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COMMENTARY

Dam if You Do, Dam if You Don't: Politics and Floods in the Shadow of COVID-19 in Sudan

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The season of rampaging floods, which usually lasts from June to October, started in Sudan while the country was grappling with the coronavirus disease 2019 (COVID-19) pandemic. The massive flooding in September 2020 created a suitable environment for other epidemics and diseases at a time when the country had yet to recover from the damages of the July 2020 floods caused by the collapse of the Bout Dam in southeastern Blue Nile due to heavy rains.[1] The floods in September 2020 were the worst to hit the country in this century, breaking all previous recorded floods. They impacted about 500,000 people in all 18 states of Sudan with 140 fatalities and injuries, displacing most and causing total or partial collapse of more than 100,000 houses[2] and at least 2,671 health facilities.[3] Due to the large-scale damage, the government was forced to institute a state of emergency for 3 months and declared the country a natural disaster zone.[2]

Climate change coupled with removal of trees near the Nile, the government's inability in implementing preventive measures,[2] and the risk residents take by living near the banks contribute to the emergence of these crises. These floods have had a substantial impact on the lives of the Sudanese and have overwhelmed the already fragile healthcare system, which was just recovering from the chaos brought about by democratic changes in 2019.

The grave implications of floods are well known. Naturally, disease outbreaks follow floods. The stagnant water in village and city squares and streets have led to massive outbreaks of waterborne diseases such as cholera and vectorborne

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diseases like malaria, as it creates a suitable environment for the breeding of flies and mosquitoes that spread diseases.[4] Moreover, rainwater and torrents also contribute to the increased movement of snakes, scorpions, and insects that may cause stinging injuries and deaths.[5] Accordingly, the World Health Organization explicitly warned of potential disease outbreaks of chikungunya, malaria, and measles due to contaminated water,[6] flooded latrines, and malnutrition; at the same time, 5 epidemics of cholera, chikungunya fever, dengue fever, Rift Valley fever, and malaria already existed in the country.[7]

The recent statistics indicate how duly the World Health Organization had expressed its concerns over the consequences of this crisis. By the end of September 2020, malaria epidemics were recorded in 15 states of Sudan's 18 states and over 1.1 million of its cases were reported across the country.[8] Some 30,000 latrines were destroyed throughout the country, and 30% of freshwater reserves in 13 states were contaminated. As of October 11, 2020, 40% of the population lacked access to drinkable water and 63% did not have access to basic sanitation, making them susceptible to infectious diseases.[9]

These dynamics came in the middle of the COVID-19 pandemic, which is a public health emergency of international concern.[10] The country reported its first case of COVID-19 on March 13, 2020.[11] Since then, the number of confirmed cases increased to 28,210, with 1,876 deaths, as of February 24, 2021. Every day new cases continue to be identified.[12] The recent flooding has negatively impacted COVID-19 responses. The destruction of health facilities and the displacement of people brought about by the floods affected the responses where already nearly 2 million internally displaced people, due to conflicts, live in settlements and camps.[11,13]

While the dearth of health facilities—including intensive care unit beds, personal protective equipment, testing kits, and medicines—remains a challenge,[14] new disease outbreaks exert an even greater strain on a health system that has seen little investment. Currently, there are only 1.2 hospitals and 13.5 primary healthcare facilities per 100,000 population,[11] and over 80% of Sudanese do not have access to health providers located less than 2 hours from their homes.[8] These issues have had a substantial impact on the COVID-19 pandemic response, as the government has had to shift available resources to the treatment of the new disease outbreaks.

The destruction and dire impacts caused by the recent flooding place the discussion between Egypt, Ethiopia, and Sudan on Blue Nile water distribution and the Grand Ethiopian Renaissance Dam in a unique position. Arguably, the dam has the potential to deter flooding by holding onto the water that otherwise would inundate the plains of Sudan. The dam can also be effective in managing droughts by releasing water during the dry season. As the rainfall pattern in the Blue Nile basin varies greatly, the dam can provide more consistent supply of water and, to some degree, mitigate the effect of climate change. On the other hand, it can also be argued that the dam has a potential to affect the water supply to Egypt and Sudan as well as on agricultural productivity along the river since naturally flowing water carries needed nutrients for agriculture.

