Journal of the Martin Institute | International Studies

University of Idaho

Volume 13, Issue 1
December 2021

Journal of the
MARTIN INSTITUTE
INTERNATIONAL STUDIES
Volume 13, Issue 1

Letter from the Editors

The Martin Institute was founded at the University of Idaho in 1979 to provide a space for understanding war and peace through exploration of international topics, negotiations, and organizations. Since its establishment, the Martin Institute has sought to create a welcoming environment for students, faculty, staff, alumni, and guests to engage with one another on both formal and informal bases to further our collective knowledge of global interactions and peaceful negotiations.

The Martin Institute has established itself on campus as the gold standard for how departments should engage with their students. Through constant collaboration and discussion, the Martin Institute with its unique space and degree program successfully creates prepared, motivated, and hard-working individuals to go forth into the field of international affairs.

There are many foundational experiences provided by the Martin Institute that allow students to develop their expertise on international topics. From participating in the National Model United Nations Conference in New York City to gaining firsthand knowledge about internationally focused non-governmental organizations based right here in the Pacific Northwest, the Martin Institute provides an array of opportunities for its students.

One such opportunity is to write a Senior Capstone White Paper with the opportunity to have it published in the Martin Journal. The publication began in 2009 to recognize outstanding achievement within the student population of the Martin Institute. The Journal of the Martin Institute is a way for students and faculty to share ideas, knowledge, and research within the field.

This year, we are pleased to present several Senior Capstone White Papers. The selection process was difficult. Many papers were submitted, all of which were high quality, well-researched submissions. However, the few we have decided to include in this year's journal offer insight into highly unique, pressing issues. We hope submissions included in this edition of the Martin Journal will spark further discussion and exploration of these topics. A policy paper written as part of the Martin Scholars Research Program is also featured.

We would like to thank all the students of the 2021 Capstone class who submitted articles for consideration. Your hard work did not go unnoticed, and it was our utmost pleasure to review and learn from you all. Thank you for your dedication to the promotion of global affairs through the Martin Institute.

Stella Davidson-Musser

Ellen Yenne

It now becomes necessary for us to put our major global problems into a socially relevant global framework.

Our world has become too complex, too interdependent, to answer these questions by simplistic answers.

These problems call for creative thinking...

– Boyd A. Martin, founder of the Martin Institute and namesake of the Martin School, at the Institute's inauguration, 1980

2021
Journal of the Martin Institute
International Studies

Table of Contents

Weathering Malaria in Africa: Controlling the Effects of Extreme Weather Events

– Emma Carscallen

I. EXECUTIVE SUMMARY

Malaria remains one of the most pressing issues in Africa—affecting health, the economy, and development. Despite improved funding and technologies like indoor residual spraying and insecticide-treated net distribution, progress has stagnated. Efforts to combat malaria in Africa have achieved considerable success in dollars donated, but the disease remains a significant burden to endemic countries in Sub-Saharan Africa. Challenges like increased migration, drug-resistance, the emergence of a global pandemic, and climate change have been mounting, and action is needed to address these rising challenges to malaria eradication. This paper proposes solutions that use the interaction between hydrological conditions, environmental factors, and vector population dynamics to predict and control malaria outbreaks. Solutions explored include Malaria Early Warning Systems software development, phytochemical larvicides for use in direct vector control, and improved water infrastructure. Creating a software program that can be utilized throughout Sub-Saharan Africa will inform more targeted strategies that will lead to reductions in major malaria epidemics in Sub-Saharan Africa.

II. OVERVIEW/BACKGROUND

Diseases have a long history of impeding development. Despite recent technological and scientific advancements, diseases are still a major stumbling block for developing countries. Many diseases are directly affected by variations in the climate and weather patterns. In health and development work, it is necessary to recognize these relationships and include them in the decision-making process. History provides obvious examples of extreme weather events (EWE's) often preceding major epidemics. Both European plagues followed unusually extreme weather and the 2010 flooding in Pakistan caused respiratory infections, diarrhea, and malaria.[1] Additionally, the aftermath of hurricane Katrina led to many different infections and recurring epidemics follow the extreme weather events influenced by El Niño and La Niña phenomena.[2]

Vector-borne diseases in particular are heavily impacted by EWE's and mosquitoes are the most popular vectors that transmit diseases to humans. Vector *Anopheles* mosquito populations rely on certain weather conditions—standing water presence (both drought *and* rainfall can provide conditions for this), humidity, and temperature—for successful reproduction. Malaria continues to be a major issue in Africa due to a combination of environmental factors and lack of institutions to prevent widespread epidemics of the pathogen. The explosiveness of malaria outbreaks "can strain the capacity of health facilities, causing case fatality rates to increase five-fold or more during outbreaks."[3]

On the continent of Africa, malaria conditions are optimal in countries nearest the equator (Figure 1). Indeed, "the current distribution of predicted endemic (10–12 months) transmission suitability for malaria is concentrated in the Central African region, with additional areas along the southern coast of Western Africa, and along the eastern coast of Eastern Africa, and in the north of Madagascar."[4]

In addition to endemic transmission, "seasonal transmission (7–9 months of the year) suitability is predicted to occur along a band through Western and Eastern Africa, south of the areas too arid for mosquito life cycles, and in parts of Southern Africa, particularly through Mozambique."[5] Reducing the effects of Malaria in both endemic and seasonal regions will forge the path to a malaria-free world. Africa is host to the vast majority of global malaria cases, tallying 93% of malaria numbers in 2018.[6] Climate change will only increase the available area for *Anopheles* reproduction and the number of human populations at risk. Climate-induced warming of our planet will increase the endemic and seasonal habitats for the malaria vector, causing disease-vector range to, "not only increase in latitude but also in altitude."[7]

This policy paper recognizes and builds on efforts and goals laid forth by the World Health Organization (WHO) Global Technical Strategy and Targets for Malaria 2016–2030.[8] Targeting malaria in this region addresses Target 3 of the United Nations Sustainable Development Goals which aims to "end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases"

1 Anthony J McMichael, "Extreme Weather Events and Infectious Disease Outbreaks," *Virulence* 6, no. 6 (July 13, 2015): 543–47, https://doi.org/10.4161/21505594.2014.975022.

2 McMichael.

3 Anthony E. Kiszewski and Awash Teklehaimanot, "A REVIEW OF THE CLINICAL AND EPIDEMIOLOGIC BURDENS OF EPIDEMIC MALARIA," *The American Journal of Tropical Medicine and Hygiene* 71, no. 2 (August 1, 2004): 128–35, https://doi.org/10.4269/ajtmh.2004.71.128.

4 Sadie J. Ryan, Catherine A. Lippi, and Fernanda Zermoglio, "Shifting Transmission Risk for Malaria in Africa with Climate Change: A Framework for Planning and Intervention," Malaria Journal 19, no. 1 (May 1, 2020): 170, https://doi.org/10.1186/s12936-020-03224-6.

5 Ryan, Lippi, and Zermoglio.

6 University of Leeds, "New Malaria Transmission Patterns Emerge in Africa," ScienceDaily, August 28, 2020, https://www.sciencedaily.com/releases/2020/08/200828081030.htm.

7 Toqeer Ahmed et al., "Climatic Conditions: Conventional and Nanotechnology-Based Methods for the Control of Mosquito Vectors Causing Human Health Issues," *International Journal of Environmental Research and Public Health* 16, no. 17 (September 2019), https://doi.org/10.3390/ijerph16173165.

8 World Health Organization, "Global Technical Strategy and Targets for Malaria 2016-2020" (2015), https://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_R2-en.pdf.

by 2030.[9] To achieve these lofty goals in the endemic regions of Sub-Saharan Africa, solutions will need to be quick and effective.

Malaria is most problematic in sub-tropical regions. As a vector-borne disease, policies that address its spread must also address the dynamics of vector populations. Malarial diseases still ravage the people and economy of African countries and further development in Africa will come slowly without confronting diseases like malaria and HIV head-on. For malaria in particular, there are many different methods of prevention, treatment, and prediction.

Most malaria interventions in response to weather-induced outbreaks in the most affected African countries are disjointed. Emerging systems for the prediction of mosquito population fluctuations need to be available and implementable across Sub-Saharan Africa. To improve coordination of malaria response, in 2018 the African Union endorsed the "Zero Malaria Starts with Me" campaign.[10] This effort calls for more funding, inter-governmental collaboration, and targets grassroots organizations to work toward zero malaria cases in countries that are close to eradicating the disease. The "high burden high impact" targeted response for countries that experience the highest rates of malaria is an effort that challenges politicians to take action to back up their commitments, improve data availability, create better policies, and coordinate actions across borders.[11] In addition to support from the WHO and regional and local governments, support from the international community manifests in organizations like the Global Fund—a multilateral organization funded by donations from states and private institutions like the Gates Foundation.[12]

Efforts to combat malaria and other devastating diseases in Africa have achieved considerable success in dollars donated, but malaria remains a significant burden to endemic countries in Sub-Saharan Africa. Advances in malaria treatment and prevention have slowed in the past 5 years, and the WHO World Malaria Report for 2018 estimated 218 million malaria cases—mostly in Sub-Saharan Africa.[13] Children under 5 are the most vulnerable group, accounting for 67% of malaria deaths worldwide in 2019.[14] It is obvious that urgent action is needed, and solutions must meet WHO's 2030 goals.

If malaria vector populations and densities and resultant epidemics are so influenced by weather patterns and water conditions, how might we better prepare for and mitigate EWE effects on malaria? A global effort will be needed to address rising challenges to African health systems and malaria eradication like climate change, the Coronavirus pandemic, and new disease vectors like the urban-based Asian mosquito.[15]

III. DISCUSSION OF POLICY OPTIONS

Policy Option One:

Maintenance of status quo, no new policy action

The systems in place today to reduce the effects of malaria in Sub-Saharan Africa have achieved some success. Major international financial organizations like the Global Fund (GF) have been continuously bolstered by major donors. In 2020, the GF awarded a record US $8.54

9 United Nations, "Sustainable Development Goal 3," § Target 3-end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases, accessed December 6, 2020, https://sdgs.un.org/goals/goal3.

10 Press Release, African Union, April 25, 2019, https://au.int/en/pressreleases/20190425/world-malaria-day-zero-malaria-starts-me.

