

Preventing Zoonotic Disease Transmission and Economic Development in the Global South

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I. Executive Summary:

When looking at densely populated cities and rates of disease transmission, zoonotic illnesses are especially relevant. The Center for Disease Control and Prevention (CDC) defines zoonotic diseases as illnesses that spread by animals which carry harmful germs like viruses, bacteria, parasites, and fungi. The CDC notes that it is important to remember that while animals can sometimes appear healthy, they may be carrying highly infectious diseases, in which transmission rates have heightened within urban regions in the Global South. The underlying purpose of the policy proposal is to construct a set of initiatives that are both proactive and reactive to ongoing issues that elevate the risk of transmitting zoonotic diseases especially in urban regions of the Global South. Thus, the policy proposal is twofold-first the implementation of a portion of the One Health global framework which aims to implement contact tracing and second is promoting economic development in rural communities in the Global South to try to curb rural-urban migration patterns.

II. Scope and Context of Zoonotic Diseases

Cities are incredible. They are economic hubs filled with generations of people, living vastly different lives. Most cities are epicenters for commerce, employment, education and socialization. For these reasons, prominent cities have a higher probability of being densely populated. This means that there are high concentrations of people living in an area. While this reality is beneficial in numerous ways, it also poses several threats. More specifically, densely populated areas face a higher propensity for disease-spread due to the higher populace. This paper

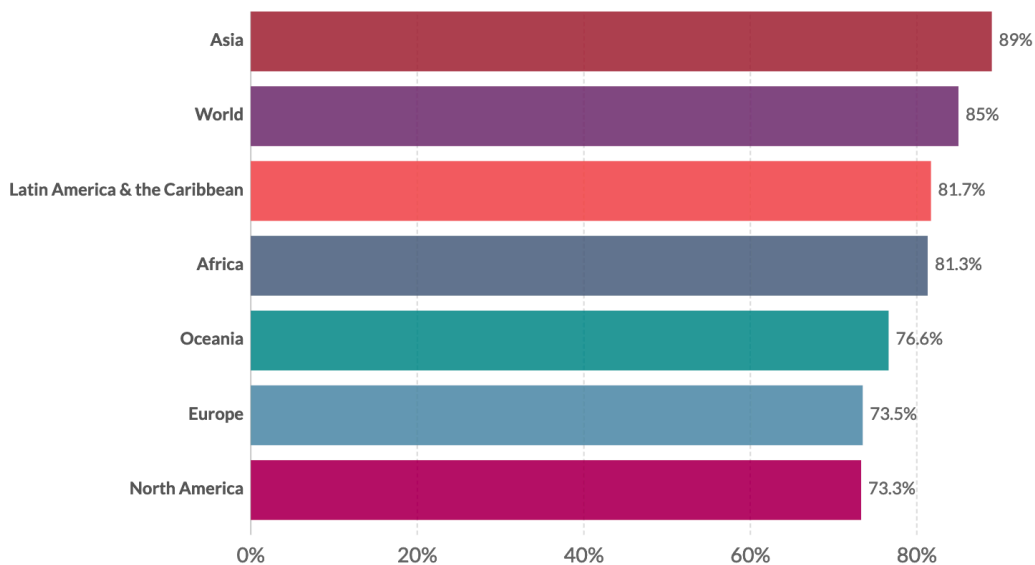
will analyze the threat that zoonotic diseases have on humanity, how it vastly impacts densely populated areas and policy recommendations to combat these concerns.

After careful viewing of the Nature Communications map, which shows how much global hotspots correlate with emerging zoonotic diseases, it is evident that densely populated cities such as New York City, Lagos and Beijing had higher rates of zoonotic diseases. While population density is a major factor for these numbers, other unrelated factors make these cities breeding grounds for disease. Firstly, the warm climate of the African continent makes the spread of mosquito-borne diseases easier. Secondly, New York's status as an economic hub makes the spread of disease especially easier. Finally, unregulated food markets in China pose a threat for the spread of zoonotic diseases.

Share of people living in urban areas, 2015

Share of the population living in urban areas as estimated by the European Commission. The European Commission combines satellite imagery with national census data to derive urban and rural populations based on its own standardized definitions. Note that this result differs from UN figures which are based on nationally-defined urban definitions.

