FOOD & AGRICULTURE TRADING PROJECTS UNDER BELT AND ROAD INITIATIVE: A REVIEW

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Abstract

According to the United Nations Food and Agriculture Organization (FAO), 80% of South Asia depends on agriculture. However, apart from India, South Asian countries do not contribute significantly to the global agricultural market. China contributes more than $2.65 billion to the global agricultural market through agriculture. These statistics pose a question: can China's Belt and Road Initiative increase South Asia's agricultural production like China's? This study reviews the latest research on the agricultural aspect of the BRI and its expected contribution to the South Asian economy. Research has shown that the BRI can increase agricultural production in South Asian countries and, if implemented, can increase the economic development of South Asia.

Keywords: Belt and Road, Climate Change, Agricultural productions, Postpositivism, Informatization.

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1. Introduction:

It has attracted the world's attention and warm response since 2013, the year the Belt and Road Initiative (BRI) was launched. Economic indicators of the initiative over the last ten years have shown that this initiative promotes economic prosperity and regional cooperation among the countries along the route. Exchanges and mutual learning between different connected civilizations is strengthened, and global peace and development have been stimulated. The BRI supports its partner countries for economic uplift, so China signed multiple agreements for the social and economic development with them. It has the potential to support projects related to poverty alleviation, such as supporting small and large enterprises, enhancing agricultural growth and training in the management of water resources conservation, and other areas of agriculture(Gong, 2020). China did not limit the BRI to infrastructure and transportation, but also expanded to the agriculture and food industry in countries along the BRI route(Serikkaliyeva, 2019).

Under BRI, China and Pakistan ventured to establish the Centre for Agriculture and biological resources at North West A&F University in China(Hongyan, 2019). Since 2016 China has started venturing into partner countries in Agriculture and Fisheries. Considering Agriculture's importance, government data shows China has signed over 650 cooperation documents with more than 80 countries. However, some sources claim 820

agricultural projects in 8 countries (Yuncai, 2021). "It is an area of importance, said Ma Lili from the School of Economics and Management; BRI area is vast and rich in agricultural resources, that's why it is important for China s trade and food cooperation and other agricultural products (Xinhua, 2022)".

Cooperation between China and BRI countries in Agriculture is not limited only to production and imports; it also covers the technological development for agriculture, like water-saving and draining-reducing technologies. This technology will avoid wasting resources, effectively save water, and improve land fertility(Xinhua, 2023b). The aim of agricultural cooperation with BRI countries is to provide high-quality agrarian planning, streamline agricultural policies, standardization of mutual recognition (products and services), promote agricultural services, develop agriculture as trade, build agricultural platform, push forward agrarian cooperation, and share the results of agricultural development, said by Sui Pengfei the director general of international cooperation department of Ministry of Agriculture and Rural Affairs(Yuncai, 2021).

Countries in South Asia need to avoid food insufficiency, and China's forecasts will fall from 94.5% to 91% by 2025. Additionally, China stopped buying American Agricultural products during the trade war. These circumstances create a gap for Asian economies to increase their agricultural exports to China(Serikkaliyeva, 2019). Private companies and Chinese

companies are very active in agricultural cooperation, and since 2013, Chinese companies have invested more than 43 billion dollars in agriculture in BRI countries(GRAIN, 2019). This means that they are searching for agricultural product imports and related businesses. Mr Jawad caught this demanding situation as the regional Chairman of Horticulture Exports of the Federation of Pakistan Chambers of Commerce and Industry (FPCCI) in 2017, where he said that "China is the world's largest (160 Billion dollars) Agricultural products importer and Pakistan has to grab its due share through FTA and CPEC(Dawn, 2017)".

This review aims to highlight the progress of agricultural projects supported by China under the BRI and point out the problems and opportunities for South Asian countries. This Review adopted the post-positivism approach, which allows the authors to collect information from any source. The positivist approach collects knowledge from different perspectives and triangulations. It is not limited to one source and gathers information from various sources; this is why it is best suited to this research because it uses all secondary sources consisting of governmental, non-governmental, organizational reports, published articles, both journalistic and research-based, books, conference proceedings, blogging discussions, press releases, and conference papers last, but not least, third-party evaluation reports about BRI in South Asia. The limitation of this research is that it extracted its data from available secondary data sources

and created figures and facts from it because postpositivism implies any source until satisfaction; however, it does not use primary data.

