Shria Shyam
North Allegheny Senior High School
Wexford, Pennsylvania
Bangladesh, Infrastructure

Bangladesh: BRI Subsidies to Incentivize Intrusion Preventative Species

Noor, a Rohingya girl of 18 years at most, has fled her village in the Rakhine State of Myanmar to Cox’s Bazaar in Bangladesh. A survivor of the ongoing genocide, she scrounges for food in the sparse refugee camp as she laments for her murdered family. At night, the hunger is so unbearable that she can feel a faint fluttering in her stomach. For weeks, she persists in this desperate situation. When the fluttering begins to push insistently, she realizes the truth. Having been gang-raped and presumed dead by the soldiers who murdered her family, she was now pregnant. After the child’s birth, she will now be forced to face two items: first, a baby, a constant reminder of the violence she had escaped; and, second, the stigma placed upon her by the Rohingya encampment in which she and her child would live. Rather than allow the baby to ruin her life, her family, and potential marriage, she has decided to hide her pregnancy and hand the newborn to a human trafficker once the child is born. As Noor’s pregnancy continues, she crouches in a corner of the tent, with the hope of hiding her enlarged abdomen from society. She survives off the rations she accumulated before her duration of hiding and will be forced to give birth alone, without making any noises that may alert those around her to the pregnancy.¹ This is the story of the Rohingya, of refugees in Bangladesh. This is the story of poverty, and agricultural inefficiency, in a traditional South Asian economy.

As delta countries throughout the Asia-Pacific region continue to experience the adverse effects of social divisions and climate change, their geographic proximity to the ocean and the patterned impact of monsoons cause their traditionally freshwater sources to derive both water and sediments from local saltwater bodies, via the environmental phenomenon addressed as saltwater intrusion. Consequently, river water is increasingly saline, and political conflict limits the adoption of diverse pathways due to stringent border restrictions, eventually causing the soils that support various agricultural economies to become more saline. Overall, the salinity of these soils is stimulating economic failure, food insecurity, agricultural crises, and ethno-racial conflict in these countries, which prominently include Australia, Bangladesh, China, Fiji, India, Iraq, Nepal, Malaysia, Pakistan, and Thailand.²

Particularly in Bangladesh, a country plagued by governmental corruption, poverty, an astoundingly young population of 159 million with a population density of 1050 per km, the absence of modern medicine, and a refugee crisis, addressing saltwater intrusion may revamp the potential of each of these concerns.³ Such salinity exposure culminates in economic failure, with agriculture constituting 14.2% of the $261.5 billion GDP,⁴ and public health crises, with people exposed to slightly saline (1000-2000 mg/l) and moderately saline (≥2000 mg/l) concentration drinking water having a respectively 17% (p < 0.1) and 42% (p < 0.05) higher chance of being hypertensive than those who consumed freshwater (<1000 mg/l).⁵ Atop this, the absence of public healthcare or governmentaly issued medical programs to mediate these circumstances is causing attendees of private hospitals to face issues such as lack of safety or

¹ Beech, Hannah, “When a Baby is an Everyday Reminder of Rohingya Horror”, 1
² Australian Centre for International Agricultural Research
³ Muhammad, Faisal, “Public Health Problems in Bangladesh: Issues and Challenges”, 1
⁴ CIA World Factbook, Economy
⁵ Al Nahian, Mahin, “Drinking water salinity associated health crisis in coastal Bangladesh”, 2
quality regulation, increased longevity, and undesirable rural-urban population distribution, with 63.4% of the population residing in rural Bangladesh.

To this looming concern, the plant world proposes a solution, *Panicum virgatum*, or switchgrass, which consumes 28.5 to 35.7 g N m$^{-2}$, 2.52 to 3.48 g P m$^{-2}$, and 29.6 to 38.4 g K m$^{-2}$ and thrives in both freshwater and wastewater treatments, making it an effective solution in any environment, both developing and developed. Because of the nature of *P. virgatum* as a halophile, or an organism that, unlike most organisms, has the capacity to thrive in saline environments, its consumption patterns decrease the salinity of its surrounding environment, and its root infrastructure may be employed as a filter between saline freshwater and the soil on farms. Similarly, the plant *Brassica napus* responds to increasing solution boron concentrations from 0.1 to 26.5 μM with increased relative boron uptake rates from 0.005 to 0.1 μmol g$^{-1}$ root f wt d$^{-1}$, reflective of similarly indicative research of *P. virgatum*.

As such, repeated scientific investigation and comparative analysis of similar plant physiology conclude that *P. virgatum*, when cultivated alongside saline water sources alleviates the impact of salinity on agricultural institutions and laborers. The creation of a transformative barrier of halophilic plants requires manual labor, which may employ Rohingya refugees, permit the gradual mitigation of cultural premonitions, and restrict child sex trafficking. Engendering a newfound job market to provide employment for the Rohingya may be the sole method to legitimization of illegitimate children, since Bangladesh solely recognizes citizenship by descent, not birth, resulting in 60 stateless Rohingya babies born each day in the country.