Our World
in Data



Source: European Commission, Atlas of the Human Planet (2016)

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Share of People Living in Urban Areas, 2015, Our World Data. <https://ourworldindata.org/urbanization>

III. Policy Recommendations and Benefits

The world is frantically trying to respond yet attempting to be proactive to this crisis and it has only illuminated that the status quo was never sufficiently proactive. In order to mitigate risks, there are numerous factors that must be considered like population density, level of development for each country/region, healthcare infrastructure, accessibility to resources, and a plethora of other contributing factors that can exacerbate the potential effects of an outbreak. Thus, examining proactive strategies that can help mitigate the spread of zoonotic diseases from becoming an epidemic or pandemic. The policy approach that will be suggested stems from the global health initiative “One Health” and rural development shifts. These two factors only serve to aid certain facets of global health and are not entirely holistic in its approach to addressing proactive pandemic relief and response. Thus, this needs to be understood that it is better to focus on a few manageable factors than attempting to squeeze every aspect of global health into this policy recommendation.

First, examining what the One Health initiative is and how it can help be both a proactive and reactive solution to outbreak control is crucial. One Health is a policy approach that calls for the integrative approach to health by combining factors of human, animal, and environmental health¹. This initiative in theory relies on the systematic understanding that each of its components can affect the other through its co-dependencies and unintended consequences². Though this policy proposal is very comprehensive, I believe that the specific recommendation to improving disease surveillance, risk communication, and public health programs in low

¹ Degeling, Dawson, and Gilbert, “The Ethics of One Health,” in *One Planet, One Health*, ed. Merrylin Walton (Sydney: Sydney University Press, 2019) 65-84.

² Ibid

income developing settings is the most important aspect of mitigating zoonotic disease³. For example, an initiative focused on tracing potential zoonotic diseases has been established in Vietnam with the Vietnam Initiative Zoonotic Infections⁴. This was a state led program that worked to detect traces of potential harmful diseases through direct and indirect methods⁵. The direct forms typically encompass collecting data and running it through laboratory tests while indirect forms of tracing often means interviewing potential individuals at risk⁶. One Health surveillance is a fairly flexible policy initiative that can be constructed based on area-specific conditions. For example, there is “participatory disease surveillance,” which is equipped for more rural areas in developing countries where organizations incorporate interviews with locals and mapping disease vectors⁷. These are all forms of affordable zoonotic disease tracing that can serve to be proactive in the long run.

Incorporating levels of disease tracing in rural areas in developing nations can help curb the impact of spread but understanding that it does not this does not address how much risk lies within densely populated cities. Thus, there needs to be a policy intervention that can shift the desires and incentives away from moving into populated cities. When examining factors that motivate populations to move into cities, one of the most prominent reasons is for economic mobility and labor. Often policies like Transmigration have been used to hinder the increasing rates of urbanization in some countries. An example would be the Indonesian Transmigration

³ Ibid

⁴ Siobhan M. Mor, Anke K. Wiethoelter, Peter Massey and Keith Eastwood, “One Health surveillance: monitoring health risks at the human–animal–environment interface,” in *One Planet, One Health*, ed. Merrylin Walton (Sydney: Sydney University Press, 2019) 179-218.

⁵ Ibid

⁶ Ibid

⁷ Ibid

program, in which 6.4 million people moved from Java to Sumatra, Kalimantan, and Irian Jaya⁸. Despite being a state sponsored program, it was highly controversial as the government perpetuated ethnic tensions by moving Muslims into predominantly Christian, Dayak regions⁹. This policy was both unethical and counterproductive as it led to sustained future tensions and conflict between ethnic groups.