11 World Health Organization, "Fact Sheet about Malaria," World Health Organization, November 30, 2020, https://www.who.int/news-room/fact-sheets/detail/malaria.

12 Paul Farmer et al., eds., *Reimagining Global Health: An Introduction*, California Series in Public Anthropology, v. 26 (Berkeley: University of California Press, 2013).

13 World Health Organization, *World Malaria Report 2018* (Geneva: WORLD HEALTH ORGANIZATION, 2018).

14 World Health Organization, "Fact Sheet about Malaria."

15 M. E. Sinka et al., "A New Malaria Vector in Africa: Predicting the Expansion Range of Anopheles Stephensi and Identifying the Urban Populations at Risk," Proceedings of the National Academy of Sciences 117, no. 40 (October 6, 2020): 24900–908, https://doi.org/10.1073/pnas.2003976117.

billion directly to countries to fight HIV, malaria, and TB.[16] In the early 2010's advances in bed net distribution, treatment, and vector spraying helped reduce the number of infections but data gathered in WHO's annual World Malaria Reports for 2016, 2017, and 2018 indicate that starting in 2016 progress on malaria eradication stalled.[17] The African Union has started campaigns like the previously mentioned "Zero Malaria Starts with Me" campaign advocating for increased funding and collaboration from nations and non-profits toward malaria eradication on the continent, but significant success from this effort remains to be observed.

Though there have been measurable successes in the international arena in funding and research to combat malaria, challenges like increased migration, drug-resistance, the emergence of a global pandemic, and climate change have been mounting, negatively affecting the ability of these countries to roll out effective programs. The novel coronavirus has negatively affected the already fragile health systems in many countries.[18] During the Spring 2020 coronavirus scare and subsequent lockdowns around the world, insecticide-treated net (ITN) and indoor residual spraying (IRS) campaign cycles were temporarily suspended by some countries concerned about exposure to COVID-19.[19]

Many on-ground intervention and prevention systems lack coordinated and transnational data infrastructure. There are data routinely collected that can be used to improve current anti-malaria policies—like the weather data broadly available to countries through the World Meteorological Organization (WMO)—but there is no coordinated approach to ensure utilization and coordination across borders. Despite this lack of broad coordination, there have been isolated programs that work to incorporate meteorological end epidemiological data into responses to epidemics in countries like Ethiopia and Kenya. The EPIDEMIA information system in Ethiopia is currently being tested and improved in the Amhara region,[20] but no work has been conducted thus far to expedite the improvement process so that the program can be implemented on a larger scale.

Policy Option Two:

Broad implementation of Malaria Early Warning Systems

Weather—specifically, the presence of water—drives population growth in *Anopheles* mosquitoes. Information systems that track and analyze weather patterns and predict locations of future outbreaks could be immensely beneficial in the fight against malaria. There are many different systems for predicting and modeling mosquito population changes, but many countries in Sub-Saharan Africa do not have adequate surveillance systems to attain the data needed to make informed decisions about epidemic deterrence.[21] There have been prediction and prevention success in Kenya and Ethiopia, but a widespread campaign is needed to reverse stagnation in malaria eradication.

Integrating meteorological and epidemiologic data to inform targeted initiatives to quell epidemics early may prove integral to making headway toward a malaria-free Africa. Something similar to the EPIDEMIA information system could provide a solution.[22] By tracking and integrating GIS, meteorological, and public health data, the marriage of weather modelling and epidemiology may help to decrease malaria at the infection source. A successful Malaria Early Warning System (MEWS) would provide

16 "Global Fund Signs a Record-Breaking $8.54 Billion in Grants to Fight HIV, TB and Malaria," The Global Fund, January 12, 2021, /en/news/2021-01-12-global-fund-signs-a-record-breaking-usd8-54-billion-in-grants-to-fight-hiv-tb-and-malaria/.

17 World Health Organization, *World Malaria Report 2018*.

18 "The Potential Impact of Health Service Disruptions on the Burden of Malaria" (Geneva: World Health Organization, April 23, 2020), https://www.who.int/publications-detail-redirect/9789240004641.

19 "Malaria and COVID-19 Q&A," World Health Organization, August 25, 2020, https://www.who.int/news-room/q-a-detail/coronavirus-disease-covid-19-malaria-and-covid-19.

20 Michael Wimberly et al., "EPIDEMIA - An EcoHealth Informatics System for Integrated Forecasting of Malaria Epidemics," vol. 13, 2014, https://doi.org/10.1186/1475-2875-13-S1-P92.

21 World Health Organization, "Fact Sheet about Malaria."

22 "Climate Services for Health: Improving Public Health Decision-Making in a New Climate" (Geneva: World Health Organization and World Meteorological Organization, 2016), http://ane4bf-datap1.s3-eu-west-1.amazonaws.com/wmocms/s3fs-public/ckeditor/files/WHO-WMO_Climate_Services_for_Health.pdf?zWclQxQElu4ame2wAx0RTdAVocWVYBGH.

important data with enough lead time to render the data gleaned useful and subsequent actions effective. A MEWS would need to integrate the seasonal differences between countries in its predictions. For example, in Botswana researchers achieved a four-month lead time by "using seasonal climate forecast data to predict probabilities of high and low malaria incidences with high precision."[23] Essentially, the lead time of this system can help to "launch geographically focused cost-effective proactive interventions."[24]

Broad implementation of technological infrastructure, clear training for local public health authorities, and integration of local hydrological processes is crucial to the success of this type of program.[25] As data infrastructures continue to be implemented across Sub-Saharan Africa, this program "needs to be carried out in a hierarchical multi-scale environment, starting from identification of macro endemic zone for surveillance" and ending with "final implementation at household scale."[26]

To achieve these multi-national and regional goals, the WHO and the WMO would need to appoint and authorize a new task force to develop and test this new information system and provide technical and on-the-ground assistance to countries in the endemic malaria regions of Sub-Saharan Africa. Taking into account the effects of EWE's on Anophele populations and providing this data to public health programs will advance the fight against malaria epidemics, renewing previous successes and furthering the global goal of eradication by 2030.

Policy Option Three:

Vector control

A proven and enduring method for malaria prevention is the control of vector reproduction. Most Sub-Saharan African countries currently use this method in the form of ITN and IRS. The timing and quality of program implementation are important factors in the success of this approach because using vector control intervention at the beginning of an outbreak and with +85% coverage of the region at risk is most effective.[27] This policy recommendation advocates for strategic vector initiatives that recognize the importance of water in the life cycle of *Anopheles* mosquitoes.

Plant-extract based larvicides are recommended for broad reproductive control programs because these substances are significantly more complex than their synthetic counterparts, reducing resistance development in mosquito populations.[28] Terpene compounds—found in essential oils[29]—have been studied and proven effective in insecticidal roles, though at this time more research is needed to study effectiveness in malaria vector settings.[30] These phytochemicals produced by plants disrupt important cellular functions of the mosquito vector. Implementing a phytochemical larvicide in a larval source management (LSM) program to target *Anopheles* breeding may provide an economically and ecologically friendly alternative to current synthetic chemicals.

Though eco-friendly and effective nanoparticles can be used for vector control solutions, the technology and research need to improve before

23 Maquins Odhiambo Sewe, "Towards Climate Based Early Warning and Response Systems for Malaria" (Umeå, Umeå Universiteit, Dept. of Public Health and Clinical Medicine, 2017).

24 Umeå universitet, "Malaria Control Efforts Can Benefit from Forecasting Using Satellites," ScienceDaily, February 17, 2017, https://www.sciencedaily.com/releases/2017/02/170207104238.htm.

25 M. W. Smith et al., "Incorporating Hydrology into Climate Suitability Models Changes Projections of Malaria Transmission in Africa," *Nature Communications* 11, no. 1 (August 28, 2020): 4353, https://doi.org/10.1038/s41467-020-18239-5.

26 Prashant Goswami et al., "A Model of Malaria Epidemiology Involving Weather, Exposure and Transmission Applied to North East India," PLOS ONE 7, no. 11 (November 27, 2012): e49713, https://doi.org/10.1371/journal.pone.0049713.

27 Sewe, "Towards Climate Based Early Warning and Response Systems for Malaria."

28 Ahmed et al., "Climatic Conditions."

29 Jane Buckle, "Chapter 3 - Basic Plant Taxonomy, Basic Essential Oil Chemistry, Extraction, Biosynthesis, and Analysis," in *Clinical Aromatherapy (Third Edition)*, ed. Jane Buckle (St. Louis: Churchill Livingstone, 2015), 37–72, https://doi.org/10.1016/B978-0-7020-5440-2.00003-6.

30 José S. Dambolena et al., "Terpenes: Natural Products for Controlling Insects of Importance to Human Health—A Structure-Activity Relationship Study," *Psyche: A Journal of Entomology* 2016 (September 20, 2016): 17, https://doi.org/10.1155/2016/4595823.

broad-base utilization can be accomplished. According to Ahmed et. al., "for an effective vector control approach, appropriate formulations of botanical-based insecticides need to be improved in terms of their persistence."[31] This recommendation advocates increased funding for research toward the development of economical phytochemical compounds to be used in LSM programs in the malaria endemic regions of Africa. Once an adequate product has been developed, implementation planning could integrate direct vector control with environmental hydrological data and weather pattern information to accomplish broadscale *Anopheles* mosquito control in key breeding hot spots.

Policy Option Four:

Water and infrastructure

The life cycle of malaria-carrying vectors is heavily dependent on the hydrology of the area and the presence of stagnant bodies of water. Floods and droughts can create these conditions, with the latter forcing citizens to keep their water supplies in large containers—a perfect breeding ground for mosquitoes. The construction of large dams in Sub-Saharan Africa has also put 3.1 million people at risk of malaria.[32] The susceptible populations are most affected by the stagnant water held behind dams in unstable seasonal transmission regions like Ethiopia, Kenya, Zimbabwe, and Ghana.[33] A variety of water infrastructure failures like the water held by large dams, clogged drainage systems, and unimproved household water stores can lead to increased vector populations.