2. Review of Chinese Agriculture and Food Projects around the world:

2.1 Kazakhstan: According to World Bank "Kazakhstan is well placed to benefits from BRI(World-Bank, 2020b)" Kazakhstan, under the BRI, signed 15 agricultural projects with China, under which Kazakhstan exports Wheat, Milk Powder to China. i) The Chinese Danqing Company of Water Saving and Engineering invested approximately $23 million in Kazakhstan. ii) The Zhana Nur LLP is another 110-million-dollar agricultural project which establishes a plant for deep grain processing. iii) Joint oil-producing ventures and meat processing plants(Serikkaliyeva, 2019). Some updates about agriculture are of the view that COFCO, a Chinese food trading company, is moving to Kazakhstan to produce tomato paste for China and export beef to China (GRAIN, 2019). World Bank is of the view that BRI will grow its agriculture sectora and will maximize its GDP(World-Bank, 2020b).

2.2 Sudan: Under the BRI, Sudan signed an agricultural project of 50 million dollars in 2017, of which 46 million dollars were realized. This multimillion-dollar project also involved construction for infrastructural purposes, including building the China-Sudan Agricultural Cooperation Development Zone.

Through this venture, the entire area of 146,670 hectares of Rahad has been developed as an agricultural area, which has brought tangible benefits to both Chinese and local Sudanese people(Yuncai, 2021).

2.3 Pakistan: Pakistan signed the BRI in 2015, but before that, China and Pakistan had agricultural trade of more than 652 million dollars in 2013. However, through the CPEC, Pakistan wanted to enhance its agricultural exports to China. i) In the long run, the CPEC is destined to change traditional farming in Pakistan with the help of tech farming. ii) Under the CPEC, China is establishing fertilizer plants with an annual output of 800,000 tons. iii) China supports the establishment of vegetables, grains, and meat-processing plants in some Special Economic Zones. iv) Producing hybrid wheat, increasing seafood sector productivity, v) increasing exportation of cotton and rice from Pakistan to China are among some of the agricultural projects (GRAIN, 2019).

2.4 Sri Lanka: Under South-South Cooperation (SSC), China provided 1.5 million dollars to Sri Lanka with the assistance of FAO in 2023. The purpose of the venture (China, FAO, and Sri Lanka) is to improve the quality of Sri Lanka fruit in the global market. To implement this fruit project, researchers from the Fruit Research Development Institute (FRDI) of the China National Institute of Post-Harvest Management (NIPHM) of Sri Lanka initiated a plan for the next two years. It will provide

training, structure model fruit farms, harvest handling, and commercialization and marketization of the produced fruits(FAO, 2023).

2.5 Qatar: Under the BRI, the Chinese government has enunciated efforts to improve vegetable cultivation in partner countries. In this context, China established vegetable greenhouses in Doha. Owing to Qatar's limited arable land and water resources, the government relies on importing vegetables, meat, and other agricultural products. Since 2019, the Institute of Urban Academy of Agriculture (IUA) has provided advanced planting techniques to Qatar's companies. This has increased vegetable production by more than 30 varieties. Greenhouses of over 10,000 square meters produced a large number of vegetables for the 2022 FIFA World Cup, Yang Qichang, the deputy director of the project(Xinhua, 2023c).

2.6 Ukraine: In pre-war Ukraine, China, under BRI technological transmission, supported the agricultural industry. China has provided field machinery and crop supervision drones to enhance production. It is considered one of the opportunities for creating jobs in the field of agriculture in Ukraine(DJI-Agriculture, 2021).

2.7 Tajikistan: The Chinese government implemented more than six projects under agricultural support in Tajikistan. Some of the farming projects are the Yavan district cotton processing plant, the growing of cotton under project Vodii Zarrin Agrarian

Alliance, and the establishment of a second cotton processing plant in the Dangara district, are counted as BRI projects(Aminjonov et al., 2019).

2.8 Kyrgyzstan: There are two projects of Chinese support in the field of agriculture: the reconstruction of the irrigation system of Kyrgyzstan and the establishment of an innovation center for agriculture productivity and information sharing(Aminjonov et al., 2019).

2.9 Uzbekistan: Exim Bank of China provided funds to Tian Jean Nana, which was invested in the organization of a modern hub for exporting agricultural products in the Bukhara region of Uzbekistan. This project supports the processing of fruit, vegetable, and meat products. In addition, this support covers the construction of greenhouses and auto-refrigeration systems(Aminjonov et al., 2019).