Every year, Sudan faces formidable floods that cause displacement, disease outbreaks, death, and destruction to properties and agriculture. These issues require the country to enact strong proactive measures and invest more in its healthcare system. It is also imperative that a resolution between Egypt, Ethiopia, and Sudan be agreed upon and implemented with strong commitment by all parties. The new dam, or any dam for that matter along the Blue Nile, may lessen floods and at the same time help Ethiopia to develop. However, it should be noted that these discussions should also consider other arguments such as the effect on the water supply to Egypt and Sudan and its impact on agricultural productivity along the river. An honest discussion among these countries is the only way forward in addressing the regional health security and climate change issues.

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References

1. Dam collapse destroys 600 houses in Sudan. *CGTN Africa*. August 1, 2020. Accessed February 24, 2021. https://africa.cgtn.com/2020/08/01/dam-collapse-destroys-600-houses-in-sudan/
2. Najjar F. "We lost everything": Thousands homeless as Sudan battles floods. *Aljazeera*. September 9, 2020. Accessed February 24, 2021. https://www.aljazeera.com/news/2020/09/lost-thousands-homeless-sudan-battles-floods-200909102451318.html
3. Associated Press. Floods in Sudan hit capital Khartoum hard, dozens dead. *TRTWORLD*. August 30, 2020. Accessed February 24, 2021. https://www.trtworld.com/africa/floods-in-sudan-hit-capital-khartoum-hard-dozens-dead-39331
4. World Health Organization. Flooding and communicable diseases fact sheet. Accessed March 4, 2021. https://www.who.int/hac/techguidance/ems/flood_cds/en/
5. Sudan: warnings of a health disaster due to floods. *Sudan News*. August 16, 2020. Accessed March 4, 2021. https://www.sudanakhbar.com/800767
6. Schlein L. UN, IRC step up emergency aid to flood-devastated Sudan. *VOA*. September 11, 2020. Accessed September 22, 2020. https://www.voanews.com/africa/un-irc-step-emergency-aid-flood-devasted-sudan
7. The Minister of Health in charge describes the health system as exhausted in light of Corona. *Sudan News Agency*. August 8, 2020. Accessed September 20, 2020. https://suna-sd.net/read?id=690732

8. Donnenfeld Z. Sudan's crises are debilitating an already fragile country. Institute for Security Studies. Published November 23, 2020. Accessed February 24, 2021. https://issafrica.org/iss-today/sudans-crises-are-debilitating-an-already-fragile-country
9. United Nations Office for the Coordination of Humanitarian Affairs. CrisisInSight Weekly Picks, 15 October 2020. Accessed January 30, 2021. https://reliefweb.int/report/afghanistan/crisisinsight-weekly-picks-15-october-2020
10. Juma CA, Mushabaa NK, Abdu Salam F, Ahmadi A, Lucero-Prisno DE III. COVID-19: the current situation in the Democratic Republic of Congo. *Am J Trop Med Hyg*. 2020;103(6):2168-2170.
11. Elhadi YAM, Adebisi YA, Hassan KF, Mohammed SEE, Lin X, Lucero-Prisno DE III. The formidable task of fighting COVID-19 in Sudan. *Pan Afr Med J*. 2020; 35(suppl 2): 137.
12. Worldometer. Coronavirus: Sudan. Last updated February 24, 2021. Accessed February 24, 2021. https://www.worldometers.info/coronavirus/country/sudan/
13. Dinyo DGA, Ahmadi A, Okereke M, Essar MY, Lucero-Prisno DE. South Sudan: a young country's fight against COVID-19. *Pan Afr Med J*. 2020;37(suppl 1):49.
14. Lucero-Prisno DE, Elhadi YAM, Modber MAA, et al. Drug shortage crisis in Sudan in times of COVID-19. *Public Health Pract (Oxf)*. November 23, 2020. https://doi.org/10.1016/j.puhip.2020.100060

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