In order to mitigate the effects of these ideal breeding habitats, improved water and closed system programs are recommended to deter *Anopheles* breeding.[34] This policy option requires grants from WHO and the Global Fund to improve drainage systems and water sanitation with the help and buy-in of local governments. These efforts will not only reduce malarial infections but also decrease

the number of infections of other vector-borne diseases like lymphatic filariasis and dengue.[35]

Projects will have local input and be unique to the established infrastructure of the region and address the most pressing needs of the populous. Some projects may address dam level management practices[36] while others might improve sanitation through flush-toilet and protected and piped water.[37] This has the potential to reduce malaria in areas with improved water infrastructure and improve the socioeconomic status and overall health of the community. Flexibility in project type as well as information diffusion will be important to the success of this policy. To ensure success, WHO will provide project-specific training to provide technological assistance and establish good health practices for recipients.

IV. POLICY RECOMMENDATION

This paper recommends the implementation of recommendation two: implementation of weather prediction systems. This policy will assist in predicting epidemics and thus inform local public health departments in their prevention of and preparation for malaria outbreaks.

31 Ahmed et al., "Climatic Conditions."

32 Jennifer Keiser et al., "Effect of Irrigation and Large Dams on the Burden of Malaria on a Global and Regional Scale," The American Journal of Tropical Medicine and Hygiene 72, no. 4 (April 2005): 392–406.

33 Solomon Kibret et al., "Malaria Impact of Large Dams in Sub-Saharan Africa: Maps, Estimates and Predictions," *Malaria Journal* 14, no. 1 (September 4, 2015): 339, https://doi.org/10.1186/s12936-015-0873-2.

34 Dan Yang et al., "Drinking Water and Sanitation Conditions Are Associated with the Risk of Malaria among Children under Five Years Old in Sub-Saharan Africa: A Logistic Regression Model Analysis of National Survey Data," *Journal of Advanced Research* 21 (September 6, 2019): 1–13, https://doi.org/10.1016/j.jare.2019.09.001.

35 Fabrizio Tediosi et al., "Chapter 13: Malaria Control," in *Major Infectious Diseases*, ed. King K. Holmes et al., 3rd ed., vol. 6 (Washington (DC): The World Bank, 2017), https://doi.org/10.1596/978-1-4648-0524-0.

36 Solomon Kibret et al., "Modeling Reservoir Management for Malaria Control in Ethiopia," *Scientific Reports* 9, no. 1 (December 2, 2019): 18075, https://doi.org/10.1038/s41598-019-54536-w.

37 Yang et al., "Drinking Water and Sanitation Conditions Are Associated with the Risk of Malaria among Children under Five Years Old in Sub-Saharan Africa."

The Malaria Early Warning Systems solution will be implemented in addition to the maintenance of the status quo because current efforts need to continue being funded and implemented. On their own, though, current anti-malaria programs are not sufficient as stated previously. Creating a comprehensive weather prediction system is the recommended solution because implementation will be quicker than programs to research and then implement plant-based larvicides as vector control, which would require more research and development before widespread application. Additionally, the relationship between phytochemical solutions and durable vector-control is not very well documented and it would be challenging to gain political support and funding for this particular solution.

Solution two will also be easier and cheaper to implement than evaluating and installing better water infrastructure and water practices because the latter requires more monetary and temporal investment. Though this solution would improve general health standards, there are serious barriers to the longevity of success because of the required infrastructure upkeep and governmental investment in the project. Additionally, as this solution is more decentralized, there is a larger chance of ineffective implementation and a lack of contiguity across regions and borders.

Importantly, solution two already has history of development in the African context. The MEWS forecasting approach could also be "especially useful in low resource settings where data on weather conditions are limited or nonexistent" because access to satellite data can also be utilized to generate epidemic forecasts.[38] By implementing successful MEWS systems, there will be further integration of public health programs in neighboring African countries—which may lead to better knowledge and resource sharing on its own. Knowledge gained from this approach can also be applied to reduce other vector-based diseases like Dengue, Lyme disease, and West Nile virus.[39]

It will be important to ensure that from the MEWS vector-control and other malaria-reducing efforts occur "at the front end of an epidemic…during amplification" because this information is "far more valuable than control efforts attempted after the epidemic has peaked."[40] A MEWS will need to be effective not only during normal meteorological events, but also during EWEs when populations are moving and living in conditions that expedite disease spread. In a study using temperatures and hydrological data in New York and Connecticut to predict West Nile Virus prevalence, a similar system showed that "the model predictions were very good when extreme climate conditions were encountered."[41]

The cost of ensuring reliable hydrological and infection case data may be prohibitive in countries that are already lacking that infrastructure. Therefore, to ensure the effectiveness of the MEWS, additional funds may be necessary for countries to establish data-collection programs. In the meantime, the system may need to rely more heavily on satellite data until data-collection infrastructure is established. Nevertheless, a MEWS will inform more targeted malaria reduction strategies that may lead to reductions in major malaria epidemics in Sub-Saharan Africa.

38 Umeå universitet, "Malaria Control Efforts Can Benefit from Forecasting Using Satellites."

39 "Vector-Borne Diseases," European Centre for Disease Prevention and Control, accessed February 14, 2021, https://www.ecdc.europa.eu/en/climate-change/climate-change-europe/vector-borne-diseases.

40 Jeffrey Shaman and Jonathan F. Day, "Achieving Operational Hydrologic Monitoring of Mosquitoborne Disease," Emerging Infectious Diseases 11, no. 9 (September 2005): 1343–50, https://doi.org/10.3201/eid1109.050340.

41 Alexander C. Keyel et al., "Seasonal Temperatures and Hydrological Conditions Improve the Prediction of West Nile Virus Infection Rates in Culex Mosquitoes and Human Case Counts in New York and Connecticut," PLOS ONE 14, no. 6 (June 3, 2019): e0217854, https://doi.org/10.1371/journal.pone.0217854.

V. IMPLEMENTATION RECOMMENDATION

The MEWS will become a wide-reaching technology in the African context. The universities that assist in the finalization of the MEWS product will also provide technological assistance (such as Bahir Dar University in Ethiopia and South Dakota State University in the United States) for local health departments in the implementation and training process. The WHO and the Global Fund will provide grants in addition to current organizations that are supporting the EPIDEMIA framework like NASA, NIAID, and USAID for data collection infrastructure and for the continued development of the software to make it applicable and accessible across regions in Sub-Saharan Africa. Priority will first be given to countries in the Malaria-endemic regions. Reliable hydrological monitoring and the resulting data will be essential to the success of this program and a combination of top-down

(satellite imaging) and bottom-up (ground observation) information will be important.[42]

Scale considerations will need to be addressed. The MEWS will need to be able to integrate a wide variety of data and provide outputs that apply to a small enough area to ensure targeted actions and a large enough area to ensure effectiveness. This policy will also need to ensure relation between disease systems and hydrology in every context the MEWS system is used. In addition to these considerations, the weather system "must also be capable of being monitored and used with vectorborne disease intervention programs."[43] In short, the system will need to be user-friendly and valuable.

This solution will be implemented in addition to already-established anti-malaria tactics like IRS and ITS distribution efforts. It is vitally important that these proven prevention methods continue as their effectiveness has been thoroughly documented and any neglect of these programs will cause major resurgences of malaria.

Efforts to develop and implement a MEWS system will need to begin in earnest immediately. In the current Global Fund cycle (2020-2022) countries already implementing some type of MEWS will able to apply for increased funding for those initiatives. The African Union will create a committee to oversee the development of this program so as to centralize efforts across the continent and drive progress. Subsequently, local public health departments in conjunction with universities will develop the MEWS software to beta test in central African countries by 2022 and by 2024 the implementation and widespread distribution and training programs will be run by these same universities and the African Union.

There are important trade-offs to keep in mind that are necessary in this process. One such trade-off includes reallocating funds from other initiatives to find funding for the development of this policy. Additionally, progress on other research projects like phytochemical larvicides may stall because of investment in finalizing the MEWS system. Though implementation of this policy will impact progress in other areas, the proven relationship between EWEs and malaria vector development needs to be addressed.

To gain the necessary support for this policy, the WHO will endorse and assist in technical development for the MEWS program. The organization can then publish various materials establishing the extent of relation between hydrological conditions and EWEs to malaria epidemics and how a system like EPIDEMIA can help to incorporate data to predict hot spots. Throughout the process, organizations will need to work closely with African governments and local anti-malaria programs in the development of the MEWS system to ensure local buy-in and program sustainability.

To measure success of this project, clear metrics and goals must be established by the MEWS committee of the African Union. In the near future, the MEWS software will need to achieve adequate predicting confidence in a variety of environments. In the middle term, it will be necessary to acquire and apply feedback from local public health officials on the ease-of-use and reliability of system outputs.

42 Shaman and Day, "Achieving Operational Hydrologic Monitoring of Mosquitoborne Disease."

43 Shaman and Day.

To ensure progress toward the WHO targets for malaria and Target 3 of the UN Sustainable Development Goals, a MEWS system will be implemented across Sub-Saharan Africa. By using weather and environmental information, we will be able to better target malaria epicenters and use informed predictions with enough lead time to ensure epidemics do not occur in the first place. This policy will be an important tool in the weathering and eradication of malaria in the region that is most devastated by the disease.

APPENDICES

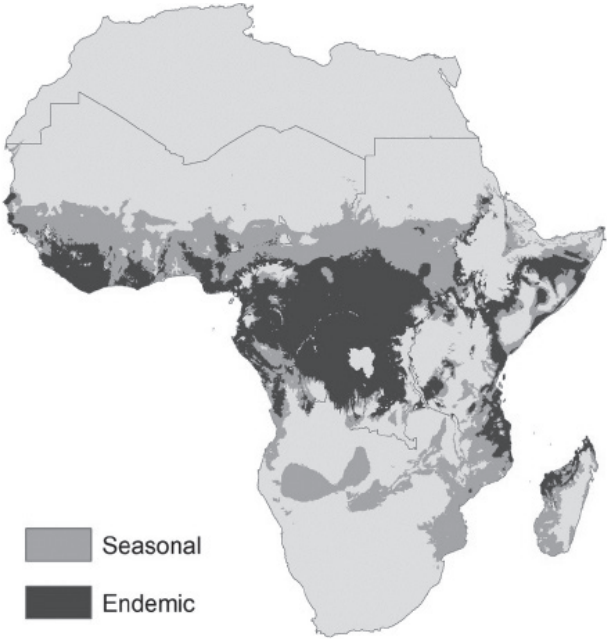


Figure 1: Modelled endemic (10-12 months) and seasonal (7-9 months) transmission suitability for malaria under current climate conditions. (Sadie J. Ryan, Catherine A. Lippe, And Fernanda Zermoglio, "Shifting Transmission risk for Malaria in Africa and Climate Change: A Framework for Planning and Intervention, " Malaria Journal 19, no. 1. May 1, 2020).