2.10 Thailand: Under the BRI, Thailand is among China's top five agricultural products trading partners. Thailand, since 2011 having an agricultural trading partnership. In 2011 the partnership trade started from 20.07%, 28.3% in 2013, 23.4% in 2015, 30.2% in 2017 and 24.4% in 2019. This trade was named Fresh Agricultural Products, which rotate around meat, dairy products, eggs, and honey(Fu, Chen, & Xue, 2023).

2.11 Russia: Russia is also one of the largest fresh agricultural product partners with China. Statistical data shows that both had a 17.1% joint partnership of 2011. In 2013, it was 15.3%, and in

2019, significant partnerships increased to 23.4%. Among other products, fruits, vegetables, bird eggs, and other edible animal products are common trading products(Fu et al., 2023). China also exports agricultural products, such as vegetables and fruits, to Russia because it is the world's fifth largest fruit consumer. The demand for Russian fruit exports is nutrient-rich and low priced, making Russia's largest importer(Li, Liu, Dong, & Cheng, 2018).

2.12 Vietnam: In the market share list of the major trading partners for Fresh Agricultural products, Vietnam is among the top five countries. The total partnership in 2011 was 16.0%, which dropped in the coming years to 13.9% in 2013, 12.9% in 2015, 11.1% in 2017, and 14.4% in 2019. The products are vegetables, roots, fruits, dairy products, meat, and fruits(Fu et al., 2023).

2.13 Indonesia: Under the BRI, Indonesia is among China's top five Fresh Agricultural products trading partners. Indonesia has had an agricultural trading partnership with China since 2011. In 2011 the partnership trade started from 10.03%, 10.1% in 2013, 9.0% in 2015, 8.5% in 2017 and 8.4% in 2019. This trade rotates around cooking oil and dairy products(Fu et al., 2023).

2.14 Malaysia: Malaysia is also one of the largest fresh agricultural product partners with China. Statistical data show that both have had 10.0% joint partnerships since 2011. In 2013, 7.1% and in 2019, major partnerships decreased to 8.0%. Among

other products, fruits, vegetables, bird eggs, and other edible animal products are everyday trading products(Fu et al., 2023)

3. Statement of the Problem

Data show that South Asia has the potential for economic growth in the field of agriculture; the countries are required to avail the opportunity of the BRI for their agricultural advancement and commodity circulation because these countries do not have enough resources for such mega projects(Ali, Faqir, Haider, Shahzad, & Nosheen, 2022). Agriculture is the contributor of more than 25% to world GDP and can sustain more than 40% of employment in many countries of the world, said FAO director Jose Grazino da Silva in Beijing(FAO, 2017). Along the ancient Silk Road, agriculture was one of the vital components of trade among the stakeholders, and currently, agriculture in BRI countries can play the role of economic drivers if cooperation is provided by partner countries(Binlei, 2020). The weak agricultural production of South Asian countries requires the adoption of supportive policies to protect agrarian income and food security.

3.1 Problem of Budget allocation

Due to poverty and unstable income, South Asian countries are unable to allocate a large amount of their annual budgets for agricultural productivity. Agriculture is a significant contributor to China's GDP, and according to the Ministry of Agriculture and Rural Affairs of the People's Republic of China (MOA), in 2022,

it contributed 2.65 trillion dollars, which accounts for 16.05% of GDP(Xinhua, 2023a). China internally and externally emphasizes the improvement of agricultural productivity and food security enhancement, which h is why some authors refer to the BRI as the Food Silk Road (Tortajada & Zhang, 2021). South Asian countries are involved in multiple short- and long-term projects for their economic uplift, including agriculture. Numerous studies have underscored that agriculture, forests, and livestock are their primary food production and income sources. SA countries require an increase in their agricultural budgets. Figure 1 and Figure 2 show that South Asian countries allocated fewer budgets during 13 years (2000-2013) see Figure 1). In many SA countries (figure 1 and Figure 2), budget balances decline and increase; therefore, withdrawing the allocated budget may produce uncertainty in agricultural production. The positive change in the livelihoods of most SA countries is only possible by enhancing agricultural production and productivity. Stable and ever-increasing budget allocation for agriculture is very much necessary because the security situation, climate change, low production, and other natural disasters can tolerate the stress of breeding(Sakib, Afrad, Harun-Al-Rashid, & Kausar, 2021).