When constructing a policy to reduce the increasing rates of urbanization implementing a policy like Transmigration was an utter failure. The alternative to preventing rural-urban migration would be to incentivize populations to stay in their rural demographic and create a new shift that appeals to settling in rural communities. Much of this has to be done through developing rural communities by creating more economic opportunities in order to disincentivize migration and prevent overburdening cities. The main avenue to pursue this would be through business investments and job creation. The framework for this type of intervention exists and has been promoted by the UN-Sustainable Development Goals, which means that this program isn't being built off of a completely new template. This can be seen through the development of rural economies in West Bengal compared to India¹⁰. When comparing the trends of development in India compared to West Bengal both regions had similar trends with rural-urban migration, except that India had a drastically huge shift in its demographic as more and more people moved into urban slums¹¹. Although West Bengal did not have the same kind of drastic demographic change, it was able to adapt to changes in consumption within the rural community by

⁸ Robinson, W, "Risk and Rights: The Causes, Consequences, and Challenges of Development-Induced Displacement." *The Brookings Institution-SAIS Project on Internal Displacement* (Spring 2003) 1-72.

⁹ Ibid

¹⁰ Dutta and Chakrabarti, "Rural-Urban Linkages, Labor Migration & Rural Industrialization in West Bengal." *Indian Journal of Industrial Relations* (Winter 2015) 397-411.

¹¹ Ibid

incorporating small firms and enterprises that responded to changing trends within the community¹². This points out a very important aspect of development policy and initiatives, because in West Bengal food growth actually increased, enabling many rural citizens to stay within their smaller towns instead of moving. There is even greater evidence of this trend shown when states are more heavily involved in improving the quality of life index within rural communities. Specifically, case studies in Iran and Kurdistan showed government interventionist policies that aimed to increase job security and improve the quality of life for residents in rural areas showed to be successful¹³. The key here is an emphasis on promoting the right policies for each rural community and the intersection between private and state cooperation.

¹² Ibid

¹³ Rezvani and Mansourian, "Developing Small Cities by Promoting Village to Town and its Effects on Quality of Life for the Local Residents." *Social Indicators Research* 110, no. 1 (2013): 147-170.



Clinical Projects in One Health, Lilongwe Wildlife Trust. <https://www.lilongwewildlife.org/clinical-project-one-health/cpoh-diagram/>

IV. Potential Setbacks:

Even though our policy has been crafted with good intent and structural integrity, there are a number of setbacks that we must realize, plan for, and ultimately, solve fully in order to ensure an easy transition. We plan to implement our policy recommendations in Nigeria given its heightened population density and its vulnerability to zoonotic EID transmissions. In using the Transmigration Program in Indonesia as a case study, we are able to pinpoint specific policy shortcomings and strategically protect against them in special regards to Nigeria. There are three central problems that will arise when implementing policy: coordination among local and

national government, the quality of initial regional planning, and security and oversight. The most effective process takes decades to properly execute as it is a behavioral trend that the policy is trying to combat. But, without a clear, concise, and risk averse plan, the aims of the policy will quickly deteriorate, further leaving behind a densely populated city and disease prone society.

a. *Coordination:*

Effective policy design calls for considerable evenness in its implementation. Among implementation, there will need to be transparency in present and projected national plans to both central and local governments. This is extremely hard due to the surfacing of more pressed domestic disputes at that time. Lack of private and public sector support and fluctuation in targets will continually erode further progress. Looking at Indonesia's Transmigration plan, they successfully transmigrated 991,100 people between 1905-1977¹⁴, however, the population increased by 35 million in that same period while committing mass human rights atrocities. Events such as WWI and WW2 continually drained the country of its ability to provide stimulus for its people to move. War is a global consequence that many countries cannot control for, but what we must also realize is that putting a policy on hold will make it extremely difficult to mitigate its risks in the future. Nigeria has 774 local government areas (LGA's)¹⁵ that make economic recommendations to the state, collect taxes and fees, and regulate domestic markets. Coordination among LGA's and even the possible creation of a Task Force will control for the decrease in goal focus and integrity over time.