ADDITIONAL WORKS CONSULTED:

"The Potential Impact of Health Service Disruptions on the Burden of Malaria." Geneva: World Health Organization, April 23, 2020. https://www.who.int/publications-detail-redirect/9789240004641.

Drexler, Dr. A., ed. Handbook for Integrated Vector Management. Geneva: World Health Organization, 2012.

Eradicating Illegal Adoptions in China and South Korea

– Kailyn Eagy

ABSTRACT

The practice of adopting children illegally negatively affects the well-being of the adopted child, the birth parents, and the adoptive family. Over half a million children have been adopted within and from East Asia since the mid-1950s. Using data and information about adoption in the People's Republic of China and the Republic of Korea (South Korea), several potential solutions to eradicate illegal domestic and intercountry adoptions have been identified.

INTRODUCTION

The adoption of a child is a social, personal, and legal process in which a person (often a child under the age of 18) becomes a full and permanent member of a family who are not their full biological parents.[1] Adoptions can take place domestically or between two different states in an intercountry adoption.[2] China and South Korea are home to the most domestic and international Asian adoptions. Legislation such as China's One-Child Policy and events like the Korean War contributed to each respective country's adoption booms. Between 1953 and 2009 there were roughly over 156,000 documented international adoptions of South Korean children to 15 countries around the world - the vast majority (104,319 adoptions) to the United States.[3] In the same time frame, there were over 70,000 documented domestic adoptions in South Korea. Similarly, over 250,000 Chinese adoptions with international adoptive families have occurred since the 1990s. Through government and family planning encouragement, Chinese citizens now adopt 20,000 to 30,000 children each year,

1 "Introduction to Adoption - Child Welfare Information Gateway," accessed April 4, 2021, https://www.childwelfare.gov/topics/adoption/intro/.

2 "Intercountry Adoption," accessed April 4, 2021, https://travel.state.gov/content/travel/en/Intercountry-Adoption.html.

3 "Korean_adoptions.Pdf," accessed April 4, 2021, http://www.tobiashubinette.se/korean_adoptions.pdf.

which are record numbers for domestic Chinese adoptions.[4]

An adoption is considered illegal when a child's adoption papers are fraudulent, a child's abandonment papers are fraudulent, a child is kidnapped and brought to an orphanage for profit, or a child is given up for adoption by another family member without permission from the biological parents.[5] This discussion specifically focuses on the issue of exploitation for adoption purposes.[6] While there are few records of illegal adoptions, there have been several scandals that discovered single orphanages carrying out hundreds of illegal adoptions each year.[7] With each Chinese urban city having a social welfare institute (SWI) – formerly and popularly still referred to as "orphanages" – the number of undiscovered illegal adoptions is unfortunately immeasurable. Many illegal adoptions are only found to be illegal once the adoptee, often an adult by this time, actively chooses to investigate their own adoption and find it suspicious.[8,9]

The issue of illegal adoptions has received attention domestically and internationally in East Asia. The 2006 Chinese adoption scandal in Hunan province brought government and public attention to a decades-long existing problem in the country's social welfare system. South Korea's Special Adoption Act prioritizes finding domestically located permanent adoptive families for abandoned children.[10] Additionally, the Hague Convention on Protection of Children and Co-Operation in Respect of Intercountry Adoption aimed to further protect abandoned and exploited children, especially those who are adopted internationally.[11]

These efforts are important but lack complete acknowledgment of the complexities of domestic and intercountry adoptions. Some of the current efforts have had unforeseen consequences of worsening the domestic adoption culture. The proposed solutions in this study aim to reduce illegal adoptions by furthering the accountability, safety, and transparency of all domestic and international parties involved in a child's adoption.

DISCUSSION OF POTENTIAL SOLUTIONS

Solution 1:

Strengthen consequences for perpetrators of illegal adoptions

Those that are found guilty of abducting children or soliciting the abduction of children for a profit should be criminally punished. Individuals should receive appropriate punishments for their participation in child trafficking. For example, in China where crimes are often punishable with prolonged jail time, an individual caught trafficking children receives a minimum five-year prison sentence with the confiscation of property and political rights.[12] While individual punishment is important, this solution is not fool-proof on the individual

4 "China Intercountry Adoption Information," accessed April 4, 2021, https://travel.state.gov/content/travel/en/Intercountry-Adoption/Intercountry-Adoption-Country-Information/China.html.

5 "OHCHR | Illegal Adoptions," accessed April 4, 2021, https://www.ohchr.org/EN/Issues/Children/Pages/Illegaladoptions.aspx.

6 Taylor W. Brown and Jini Roby, "Exploitation of Intercountry Adoption: Toward Common Understanding and Action," *Adoption Quarterly* 19, no. 2 (April 2, 2016): 63–80, https://doi.org/10.1080/10926755.2015.1088107.

7 "Orphanage Director Stands Trial in China," NPR.org, accessed April 4, 2021, https://www.npr.org/templates/story/story.php?storyId=5230517.

8 Nicole Acevedo Nicole Acevedo is a reporter for NBC News Digital She reports et al., "A Painful Truth: Guatemalan Adoptees Learn They Were Fraudulently given Away," NBC News, accessed April 4, 2021, https://www.nbcnews.com/news/latino/painful-truth-guatemalan-adoptees-learn-they-were-fraudulently-given-away-n1095066.

9 John Leland, "For Adoptive Parents, Questions Without Answers," *The New York Times*, September 17, 2011, sec. New York, https://www.nytimes.com/2011/09/18/nyregion/chinas-adoption-scandal-sends-chills-through-families-in-united-states.html.

10 "SPECIAL ADOPTION ACT," n.d., 12.

11 "Understanding the Hague Convention," accessed April 4, 2021, https://travel.state.gov/content/travel/en/Intercountry-Adoption/Adoption-Process/understanding-the-hague-convention.html.

12 "China: Baby Traffickers Sentenced to Death | Global Legal Monitor," web page, October 7, 2010, //www.loc.gov/law/foreign-news/article/china-baby-traffickers-sentenced-to-death/.

level as child trafficking is already a punishable offense around the world, yet still occurs.[13]

If adoption-related child trafficking is discovered to be widespread in a singly guilty institute or orphanage, then the institution should be highly investigated by the country or an allotted third-party organization or shut down until legitimacy can be restored. A non-governmental organization (NGO) with experience over the global issue of preventing child trafficking is Save the Children. This NGO aims to protect children who are being trafficked by working with a country's local government to prevent future child trafficking.[14] Save the Children and other relevant NGOs provide a level of expertise, altruism, and resources that a local government may not be able to readily provide.[15] [16] It would be wise for countries such as China and South Korea to utilize NGOs to their advantage regarding illegal adoptions and child trafficking, even though NGOs cannot punish guilty people, they can aid countries in implementing effective measures to prevent illegal adoptions by child traffickers.

Solution 2:

Limit the scope of intercountry adoptions

Intercountry adoptions are common and poorly regulated. The lack of regulation and accountability makes it difficult for adoptees, adoptive families, and birth families to learn the truth about the child's abandonment and adoption abroad. Governments should designate local/provincial jurisdictions to prioritize and encourage children be fostered and adopted domestically. A domestic adoption closer ensures the child will maintain citizenship and proper documentation – a privilege intercountry adoptees are commonly not granted.[17] The Hague Convention, while working to strengthen adoption safety, indirectly led to the decline in intercountry adoptions.[18] At the strictest capacity, Romania completely stopped intercountry adoptions – now only allowing abandoned children to be adopted by families with Romanian citizenship if the child cannot be placed with a biological family member first.[19] This change is highly criticized by adoption groups in the European Union and the United States.[20]

Limiting the scope of international adoptions must still allow for their occurrence as the adoption and child welfare systems become overrun without the option of intercountry adoptions. Societies with high numbers of unadopted children are more likely to take any legal or illegal track to place these children. This is a common critique of South Korea's Special Adoption Act, which did not decrease the number of abandoned children or the need to have them adopted.[21] Prioritizing domestic adoptive families and limiting the number of international parties involved (especially private adoption agencies) will strengthen adoption regulation.

Solution 3:

Require one or both birth parents to be present when a child is placed for adoption

Children who are illegally placed for adoption are often done so without permission from

13 Lindsey King, "International Law and Human Trafficking," *HUMAN RIGHTS*, n.d., 16.

14 "Child Trafficking: What You Need to Know," Save the Children, accessed April 5, 2021, https://www.savethechildren.org/us/charity-stories/child-trafficking-awareness.

15 Christopher Gan, "An Assessment of the Role of Nongovernment Organizations in Combating Trafficking of Women and Children in Cambodia and Viet Nam," n.d., 23.

16 G R Howald et al., "Advantages and Challenges of Government, Non-Profit and for-Profit Approaches to Eradications: Leveraging Synergies by Working Together," n.d., 5.

17 "In Search of Self, Chinese Adoptees Find Shifting Identities," NBC News, accessed April 4, 2021, https://www.nbcnews.com/news/asian-america/search-self-chinese-adoptees-find-shifting-identities-n203906.

18 Irene Powell and Mark Montgomery, "International Adoptions Have Dropped 72 Percent since 2005 – Here's Why," The Conversation, accessed April 5, 2021, http://theconversation.com/international-adoptions-have-dropped-72-percent-since-2005-heres-why-91809.

19 Deutsche Welle (www.dw.com), "Romania Bans Foreign Adoptions | DW | 22.06.2004," DW.COM, accessed April 4, 2021, https://www.dw.com/en/romania-bans-foreign-adoptions/a-1243642.

20 "Romania's Ban on Intercountry Adoptions," CSCE, January 20, 2016, https://www.csce.gov/international-impact/press-and-media/statements/romanias-ban-intercountry-adoptions.