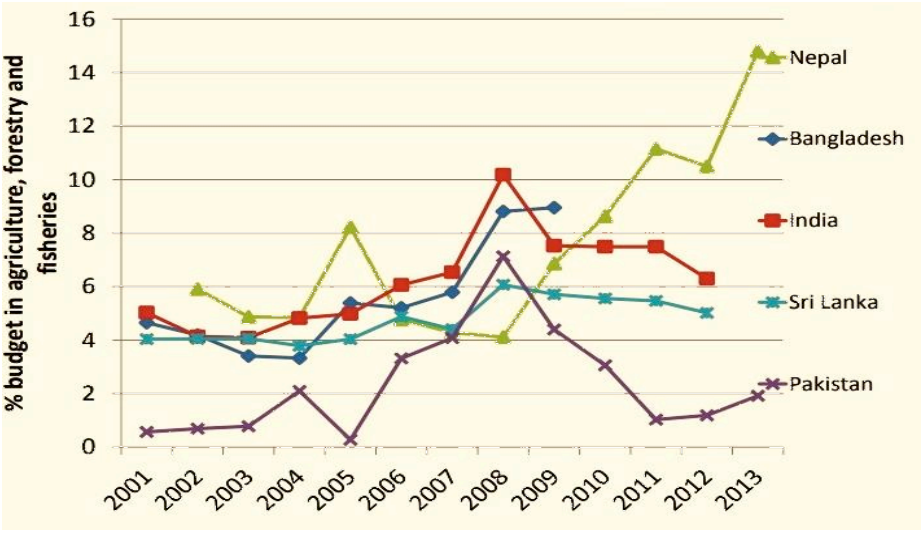

Figure 1. South Asian countries Agricultural budget allocation of Pat 13 years

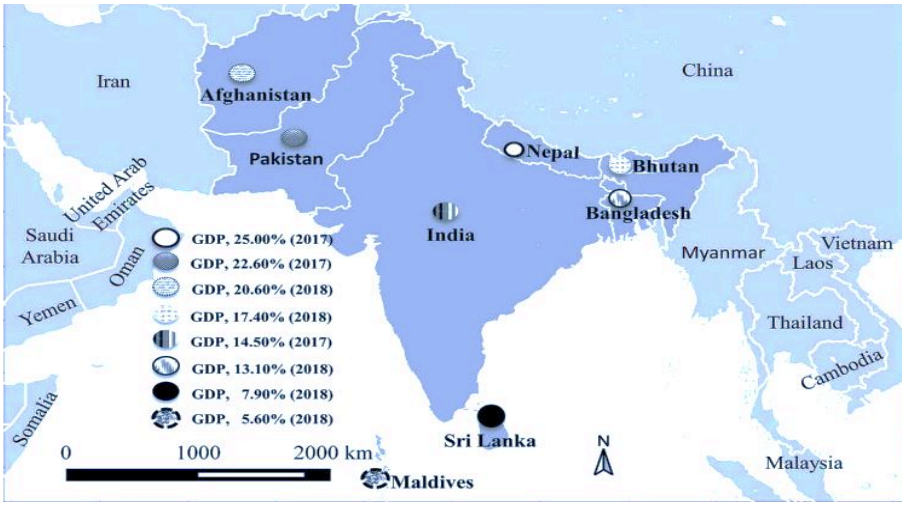

Figure 2. Asian Development Bank GDP report for SA (Sakib et al., 2021)

3.2 Problem of Availability of Land and Irrigation system

Taking advantage of the BRI agricultural component is possible only if cultivable land is available in South Asian countries. According to World Bank Data, South Asian countries have adequate cultivable land (56.9%). By 2020, Afghanistan will have 58.8%, Bangladesh 76.1%, Bhutan 13.5%, India 60.2%, Maldives 21.3%, Nepal 28.7%, Pakistan 47.6%, and Sri Lanka 45.5% (Figure 3).