The current state of Bangladesh’s agricultural infrastructure evidences the fact that an alternative is required; however, this alternative may not necessarily be traditional improvements. Microfinancing farmers to incentivize the cultivation of crops, specifically halophiles, which naturally mitigate the crisis may be more appropriate. Economically, however, small-scale farmers cannot accomplish this alone. To incentivize the cultivation of an edible, but scarcely profitable and culturally viable, crop, the governments of such nations and the international community may employ agricultural subsidies, in a per capita or per unit method. While subsidies have the potential to hinder pure capitalism and the free market, by debilitating industrial mobility, it can stimulate economic stability and ascertain a stable food supply, entailing the development of human rights, despite potential global deterioration.

Agricultural funding has remained a critical component of both economic policy and political appeal in agriculturally dominant economies such as Australia, with agriculture constituting a critical 3.9% of the Australian GDP of $1.248 trillion, totaling an astounding $48.7 billion. When environmental factors, such as droughts, affected farms negatively, Australian politicians established low-interest loans, subsidized transport costs, and initiated legal, cash-based payments to farmers, gaining unity among their voter bases in the process. Preserving a steady monetary flow, by reflecting the balanced legislative establishments in Australia, is a critical component of promoting industrialization, modern climate change initiatives, and the growth of regulatory species, such as *P. virgatum*, while maintaining the economic integrity of salinity-impacted nations.

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6 Hashim, Jamal, “Health and Healthcare Systems in Southeast Asia”
7 CIA World Factbook, People and Society
8 Ganjegunte, Girisha, “Organic carbon, nutrient, and salt dynamics in saline soil and switchgrass (Panicum virgatum L.) irrigated with treated municipal wastewater”, 1
9 “External Boron Requirements for Canola (Brassica napus L.) in Boron Buffered Solution Culture”
10 Beech, Hannah, “When a Baby is an Everyday Reminder of Rohingya Horror”, 10
11 CIA World Factbook, Government
12 “See the Refugee Babies Born with Nowhere to Call Home”, 1
13 CIA World Factbook, Economy
14 Thomas, Andrew, “Australia Gives Drought-Striken Farms Billion Dollar Aid Package”, 1
Demand for agricultural products above the market equilibrium point is a byproduct of poverty, causing inefficient deadweight loss in the absence of governmentally enforced market compensation. Such legislation may be the key to securing regional unity, in the face of agricultural underproduction due to international environmental concerns, the salinity crisis, and derived demand. Underlying the link between poverty, economic development, and climate change, which could be a detrimental threat toward potential alleviation in Asia, is a fundamental requirement that countries cooperate on mitigating climate change within subsistence agriculture and during industrialization. Considering that Asia and the Pacific are exceedingly impoverished, biodiversity’s socio-economic dimensions are determining factors as to whether Asia can reduce poverty, develop infrastructure, improve the quality of life, and minimize food and water insecurity, since the poor are often dependent upon environment-sensitive sectors, such as agriculture, for monetary income.15

Funding such a massive installment plan, however, is difficult. Despite Bangladesh’s proclamations as democratized,16 Prime Minister Sheikh Hasina Wajed’s Awami League party maintains power by stifling the opposition electorally.17 Because augmented taxation in such an impoverished land is an impossibility, international infrastructure investments are required to provide these subsidies as incentives; however, Greece continues to exemplify the failures of the International Monetary Fund (IMF) so perhaps the path of Southeast Asia, based on bilateral negotiations, is superior to follow.18 The range of diversity in political circumstances across the Asia-Pacific is astounding – while New Zealand is classified by the Global Peace Index as one of the most livable countries,19 nearly 700,000 Rohingya Muslims have fled persecution and militarism in the Rakhine State of Myanmar.20 Regardless, economic institutions such as the Association of Southeast Nations (ASEAN) maintain relative regional peace despite ongoing domestic conflicts. Since economic cooperation is analogous to political coherence, ASEAN’s attempts at achieving economic cooperation, by facilitating trade and fostering cross-country value changes, result in negotiable diplomacy. Changing patterns of investment, slowing productivity, and the so-called “China factor” are suggested to detract from direct political cooperation.21

As evidenced by the ideological battle between Americanization and Sinicization, the supposed “commercial divorce” between the US and China has evolved from trade imbalances and market concern two years ago into competing strategic interests in trade and economic policy.22 The White House statement reports on recent, much-needed diplomacy, citing negotiations on “structural changes with respect to forced technology transfer, intellectual property protection, non-tariff barriers, cyber intrusions and cyber theft, services and agriculture.” 23 Despite suggestions of a prolonged ceasefire in their economically based tit-for-tat trade war, both President Trump and President Xi Jinping continue to invoke political, military, and ideological assets in their continued conflict. China’s launch of the One Belt, One Road Initiative (BRI) is a definitive attempt at promoting Chinese economic dominance and Sinicization in traditionally American-dominated, developing regions of the international community by constructing a 21st century maritime Silk Road and encouraging infrastructure investments.