21 Sook Kim, "Abandoned Babies: The Backlash of South Korea's Special Adoption Act," *Washington International Law Journal* 24, no. 3 (June 1, 2015): 709.

their biological parents - meaning a child was abducted by a stranger or brought to an orphanage or institution by a family member wrongfully posing as the child's guardian. The process of giving a child up for adoption would be lengthened as different verification checks would be necessary. This could be accomplished through DNA testing, identifying evidence, or other methods that would verify a parent-child relationship. Requiring a biological parent present for the child's abandonment would help guarantee the child is not being unwillingly taken from their family. This recommendation does not ensure that child abandonments in public spaces would not increase rapidly. While a more intensive abandonment process, which could include a publicly posted finding ad[22], is beneficial for the child, it would likely be undesirable to the parents and families. Already being a deeply emotional and life-changing decision, a longer and more public process would likely further societal and personal shame. A prolonged process and deeper shame potentially further endanger the child in being quickly abandoned or trafficked.

Requiring both biological parents to be present potentially helps legal adoptions but hinders other forms for adoptions. If this were necessary during the Korean War, many mothers would have had increased struggle in placing their child for adoption as the fathers were often foreign military men who returned abroad.[23] Major events that shape adoption seldom allow for parents to place children for adoption in the safest and most agreed-upon manner.

Solution 4:

Create new or strengthen existing pathways for adopted children, adoptive parents, and birth parents to investigate their adoption

While intercountry adoptions are between states, it is common for adoptive parents to use private agencies in the receiving country. There is little accountability for private agencies as they are private businesses, which worsens as many of them are not long-lasting and close their doors without alerting families – leaving adoptive families with no direction and many documents and knowledge of a child's adoption lost.[24] Private adoption agencies must be able to maintain a connection with the families that used its services, turn over all documentation and knowledge on a child's adoption, or hand documents and information to a different institution to house, which would best be with a state-run agency. This would help prevent any information, especially concerning details, about a child's adoption from becoming permanently lost by having it housed in an institution with more longevity.

Oftentimes, adoptive parents are unaware of the fraudulent aspects of their child's adoption until an investigation or scandal alerts them of the truth.[25] For someone to become curious about the legalities of their adoption they must have all available knowledge possible. Increasing the reliance on state-run agencies, accountability of private adoption agencies, and strengthening pathways for adoptive parties to access adoption information will help inform of the scope of illegal adoptions.

Solution 5:

Routinely investigate adoption institutions and create a record of illegal adoptions

Illegal adoptions have been discovered by local authorities to be prevalent in specific institutions and orphanages.[26] Several SWIs in China, most notably in Hunan province, have had staff pay people to deliver orphaned children to the institute. It was then discovered that many of the children were not orphans or abandoned children, but rather abducted and

22 See Appendix A

23 "History of Adoption in Korea - KOREA ADOPTION SERVICES," accessed April 18, 2021, https://www.kadoption.or.kr/en/info/info_history.jsp.

24 Alan Judd and The Atlanta Journal-Constitution, "Adoption Agencies Break Rules, Escape Punishment," ajc, accessed April 18, 2021, https://www.ajc.com/news/local/adoption-agencies-break-rules-escape-punishment/rGSSItz0LmSl86nB0qNO3K/.

25 Elizabeth Larsen, "Did I Steal My Daughter?," *Mother Jones* (blog), accessed April 18, 2021, https://www.motherjones.com/politics/2007/10/did-i-steal-my-daughter-tribulations-global-adoption/.

26 Charlie Custer, "Kidnapped and Sold: Inside the Dark World of Child Trafficking in China," The Atlantic, July 25, 2013, https://www.theatlantic.com/china/archive/2013/07/kidnapped-and-sold-inside-the-dark-world-of-child-trafficking-in-china/278107/.

given to the SWI to turn a profit. Authorities are not immediately alerted as institution employees can be members of the trafficking rings. With forged and falsified documentation,

the abandonment is accepted as truth and the child is wrongfully placed for adoption.

China and South Korea should establish nationwide and district-level departments dedicated to the accountability of orphanages and other child welfare institutes involved with adoption. Additionally, the expertise and passion of NGOs and other investigative organizations such as INTERPOL to combat child trafficking is crucial in the international eradication of this issue. By having a government body or NGO consistently checking these institutions' accountability and legitimacy, a stronger record of all adoptions can be kept. This record would aid adoptees and their families learn more about their adoption when inquiring about it. Creating an international database of known illegal adoptions will help solidify the common causes and characteristics, similar to the International Child Sexual Exploitation database created by INTERPOL.[27] Countries with flawed adoption laws such as South Korea can benefit from expert NGO collaborations to be informed enough to reform current laws and prevent future failures.

Solution 6:

Address cultural taboos that perpetuate illegal adoption and child abandonment

Culturally across East Asia, it is incredibly shameful – and sometimes illegal - to abandon or give up a child for adoption, even if it is deemed as being the best decision for the family as a whole. Other common reasons for families to abandon their children are that the child is mixed race, the mother is unwed or a sex worker, or the child is physically or mentally handicapped. These are common cultural catalysts for parents or relatives, such as a child's grandparents, to give them up for adoption. Additionally, these taboos encourage the guardian's desire to rid of the child in any way possible – preferably quietly to avoid familial and community shame - often leading them to the hands of child traffickers.[28]

It is nearly impossible to significantly change cultural views overnight or even over several years. This recommendation's purpose is not to purposely alter the culture of East Asian countries to a non-Asian perspective, but rather to expand these views to include the well-being of the children that have been left behind by these harmful norms. Changes are beginning to be seen as domestic adoptions slowly rise, which have remained low due to the cultural dislike of raising children outside one's direct bloodline.[29]

Ideally, when people know better, they will do better. The inclusion of adoption education in sex education in school would educate young people on the different options available to them when they cannot take care of their child. This recommendation does not directly stop illegal adoptions but works to limit the number of children pushed into non-safe, untruthful adoptions.

RECOMMENDED COURSE OF ACTION

No single solution can eradicate illegal adoptions alone. Therefore, it is recommended for East Asia to implement multiple of the proposed solutions over time. The recommended solutions that should be prioritized are solutions 5 and 6, especially for domestic adoptions. The China Center for Children's Welfare and Adoption (CCCWA) should be the main designated body in China to increase adoption institution investigations and accountability.[30] Working with international groups such as INTERPOL, CCCWA will be able to strengthen their records and control over illegal adoptions

27 "International Child Sexual Exploitation Database," accessed April 18, 2021, https://www.interpol.int/en/Crimes/Crimes-against-children/International-Child-Sexual-Exploitation-database.

28 "In Korea, Adoptees Fight To Change Culture That Sent Them Overseas," NPR.org, accessed April 5, 2021, https://www.npr.org/sections/codeswitch/2014/09/09/346851939/in-korea-adoptees-fight-to-change-culture-that-sent-them-overseas.

29 Stacy N Burwell, "Child Abandonment and Adoption in South Korea: A Post-Korean War and Present-Day Analysis," n.d., 8.

30 "China Center for Children's Welfare and Adoption," accessed April 18, 2021, http://cccwaen.mca.gov.cn/.

and child trafficking. Similarly, South Korea should work towards partnerships with anti-crime organizations like INTERPOL to combat this issue. South Korea's state-run Korean Adoption Services agency should strengthen contributions to preserving known adoption documents to aid adoptees in learning about their own adoption.

Solution 6 is especially important for South Korea as the country's adoption boom is largely due to the cultural taboos of unwed mothers and mixed-race children and being a patrilineal society.[31][32] It is in the best interest of both the Chinese and South Korean governments to encourage domestic adoptions by deprioritizing the idea of children must be of one's own bloodline and male. Stigmas against young and unwed mothers and mixed-race children can attempt to be lowered by a top-down cultural approach. Decreasing the cultural presence of these stigmas encourages more families to consider adopting domestically. In both South Korea and China, sex education is almost non-existent in their public-school systems.[33][34] Increasing the existence and inclusivity of education of family-related topics, adoption education will be able to exist in the normal Chinese and South Korean curriculum.

Underground crime of any kind is extremely difficult to track and defeat, especially when the illegal activity involves families across borders and young children with extremely limited free will. To best combat the difficulties of illegal intercountry adoptions, it is recommended that countries prioritize and implement a combination of solutions 2 and 4. By limiting the scope of intercountry adoptions, there is a lesser frequency of illegal adoptions going abroad. Since international numbers of intercountry adoptions abroad have steadily decreased since the early 2000s, this is a solution that will not significantly hurt the current state of adoptions.[35] Limiting the existence of private adoption agencies as major actors will aid in adoption documentation and accountability. Encouraging state-run adoption agencies in the sending country working with other state-run adoption agencies in the receiving country lessens private adoption businesses' involvement and failures. By implementing solution 4 with solution 2, a solidified state-run record of all adoption activity will contribute to the knowledge of international illegal adoptions as mentioned in solution 5. A deeper understanding of adoption crimes will lead to forming the most suitable, effective, and educated policies to eradicate illegal adoption and protect families affected by this issue in China, South Korea, and elsewhere.

31 "The Value and Meaning of the Korean Family," Asia Society, accessed April 18, 2021, https://asiasociety.org/education/value-and-meaning-korean-family.

32 Xi Song, Cameron D. Campbell, and James Z. Lee, "Ancestry Matters: Patrilineage Growth and Extinction," *American Sociological Review* 80, no. 3 (June 2015): 574–602, https://doi.org/10.1177/0003122415576516.

33 "Time for Sex Education to Face Reality," koreatimes, October 23, 2018, http://www.koreatimes.co.kr/www/nation/2021/04/181_256991.html.

34 "'Shared Ignorance about Sex' in China Won't Change Any Time Soon," South China Morning Post, November 11, 2020, https://www.scmp.com/lifestyle/family-relationships/article/3109184/china-has-national-sexual-illiteracy-challenges-way.