¹⁴ MacAndrews, C. (1978). Transmigration in Indonesia: Prospects and Problems. *Asian Survey*, 18(5), 458-472. doi:10.2307/2643460

¹⁵ "Africa." (*States and Local Government Areas*) - *Population Statistics, Charts and Map*, www.citypopulation.de/php/nigeria-admin.php.

b. *The quality of regional planning:*

Regional planning, checking the quality of soil, understanding where animals naturally inhabit in hopes of not throwing off the ecological balance of rural areas¹⁶, etc., are all important in surveying possible transmigration destinations and much of this will be jumpstarted with the simple aspects of the One Health initiative. At the behest of the national government, it is often easy to overlook and underprepare for the drastic needs that some areas will need in order for people to live there. Understanding the growing unavailability of land, controlling for cultural barriers instigated by the move, and knowing how to economically integrate that new area to the overall Nigerian economy requires tedious and collectivized well-nuanced thought before any movements take place. By controlling for potential ecological and infrastructural damage to the area, a successful policy might ensue, however many of the plans of the program are a function of whether an area is stable enough to reside in. Functioning under the auspices of both regional planning and coordination, if many departments do not cede authority and come together as one focused community, then the program could easily become undermined. Using Indonesia as an example, they had difficulty in relocating and setting up labor models of trans migrant fields. The Water Resource Department and Transmigration Department had differing philosophies in regard to the setup of these fields. Nonpartisan rhetoric and lack of collective planning led to many fields being uncultivated and many of its inhabitants without a source of income for a period of time.

¹⁶ Ibid

c. *Transmigration Security and Oversight:*

It is important to consider what security risks are imposed in that area. By understanding the location, intentions, and current objectives of paramilitary groups, we can avoid hostile territory, as well as issue military and protectionist aid for any future problems. Nigeria has a number of anti-coalition militia groups, the most notable being Boko Haram¹⁷. Earning their notoriety from mass murders, kidnapping, and burning villages (all under the allegiance of the Islamic State), understanding this group's whereabouts and current activities would forestall moving into dangerous areas. Boko Haram has expanded from Nigeria's northeastern Borno State to now having access to a 900-mile breadth of northern Nigeria¹⁸. When planning on moving to specific northern areas such as Sokoto (a strategic state and Nigeria's highest Islamic authority), we must also think about military provisions and investing in the security of villages or people would fear to move causing our program to never acquiesce. This highlights the

V. Conclusion

To reiterate the exploration of The Indonesian Transmigration Program, uprooting a large swath of society could be extremely challenging and unethical, especially when considering the cultural and ethnic dynamics of Nigerian society. Inability to move can vary from cultural ties to a land, health concerns for the elderly, and most notably, economic upheavals “How can the effective policies incentivize individuals living in densely populated areas to, in turn, move to less densely populated areas such as Sokoto, Kebbi, Akwa Ibom, Taraba, and Jigawa?” In a highlight

¹⁷Van Der Wijst, T. (1985). Transmigration in Indonesia: An Evaluation of a Population Redistribution Policy. *Population Research and Policy Review*, 4(1), 1-30.

¹⁸ Zenn, Jacob. “Boko Haram's Dangerous Expansion into Northwest Nigeria.” *Combating Terrorism Center at West Point*, 16 Nov. 2017, ctc.usma.edu/boko-harams-dangerous-expansion-into-northwest-nigeria/.

of the nation's infrastructure, one will find that these states struggle. Going forward, we plan to utilize private enterprise and a dividend reinvestment plan for the country of Nigeria to distribute the gains from exports and this would be captured within improving economic development within these rural regions (most notably Agriculture, Crude Oil, and Manufacturing)¹⁹. Nigeria has a trade surplus with the majority of its largest trading partners. Using most of that money to fund and adequately provide for rural development decreases the risk of zoonotic disease due to rural-urban migration, but also spreads the concentration of economic innovation to more parts of the country, therefore decreasing the chances of an economic bottleneck. Nigeria has a very young and entrepreneurial population with another 50% of its population being under 25 years old. Using dividends from private companies and export profits to fund the movement of a focused, young talented group will increase the possibility of future growth and aid in the decline of poverty within those rural areas through a policy focus in rural infrastructural development.

¹⁹ Ekundare, R. (1972). The Political Economy of Private Investment in Nigeria. *The Journal of Modern African Studies*, 10(1), 37-56. Retrieved July 23, 2020, from www.jstor.org/stable/159820



Nigeria Conflict Map: Assault on Boko Haram, Political Geography Now, 2013.

<https://www.polgeonow.com/2013/05/nigeria-conflict-map-boko-haram.html>

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