15 Groff, Stephen, “How will ASEAN members cope with their climate change challenge?”, 2
16 CIA World Factbook, Government
17 “Bangladesh Profile: Leaders”, BBC, 4
18 Oxenford, Matthew, “Greek Bailout: IMF and Europeans Diverge on Lessons Learnt”
19 Cybriwsky, Roman Adrian, “Global Happiness Ranking: New Zealand”, 3
20 “Myanmar Rohingya: What you need to know about the crisis”, 2
21 Azis, Iwan J., “ASEAN Economic Integration: Quo Vadis?”, 1
22 Goodman, Matthew P., “Trump and Xi: From Ceasefire to Lasting Deal?”, A3
23 Goodman, Matthew P., “Trump and Xi: From Ceasefire to Lasting Deal?”, A1
Beijing has already launched a new high-speed railway from Kunming to Laos and a high-speed rail link from Kuala Lumpur to Singapore.24 Southeast Asian governments remain supportive of these initiatives — Laotian Prime Minister Thongloun Sisoulith claims the $5.8 billion railway due for construction is “of great importance”, with Filipino President Rodrigo Duterte and Indonesian President Joko Widodo claiming Chinese investment is quintessential for development.25 By contrast to the seemingly innocent initiative, the hidden breaches in this massive scheme of reliance upon the Chinese economy involve an ideological choice between the US and China in the face of ongoing tensions, a gradual plunge into debt for each of the nations in question, and the creation of Chinese globalization – effectively where all roads lead to Beijing.26 Smaller economies have been irreversibly integrated, but larger economies such as Thailand and Malaysia plan on launching regional investment funds to end their honeymoon with BRI.27 Furthermore, the absence of transparency in project origination and organization, specifically project appraisal, selection, design, and budgeting, when co-financed by allied governments or development finance institutions (DFI) tend to cultivate corruption risks such as money laundering in final project stages.28

From a domestic standpoint, agricultural funding, climate change, health care, corruption, and other social issues remain critical components of what ASEAN must address, and Beijing must assist, to accomplish relative stability via the mitigation of income inequality and resulting economic unrest. With China previously planning to spend at least $360 billion on renewable energy by 2020 as “a bold claim on leadership in the renewable energy industry”,29 and countries that employ renewables and auxiliary environmental initiatives reaping strategic and economic benefits, President Xi Jinping must consider alternatives to blatantly traditional infrastructure investments in a revolutionary environmentally-friendly sense.30 The requirement for micro-financed incentives to combat saltwater intrusion via halophilic improvements in biodiversity naturally complies with China’s internationally posited necessities.

To fulfill Bangladesh’s requirement for appropriately mediated agricultural subsidies to incentivize halophilic cultivation, it benefits the volition of Beijing to reanimate unilateral and bilateral negotiations, augment infrastructural investments, and restructure BRI to implement such undeniably beneficial investments. Such subsidies may assist Chinese governmental and corporate officials in bolstering Sinicization via soft power while continuing the camouflaged employment of local demographic dividends; simultaneously, local populations would benefit. China’s dream is to invest; Bangladesh’s dream is an investment; Noor’s dream is a future. Fortunately, if China invests in Bangladesh, then the people’s future is guaranteed: Noor’s future is guaranteed.

24 Kurlantzick, Joshua, “In Southeast Asia, Belt and Road Attracts Takers, But Skepticism is Rising.”, 1
25 Kurlantzick, Joshua, “In Southeast Asia, Belt and Road Attracts Takers, But Skepticism is Rising.”, 2
26 Clauss, Michael, “Why Europe and the US cannot afford to ignore China’s Belt and Road”, 10
27 Kurlantzick, Joshua, “In Southeast Asia, Belt and Road Attracts Takers, But Skepticism is Rising.”, 6
28 Sobják, Anita, “Corruption Risks in Infrastructure Investments in Sub-Saharan Africa”, 1
29 Forsythe, Michael, “China Aims to Spend at Least $360 Billion on Renewable Technology by 2020”, 6
30 Global Commission on the Geopolitics of Energy Transformation, “Power Shifts”, 2
Works Cited


Fukase, Emiko, and Will Martin. *Free Trade Area Membership as a Stepping Stone to Development: The Case of ASEAN*.


Hestermann, Oran B. *Fair Food: Growing a Healthy, Sustainable Food System for All*.


Kurlantzick, Joshua. "In Southeast Asia, Belt and Road Attracts Takers, but Skepticism Is Rising."


Press Availability at the 51st ASEAN Foreign Ministers' Meeting and Related Meetings. 4 Aug. 2018.