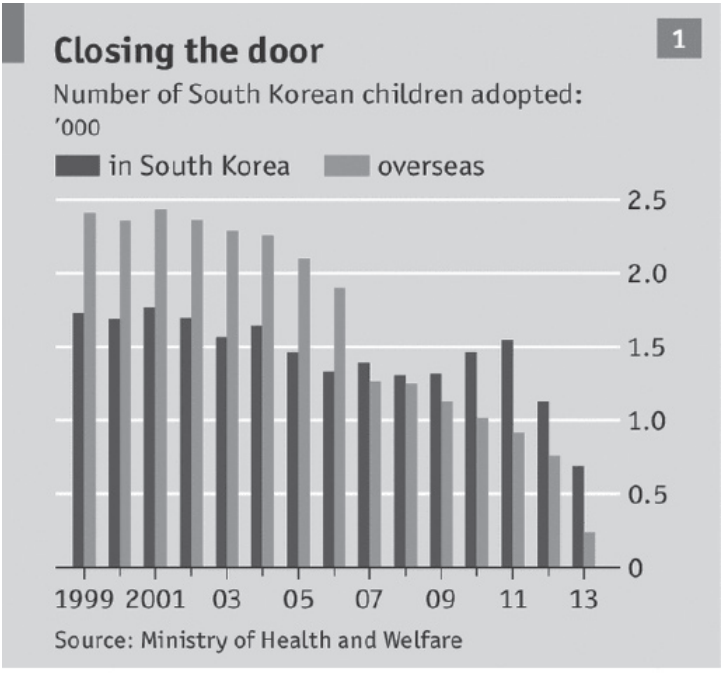
35 See Appendix B.

APPENDIX

A. Finding ad example from a Chinese newspaper.

Stuy, Brian. “Finding Ads”. Research China. 05 April, 2021. https://research-china.org/findingads/index.htm

B. Decrease in South Korean adoption since 1999



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Europe's Role in Protecting the Egyptian Vulture

– Nick Schofield

ABSTRACT:

Over the past three decades, the Egyptian vulture has steadily declined in population in Europe. Decline from predominately human-caused issues proved so dramatic that in 2007 the International Union for Conservation of Nature (IUCN) reclassified the species from Least Concern to Endangered. Given the Egyptian vulture is migratory, international efforts to alleviate the drop in population have proven difficult to accomplish. Key to fixing the issues are European communities and states, the European Union, civil society, and generally all states within the migratory path of the vulture. This paper reviews a broad set of potential solutions attempting to stabilize the Egyptian vulture on the European continent. They range from solutions that could be implemented on a local, state, supranational, and international level. This paper recommends the European Union (and Balkan States) ban diclofenac, construct and encourage energy infrastructure mindful of raptor species, and step up as an international advocate pressuring Middle East and North African (MENA) States and Africa to take similar actions.

OVERVIEW

The Egyptian vulture (*Neophron percnopterus*) has long served an important role across three continents as a carrion-feeder and hallmark of culture. Since the Pleistocene Era, Egyptian vultures have traveled long distances regardless of borders in their annual migration, which traditionally ranged from the British Isles and the European continent to winter in Africa, and from MENA to populations on the Indian subcontinent. The vultures are often recognized by their characteristic bright yellow faces and white plumage. Within Europe, Egyptian vultures now reside mostly in southern nations, predominantly Spain, Italy, and the Balkan States. As of the past twenty years, Egyptian vulture populations have drastically declined.[1] In India, the Egyptian vulture approached extinction in the early 21st Century, and across Europe and Africa populations have steadily declined for decades. The IUCN Red List reclassified the vulture species from Least Concern to Endangered in 2007, where it remains today.[2]

Threats to vulture populations are almost entirely human-caused issues. The foremost threats are intentional and secondhand poisonings. This includes intentional vulture poisoning, as well as vulture ingestion of lead tainted carrion, feral dog poisons, and non-steroidal anti-inflammatory drugs (NSAIDs) such as diclofenac. Other pressing issues to vultures are wind farms, old electrical infrastructure, illegal hunting and egg trading, habitat loss, and decreased access to food sources from changing carcass removal practices.[3] Given that Europe is the breeding grounds for migratory Egyptian vulture populations, it is absolutely necessary for the continent to address these issues to maintain and protect the species.

Regarding legal protections, the EU Birds Directive is the main supranational binding legislation in Europe meant to protect the continent's birds. Within the agreed upon legislation, Egyptian vultures are supposed to be protected from illegal hunting and wildlife trade, and additionally, in 2008 the species received Annex 1 migratory bird special protection area and a non-binding Species Action Plan framework.[4] The CMS Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia (Raptors MOU) crafted a subsequent non-binding action plan for vultures in 2017, the *Multi-species Action Plan to Conserve African-Eurasian Vultures* (*MsAP Vultures*) and then in 2020 published the *Vulture MsAP Strategic Implementation Plan*, a framework for implementing Raptors MOU's goals.[5]

Vultures serve an important ecological niche that saves states money and lives. By recycling carrion, vultures prevent the spread of new infectious diseases that result from festering carcasses, such as Ebola, anthrax, plague, and rabies.[6] Unfortunately, approximately 73% of the twenty-two vulture species are extinction prone.[7] Migratory species, like

1 "Egyptian Vulture Neophron Percnopterus," Text, BirdLife International, accessed in March 2021, http://datazone.birdlife.org/species/factsheet/egyptian-vulture-neophron-percnopterus/text.

2 "Extinction crisis escalates: Red List shows apes, corals, vultures, dolphins all in danger," IUCN, September 12, 2007, https://www.iucn.org/content/extinction-crisis-escalates-red-list-shows-apes-corals-vultures-dolphins-all-danger.

3 BirdLife International, "Egyptian Vulture Neophron Percnopterus."

4 European Commission, "The Birds," European Union, https://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm.
Given their status under Annex 1 of the 1978 Birds Directive, Egyptian vultures also receive conservation project and research funding through the LIFE Programme, the EU's funding mechanism for environmental policy.

5 A.J. Botha, Andevski, J., Bowden, C. G. R., Gudka, M., Safford, R. J., Tavares, J. and Williams, N. P., Multi-species Action Plan to Conserve African-Eurasian Vultures (Abu Dhabi: CMS Raptors MOU Technical Publication 2017), No. 5, CMS Technical Series No. 35, Coordinating Unit of the CMS Raptors MOU, https://www.cms.int/raptors/sites/default/files/publication/vulture-msap_e.pdf. MsAP Vultures annexed the important goals set in the 2015 Flyway Action Plan for the Conservation of the Balkan and Central Asian Populations of the Egyptian Vulture (EVFAP), a collaborated plan between the LIFE Programme and CMS-Raptors MOU.

6 C. Şekercioğlu, Daniel G. Wenny, Christopher J. Whelan, *Why birds matter: avian ecological function and ecosystem services* (Chicago: The University of Chicago Press, 2016), Chapter 8.

7 E. Buechley, Çağan Şekercioğluab, "The Avian Scavenger Crisis: Looming Extinctions, Trophic Cascades, and Loss of Critical Ecosystem Functions," *Biological Conservation,* Volume 198 (June 2016): 220-228, https://doi.org/10.1016/j.biocon.2016.04.001.

the Egyptian vulture, present an especially challenging prospect for environmentalists given the difficulty of protecting the species across borders, let alone continents. This paper serves to identify and recommend both internal solutions European states can take to protect Egyptian vulture populations and how Europe can protect bird populations abroad.

POSSIBLE SOLUTIONS

Solution One:

Vulture Restaurants in Domestic Waste Disposal Sites

With the movement of various European countries towards more sanitary practices, farmers are often no longer allowed to abandon carcasses. Furthermore, loss of habitat has deprived vultures of non-anthropogenic food sources. In a study by Helena Tauler-Ametller and Antonio Hernandez-Matias, professors of Biology at the University of Barcelona, it was concluded that landfills currently serve an important role in the territorial distribution of Egyptian vultures.[8] While some dangerous nutrients exist in these sites, such as rodenticides, heavy metals, and organochlorines, further studies have suggested that Egyptian vulture pairs that nest near domestic waste disposal sites have more well-nourished nestlings and can engender more regular brood sizes. Vultures also more often chose less busy dump sites where they are not disturbed by humans and can nest in surrounding areas. The only downside is that nestlings had lower levels of vitamins or carotenoids (the nutrient that gives Egyptian vultures their characteristic yellow faces).[9]

Thus, as a patchwork solution, European Countries could incorporate landfills as "vulture restaurants" with supplemental feeding stations. Implementing this solution could improve the survival rates of both adult pairs and immature individuals and conforms to the changing range and feeding habits of Egyptian vultures in Europe.

Solution Two:

Ban the Veterinary use of NSAIDs toxic to Vulture Species

In 2013, to the appall of vulture conservationists, the European Union approved diclofenac-containing medicines. This was a controversial decision, given that diclofenac is attributed as the primary cause of the drastic loss of vulture populations on the Indian sub-continent.[10] When old-world vulture species consume carcasses with even trace amounts of diclofenac, vultures die from kidney failure and visceral gout within days.[11] Subsequent studies found the banning of diclofenac slowed the population decline of vultures in India and Nepal.[12]

The European Union approved the drug for sale in five countries for veterinary usage, including Spain and Italy, which holds ninety percent of all European vultures.[13] An outright ban of the veterinary usage of diclofenac and other NSAIDs in the European Union proven toxic to vulture species would resolve this looming threat to Egyptian vulture populations. It is also important to note that well tested and vulture-safe alternatives to diclofenac exist. Meloxicam

8 Helena Tauler-Ametller, Antonio Hernández-Matías, Joan LL Pretus, and Joan Real, "Landfills Determine the Distribution of an Expanding Breeding Population of the Endangered Egyptian Vulture Neophron Percnopterus," (London, England) 159, no. 4 (2017): 757-68.

9 Helena Tauler-Ametlller, Joan, Antonio Hernández-Matías, Manuel E. Ortiz-Santaliestra, Rafael Mateo, and Joan Real, "Domestic Waste Disposal Sites Secure Food Availability but Diminish Plasma Antioxidants in Egyptian Vulture," *The Science of the Total Environment* 650, no. Pt 1 (2019): 1382-391, https://doi-org.uidaho.idm.oclc.org/10.1016/j.scitotenv.2018.09.069.

