefore, China being the joint stakeholder with significant interest should encourage partners to mutually understand the environment protection laws and standards for the safety of regional climate. Thus, like signing development agreements under BRI with several countries, China should ensure bilateral and multilateral environmental protection agreements, particularly BRI projects.

According to a report released by MOFCOM (2018), some of the countries in BRI have urged China to be mindful of environmental damages caused by projects under BRI.

Therefore, it would be appropriate if China develops a method for mutual recognition of environmental problems related to BRI projects; the same applies to CPEC. In this regard, stakeholders from both countries would be required to make sustained efforts to achieve the goals of sustainable development, environmental protection and a better regional climate.

China should also change its case-by-case approach of deciding provisions in each bilateral agreement. Instead, a more responsible approach following FTAs is expected from China because of its emerging role in global climate change politics. On the other hand, it is natural for Pakistan to choose local coal reserves for low-cost power generation to meet its increasing energy needs. However, using coal-fired power plants will have an environmental cost that might become too costly in the future as threats multiply (Masood *et al.*, 2020). Thus, why not use renewable energy sources instead of coal-fired power plants? The choice of coal-fired power plants is opposite to the global efforts of decarbonization. Therefore, the coal-fired power plants should be treated as a short-term solution to producing cheap electricity. However, parallel investments in renewable energy should be ensued to provide a safe and sustainable future for generations to come. Also, ultra-supercritical coal technology should be used in coal-fired power plants to reduce carbon emissions by 33%–45% (Kouser *et al.*, 2020).

The estimates of GHG emissions from CPEC projects are not encouraging at all. The necessary precautions should be taken before it is too late for any remedial action. Pakistan should develop a clearly defined long-term plan for economic and infrastructural development and strictly adhere to the environment protection policy by following a sustainable development approach under CPEC (Zubedi *et al.*, 2018). In addition, Pakistan and China need to collaborate on legislative reforms to ensure the reliability of infrastructural development under CPEC. One way of sharing knowledge could be the bilateral exchange of environmental lawyers to understand the legislative problems regarding the environment in partner countries. The suggestions provided in this research are expected to help policymakers achieve SDGs in both countries.

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Corresponding author

Tooba Ahmad can be contacted at: toobasami@cuilahore.edu.pk