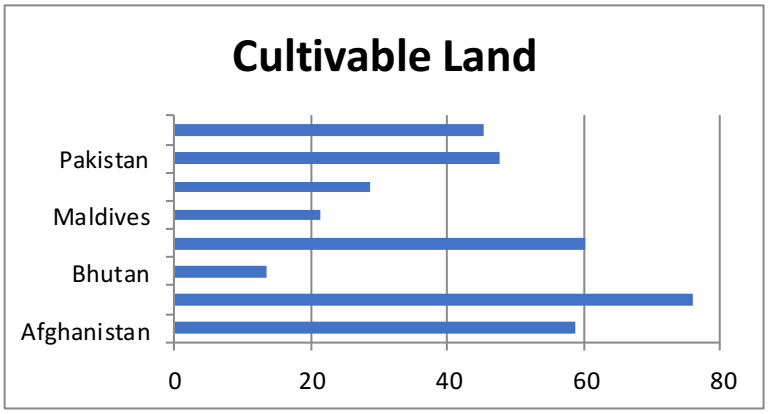

Figure 3. South Asian Countries accumulative Agricultural Land: This figure is developed with the data taken from (World-Bank, 2020a).

	Agricultural Land	Average annual precipitation	Land under cereal production	Fertilizer consumption	Agricultural employment

Country	% of land area	% irrigated	millimeters	hectares thousands	% of fertilizer production	kilograms per hectare of arable land	% of total employment	
Afghanistan	59	6.5	327	2,164.50	427.6	8.7	64.1	44.4
Bangladesh	76	82.1	2,666	12,519.30	554.9	320.9	55	39.4
Bhutan	13	..	2,200	23.2	..	14.3	68.4	56.5
Maldives	21	..	1,972	0.1	..	71.7	16.8	9.2
India	60	40	1,083	102,434.70	176	209.4	58.4	43

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Nepal	29	..	1,500	3,465.50	..	102	73.2	6.3
Pakistan	48	52.7	494	14,703.10	121.1	155.2	42.1	3.7.4
Sri Lanka	45	..	1,712	1,233.80	2,826.90	297.8	34.5	2.5.5

Table 1. South Asian Agricultural Inputs(World-Bank, 2023).

According to Table 1, Bangladesh has the largest agricultural land area, but studies show that cultivated land in Bangladesh is decreasing(Chen et al., 2018). In four countries of South Asia, India, Pakistan, Afghanistan, and Nepal, agriculture accounts for more than 20% of the GDP. Agriculture in these countries has a relatively high proportion of national income, and BRI support may increase it(Li et al., 2018). Because of BRI China's agricultural projects and agreements, the importation of agricultural products has increased to 47.6 billion dollars, with an annual increase of 24.6% by 2022.

3.3 Problem of Climate Change and its direct impact on Agriculture

Climate change is equally dangerous and unpredictable for countries worldwide. However, developed countries have preparedness and risk mitigation mechanisms. On the other hand, episodes in underdeveloped and developing countries showed their situation in post-disasters, such as the Turkiey Earth quack, Pakistani flood, and Philippine Typhoons of 2023 levelled their infrastructure with the ground. It was found that the consequences of climate change are heavier for SA, which h is why inhabitants of SA countries need to be prepared for droughts, floods, heat waves, and cyclones. Because climate change in the short- and long-term impacts agricultural products, Figure 4.

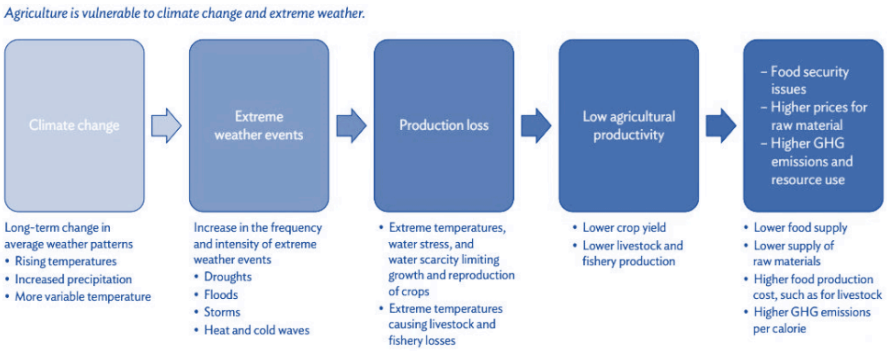

Figure 4. Overall Impact of Climate Change on Agriculture and Food(ADB, 2021).

Climate change sometimes increases the temperature and creates a worse rain situation in SA, leading to a considerable decline in agricultural production. Some studies have found that the prices

of agricultural products, such as rice and wheat, fluctuate due to a decline in agricultural production and may cause inflation, which is directly impacted by climate(Palanisami, Kakumanu, Nagothu, & Ranganathan, 2019).