10 Rhys E Green, Ian Newton, Susanne Shultz, Andrew A. Cunningham, Martin Gilbert, Deborah J. Pain, and Vibhu Prakash, "Diclofenac Poisoning as a Cause of Vulture Population Declines across the Indian Subcontinent," *The Journal of Applied Ecology* 41, no. 5 (2004): 793-800, https://www.jstor.org/stable/3505796.

11 Rachel Becker, "Cattle Drug Threatens Thousands of Vultures," Nature, *International Journal of Science*, (April 2016), https://www.nature.com/news/cattle-drug-threatens-thousands-of-vultures-1.19839.

12 Vibhu Prakash, "The Population Decline of Gyps Vultures in India and Nepal Has Slowed since Veterinary Use of Diclofenac was Banned," *PloS One* 7, no. 11 (November 2012), https://doi.org/10.1371/journal.pone.0049118.

13 "EMA says veterinary diclofenac does pose a risk to European vultures, and suggests a number of solutions, including a ban of the drug – what next?" Vulture Conservation Foundation, last modified December 2014, https://www.4vultures.org/our-work/campaigning-to-ban-diclofenac-in-europe/.

is one vulture-safe (tested) veterinary NSAID that is already widely replacing diclofenac in India, and is used to treat cattle, pigs and horses.[14] The safest and most effective solution to ending secondhand vulture poisoning from NSAIDs is a ban on proven toxic medicines, rather than further regulating the usage of veterinary drugs like diclofenac.

Solution Three:

Plan Wind Farms Away from Vulture Migratory Routes

Like many of the risks to Egyptian vultures, wind farms represent a dire threat to long-lived raptor species. In many European countries, wind farms are subsidized as green forms of energy, and collision with the turbines is all too common. In Spain, where 25% of the vulture population has declined, a study by Martina Carrete conducted over four years between 2004 and 2008 found that turbines represent a strong threat to the survival of the Egyptian vulture. The study prospected territories every two weeks during breeding season to identify dead birds around turbines and success of birds in breeding. They found with proper wind farm planning, fatalities from collision could be decreased and extinction delayed for at least ten years. [15]

Wind farm collisions is a largely European issue and is expected to become a larger issue as renewable energy grows in popularity. In the Sahel, wind energy is largely un-utilized - in contrast to Spain, where over 600 wind farms exist.[16] Subsequent studies after Carrete's 2009 research have named windfarm planning as imperative to negating negative trends in vulture mortality. For example, a study conducted by Ana Sanz-Aguilar found that a combination of suppressing future windfarm and poisoning fatalities, coupled with the incorporation of four to eight fledglings into the population annually, would stabilize vulture populations in Europe.[17] Moving forward in the twenty-first century, as wind energy continues to grow in popularity, planning wind farms at least fifteen km from vulture migratory routes and breeding populations could help Europe buffer vulture species from extinction.[18]

Solution Four:

Crack Down on Illegal Hunting, Poisoning, and Egg Trade

In 2015, a study published in the Guardian astonished its readers. The study, conducted by Birdlife International, found that twenty-five million birds are illegally killed yearly across the Mediterranean via gunshot, net traps, and glue traps. It was found that the worst offenders were Syria, Egypt, Italy, and Malta.[19] The Egyptian vulture is no outlier in this study. Illegal hunting/shooting of the vultures is so common in Italy and Malta that some migrating vultures have been given personal guard as they cross the two states.[20] Further issues exist in illegal poisoning of vultures and the illegal egg trade. Poison baits are banned in Europe, yet their usage is still widespread in controlling foxes, feral dogs, wolves, and agricultural pests like lizards. Unfortunately, raptors are often collateral damage from these poison traps, either by direct consumption of scattered poison or in consuming carcasses of dead animals. In Spain between 2005 and

14 D. Swarup, R.C. Patra, Vibhu Prakash, R Cuthbert, D. Das, P. Avari, D.J. Pain, R.E. Green, A.K. Sharma, M. Saini, and M. Taggart, "Safety of Meloxicam to Critically Endangered Gyps Vultures and Other Scavenging Birds in India," *Animal Conservation* 10, no. 2 (2007): 192-98, http://dx.doi.org/10.1111/j.1469-1795.2006.00086.x.

15 Martina Carrete, Jose A Sánchez-Zapata, Jose R Benítez, Manuel Lobón, and Jose A Donázar, "Large Scale Risk-assessment of Wind-farms on Population Viability of a Globally Endangered Long-lived Raptor," *Biological Conservation* 142, no. 12 (2009): 2954-961, https://doi.org/10.1016/j.biocon.2009.07.027.

16 Ibid.

17 Ana Sanz-Aguilar, "Action on multiple fronts, illegal poisoning and wind farm planning, is required to reverse the decline of the Egyptian vulture in southern Spain," *Biological Conservation*, Volume 187 (July 2015): 10-18, https://doi-org.uidaho.idm.oclc.org/10.1016/j.biocon.2015.03.029.

18 Carrete, 2009.

19 Arthur Nelson, "25m birds illegally killed in Mediterranean each year, says report," *Guardian*, August 2015, https://www.theguardian.com/environment/2015/aug/21/25m-birds-illegally-killed-in-mediterranean-each-year-says-report.

20 Matthew Vella, "Rare Egyptian Vulture guarded by police and BirdLife during Malta stop," *Malta Today*, September 2019, https://www.maltatoday.com.mt/environment/nature/97255/rare_egyptian_vulture_guarded_by_police_and_birdlife_during_malta_stop#.YGyNpK9KhPY.

2010, sixty-nine vultures died from ingesting poison. While unstudied, fatalities of poisoning are believed to be substantially higher in the Balkans.[21] Lastly, illegal egg/hatchling trade is a threat to many raptor species, including the Egyptian vulture.

This is unfortunately a shortcoming of the EU Birds Directive, which is regularly violated by member states. In response, the European Union needs to enforce regulations prohibiting illegal hunting, poisoning, and wildlife trade, whether this be through threat of withholding funding, naming and shaming, or legal action against member states. While slow, taking recourse through the ECJ is a method to clarify and strengthen language of the Birds Directive.

Solution Five:

Improve Electrical Infrastructure across the African-Eurasian Flyway

Power lines pose multiple threats for migratory birds, including displacement, fragmentation of habitat, electrocution on medium voltage power lines, and collision with high voltage power lines.[22] Older electrical infrastructure, operated throughout the Balkans, Middle East, and Africa, electrocute numerous Egyptian vultures yearly.[23] While vultures have suffered direly from poisoning over the past three decades, electrocution has also posed a high mortality risk as the birds migrate to the Sahel. In a study conducted in Sudan, 17 Egyptian vulture carcasses were found underneath a 17 km segment of aged power line. Researchers discovered 88% of the birds underneath metal pylons, matching similar study conducted in the 1980s.[24]

Consequently, many involved in migratory birds of prey conservation call for safer infrastructure to be broadly implemented across Eastern Europe, MENA, and Africa. One avenue would be for the European Union to work within existing development agendas assisting states across the world presently working towards UN Sustainable Development Goal 7: Ensuring access to affordable, reliable, sustainable and modern energy. The EU could help Africa in modern electrical infrastructure construction through Agenda 2063 and the Program Infrastructure Development for Africa and help Balkan States through existing foreign aid packages or through energy sector projects in MENA. Updating powerlines and pylons, some of which have been in operation since the 1950's, could help ensure the safety of migratory vulture populations.

Solution Six:

Implement MsAP Vultures via the Raptors MOU Implementation Framework

Implementing solutions presented by Raptors MOU across European nations would holistically address many of the threats to Egyptian vultures and other raptor species and lay a groundwork for future conservation measures. The action plan and framework have five main components for implementation: plan, design, act, monitor, and evaluate. Within this basic structure, *MsAP Vultures* calls for a broad sweep of measures, such as improving electrical infrastructure, increasing local community awareness, organizing workshops for stakeholders, securing breeding sites, establishing new monitoring efforts, mitigating illegal hunting and poisoning, and instituting broad new research.[25] Either by updating the *European Union Species Action Plan (SAP) for Egyptian Vultures* with binding efforts, or by instituting these policies through national legislation, *MsAP Vultures* could come

21 "The Threats", The Egyptian Vulture, Life Egyptian Vulture Project, last modified 2021, https://www.lifegyptianvulture.it/en/the-egyptian-vulture/the-threats.

22 "Electric Power Lines," Migratory Soaring Birds Project, Bird Life International & UNDP, 2014, https://migratorysoaringbirds.birdlife.org/en/sectors/energy/electrical-power-lines-toc#gsc.tab=0.

23 Metodija Velevski, "Population Decline and Range Contraction of the Egyptian Vulture Neophron Percnopterus in the Balkan Peninsula," *Bird Conservation International,* 25, no. 4 (2015): 440-50, https://doi.org/10.1017/S0959270914000343.

24 Ivaylov Angleov, Ibrahim Hashim, and Steffen Oppel. "Persistent Electrocution Mortality of Egyptian Vultures Neophron Percnopterus over 28 Years in East Africa." *Bird Conservation International* 23, no. 1 (2013): 1–6. doi:10.1017/S0959270912000123.

25 Botha, 95-105.

to fruition and succeed where the *EU SAP for Egyptian Vultures* failed.

Ultimately, instituting these measures would be idealistic and difficult, but predictably effective - particularly measures studying and ending vulture poisoning, which would implement strict regulations enforceable by law.[26] The goals of *MsAP Vultures* for Egyptian vultures annexed Raptors MOU's *Flyway Action Plan for the Conservation of the Balkan and Central Asian Populations of the Egyptian Vulture Neophron percnopterus (EVFAP). EVFAP*, supported by multiple conservation-based NGOs, calls upon the usage of existing instruments for migratory birds, CITES, governments, and other wildlife programs to implement conservation priorities.[27]

Solution Seven:

Create a Protected African-Eurasian Flyway via Migratory Bird Treaties

Many of the solutions overlap in calling for flyway protections. Whether it be from poisoning, precarious energy infrastructure, illegal hunting and trapping, or other threats, creating a safe flyway for migratory vulture species between Europe, Africa, and Asia, in international legislation adopted as domestic policy, would substantively benefit the Egyptian vulture. Instead of international non-governmental organizations, this could be a European led directive. Establishing migratory bird treaties (MBT) has been a practice for more than a century. Other states, such as the United States, Mexico, Canada, Japan, and Russia created flyway protections for migratory birds in a set of bilateral treaties under the Migratory Bird Treaty. Similarly, Australia piloted a set of treaties between Japan, China, and South Korea (known as JAMBA, CAMBA, and ROKAMBA, respectively). The treaties established protections for dozens of birds within the East-Asia – Australasian Flyway.