4. A way out: Agricultural Cooperation strategy for South Asian countries with China under BRI

4.1 Establishment of Green Agricultural Parks (GAP):

As China constructed nine agricultural Zones in Sudan, first through bilateral cooperation, it can establish national agricultural zones in South Asian countries. After that, through technological offers, China may pursue South Asian countries to establishment of "Green Agricultural Parks". The GAP is a market where the products of each South Asian country are displayed. To establish the GAP, partner countries of the BRI may provide recommendations for policy development, and they can develop their own fiscal and financial rules and regulations that align with the objectives of the GAP. South Asian Partner Agricultural Universities may be advised to ensure adequate agricultural production and rotation among BRI countries under the banner of the GAP. The GAP must rely on Green Technology to construct, preserve, and transport agricultural products. Technology utilization is equivalent to bringing smallholders of agri-businesses into the international market(Sakib et al., 2021).

4.2 Agricultural Products Support Programs:

China is aware that South Asian (SA) countries lack financial support for livelihood projects. Table 1 South Asian Agricultural Inputs show that there is enough agricultural land with a sufficient irrigation system; however, countries such as Afghanistan, Pakistan, India, and Bangladesh cannot produce enough agricultural products to support their needs and may become the source of exportation. Instead of SA's agricultural potential, these countries cannot export a large number of agricultural products, except for India. SA requires investment in its technological and industrial bases to form a sound agro-industry to speed production. It is noted that most of these SA countries are running agriculture in manual and formal old fashions. For this reason, most indigenous products do not compete with international standards. On the other hand, Chinese agricultural technology and methodology are relatively mature compared to those of SA countries, which poses an opportunity to strengthen cooperation between China and SA countries in the field of agricultural cooperation.

4.3 South Asian Agricultural financial Support:

As discussed above, there are great difficulties in agricultural financing and investment, leading to inefficient development despite the agricultural potential. According to the SA countries' financial situation, each country tried to support policies and fiscal institutions for agricultural development, but still hoped for

some FDIs in agriculture. One study on FDI in BRI countries concludes that FDI has a direct impact on Agricultural growth(Yao, Alhussam, Abu Risha, & Memon, 2020). This situation demands twofold support, one in the form of a direct investor and the other in the form of establishing a financial support institution. Like the World Bank, Asian Development Bank, and Asian Infrastructure Investment Bank, the Agriculture Bank needs to be established. In this context, China has leverage because 120 roundabout countries benefit directly from Chinese investments and trade. The (ADB) must support all agricultural projects if asked to support and devise policies far from political influence. As China has its Agriculture Bank of China (ABC), the Zare-Taraqiati Bank (ZTB) of Pakistan needs to be aligned and digitalized for better and faster production(Zhong et al., 2022).

4.4 South Asian Agricultural institutional Support:

In the first phase, China extended its support to all agricultural institutions working on agricultural productivity, seeds, technology, research and development, soil, pesticides, fertilizers, water conservation, green technology, habitats, shrubs, artificial rain, and forests. To collect their opinions on establishing GAP and green agricultural projects in South Asia, we established a consortium of willing institutions for joint agricultural research and development. This is how China may find gaps in uncoordinated agricultural cooperation among its SA partners.

Conclusion:

China should increase agricultural trade with South Asian countries for agricultural growth and assist South Asian countries in raising agricultural products. For this purpose, China could provide technological and irrigational knowledge and infrastructure. The BRI is an avenue for multinational farmers, enterprises, retailers, vendors, and other intermediaries carrying agricultural products. These stakeholders can be the primary drivers of the agri-economy of South Asian countries through the support of the BRI.

SA faces multi-faceted problems, from financial constraints to climate change consequences, which highly demands that these countries develop their coping mechanisms for agricultural products. SA countries under the BRI banner have many opportunities to earn money from agricultural products, as in China, Russia, Indonesia, India, Malaysia, and Vietnam. In addition, the BRI will provide the know-how of current techniques in fisheries, dairy production, crop cultivation, forestry, and effective rural informatization. Through the Green Belt and Road, partner countries of South Asia will have the opportunity for green technology and policy reforms, as China did. In addition to construction and development, SA countries can utilize environmentally friendly technologies and chemicals through cooperation.

Researchers around the cone recommend focusing on the agricultural output of the BRI because it is one of the essential pillars of economic and social development. They must devise new methods and techniques to enhance agricultural cooperation and productivity. There is a considerable gap between individual South Asian countries in the field of agricultural problems and opportunities under the BRI's Banner for further research.

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