A treaty system like this, between European, African, and MENA states would ideally help establish areas of protection along the African-Eurasian Flyway for migratory bird species and assist states in implementing domestic wildlife conservation law. It could also help prevent the further persecution of migratory birds around and within the Mediterranean.[28] Among the solutions, creating a protected flyway through binding treaties would likely require the most legwork. Treaty research and stipulations, given the immense number of actors involved and time taken to institute treaty measures, would take years to accomplish.

RECOMMENDED SOLUTION: A MULTI-FACETED APPROACH

Notably missing from this paper as a solution is "Maintain the Status Quo". Doing nothing to change the current state of decline of the Egyptian vulture will result in its extinction. Therefore, it is imperative that solutions expressed in this paper be pursued. Most birds of prey conservationists recommend a multifaceted approach; pursuing one solution alone will not be sufficient in ending the steady decline of vulture species.

Solution One offers a patchwork solution that could help assist vulture's quality of life and life expectancy but does not address underlying causes of vulture extinction. Solutions Two, Three, Four, and Five tackle some of the most pressing issues affecting vultures and need to be implemented to decrease vulture mortality rates both in Europe and abroad. Lastly, Solutions Six and Seven lay idealistic grounds for current and future conservation efforts. By implementing *MsAP Vultures* and the ideas set in *EVFAP*, or by creating an internationally protected flyway for vultures, many of the other solutions would by extension come to fruition.

Realistically, and most urgently, European states needs to further research and end intentional and secondary poisoning of vultures.

26 Ibid.

27 S.C Nikolov, B. Barov, C. Bowden, and N.P. Williams, Flyway Action Plan for the Conservation of the Balkan and Central Asian Populations of the Egyptian Vulture Neophron percnopterus (EVFAP), BSPB Conservation Series No. 32, No. 4 (Abu Dhabi: CMS Raptors MoU Technical Publication, 2016).

28 Mitsuhiko A. Takahashi, "MIGRATORY BIRD TREATIES' ISSUES AND POTENTIALS: ARE THEY VALUABLE TOOLS OR JUST CURIOS IN THE BOX?" *Environmental Law 42*, no. 2 (2012): 609-26, https://www.jstor.org/stable/43267308.

Whether consuming NSAIDs, unintentional poison traps, or lead from leadshot affected carcasses, poisoning is still the main killer of vulture species across the world. Given India as a case study, diclofenac and other toxic NSAIDs for veterinary use should be banned on the European continent. Secondly, as states work towards updated and green energy infrastructure, special care must be noted in planning wind farms and improving power lines. Planning windfarms away from breeding sites in Europe and implementing raptor friendly powerlines and cement (not metal) pylons could undercut the decline of Egyptian vultures and hopefully stabilize the species for recovery.

Lastly, the Egyptian vulture is a migratory bird with an extensive route across MENA and the Sahel into Sub-Sahara Africa. International efforts must be pursued to end vulture decline as they winter abroad. The European Union, a body that has long fought for bird conservation, has the opportunity to become an international advocate in this sphere. The EU needs to push for further research on Egyptian vulture populations in MENA, particularly in Turkey, Syria and Oman, where communities of more vultures are thought to exist. Furthermore, the EU should push African countries to adopt and practice similar legislation banning poisons and implementing birds of prey friendly energy sector projects. Lastly, research still needs to be conducted to create protected sites for wintering vultures on the African Continent. These efforts combined could result in a long-term improvement of Egyptian vulture populations.

Protecting the Egyptian vulture cascades into a greater cause of protecting vulture species and addressing shortcomings of the EU Birds Directive. Without the world's natural recyclers, we leave ourselves vulnerable to new disease outbreaks, a rise in rabid animals, and further unbeknownst ecological and economic consequences. Europe has a key role to play in this fight and without domestic and international action, the Egyptian vulture will perish.

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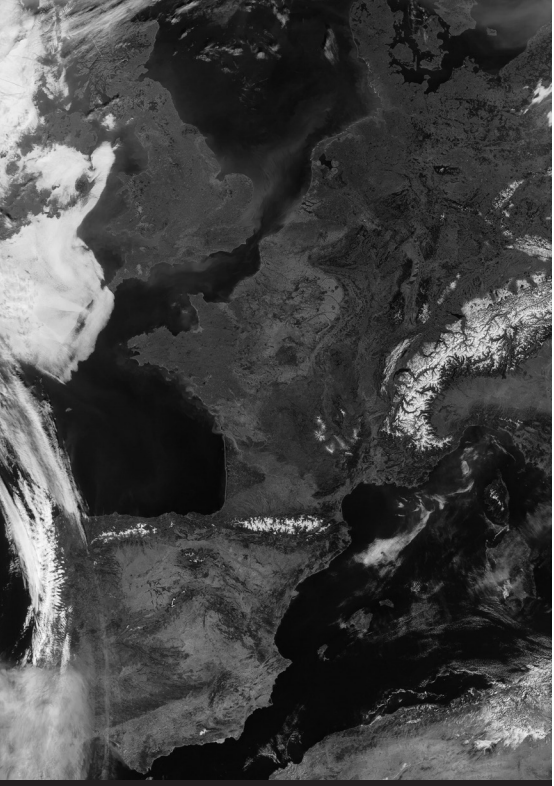


Strategies for the EU's Geographical Indications in the Face of Climate Change

– Sidney Angstman

ABSTRACT

Geographical Indications (GIs) are a significant cultural and economic function within Europe. The integrity behind the rigid specifications of each product is threatened by the climatic changes Europe is facing, especially within the Southern and Mediterranean regions. The increasing frequency of temperature rise, water shortages, and extreme weather events, threaten the sustainability of the EU's GI system. This paper explores policy options to adjust to these continuing climatic changes. Options include phasing out currently protected GIs, relaxing product specification (PS) application expectations, condoning the use of amendments incorporate environmental quality standards within GI definitions, expanding geographical indication boundaries northward, implementing water use efficiency (WUE) measures, and increasing soil organic carbon (SOC). The cultural importance of traditional GI specifications and terroir make upholding its integrity paramount. This analysis proposes the implementation of WUE and SOC strategies alongside an endorsement of amendments and environmental standards to best honor and protect the EU's GI system for both producers and consumers in the face of climate change.

OVERVIEW AND BACKGROUND

Climate change and legal limitations threaten the continued production of Europe's renowned geographical indications (GIs). These agri-food products are protected for having qualities, reputations, or characteristics that are "essentially attributed to its geographical origin."[1] While nearly every EU member has their own designations, the Southern Five—France, Greece, Italy, Portugal, and Spain—are the most notable.[2],[3] Products include Champagne, Kalamata Olives, Parmigiano Reggiano, Port, and Queso Manchego.[4] The local knowledge and cultural identity within these products warrants this region's high level of gastronationalism and emphasizes the importance of terroir.[5] Terroir accounts for the complete natural environment including the soil, climate, biodiversity, and any human factors involved in the creation of each product.[6] The legal protection of methods capturing the essence of place make the idea of terroir "intrinsically associated with GIs."[7] It is this terroir inherent in the product specifications that makes the rigid definitions and climatic changes a threat to the GI system.

In 1992, the EU officially enacted a geographical protection system aimed at protecting both consumers and producers by ensuring the accuracy of consumer information and quality while also protecting commercial reputations.[8],[9] This *sui generis*[10] system now includes two subcategories of GIs, Protected Geographical Indications (PGI)[11] and Protected Designations of Origin (PDO).[12],[13] Shortly thereafter, the World Trade Organization (WTO) adopted the Agreement on Trade Related Aspects on Intellectual Property (TRIPs), creating a multilateral agreement on intellectual property. Article 22 of this agreement established the responsibility of Member States to provide "legal means" in preventing the use of GIs to mislead the public on a product's geographical origin or as an avenue for unfair competition.[14] The creation of a system that provides legal guidelines for product specifications has been of high importance to the EU for both themselves and in trade negotiations.[15] However, as the impacts of climate change become more apparent, the preservation of this legal system becomes more difficult.

The legal specificity of production method and location under terroir places GIs under immediate siege of climate change. Europe's

1 "Part II — Standards Concerning the Availability, Scope and Use of Intellectual Property Rights," World Trade Organization, accessed March 31, 2021, https://www.wto.org/english/docs_e/legal_e/27-trips_04b_e.htm#3.

2 Martijn Huysmans, "Exporting Protection: EU Trade Agreements, Geographical Indications, and Gastronationalism," *Review of International Political Economy*, no. 0 (November 24, 2020): 1–28, https://doi.org/10.1080/09692290.2020.1844272.

3 See Appendix A

4 "Geographical Indications–a European Treasure Worth €75 Bn," Text, European Commission - European Commission, accessed March 31, 2021, https://ec.europa.eu/commission/presscorner/detail/en/IP_20_683.

5 Irene Calboli, "Of Markets, Culture, and Terroir: The Unique Economic and Culture-Related Benefits of Geographical Indications of Origin," in *International Intellectual Property: A Handbook of Contemporary Research* (Cheltenham, UK: Edward Elgar Publishing, 2015), 433–64.

6 Fabrice Mattei, "Integrating Adaptation Strategy to Climate Change into Geographical Indication Protection," IP & Climate Change, November 23, 2017, https://www.ipandclimatechange.com/single-post/2018/08/30/integrating-adaptation-strategy-to-climate-change-into-geographical-indication-protection.

7 Ibid.

8 Raffi Melkonian, "The History and Future of Geographical Indications in Europe and the United States," Text (Harvard Law School Library, 2005), https://dash.harvard.edu/bitstream/handle/1/8852204/Melkonian05.html?sequence=1&isAllowed=y.

9 Dev S. Gangjee, "Introduction: Timeless Signs or Signs of the Times?," in *Research Handbook on Intellectual Property and Geographical Indications* (Cheltenham, UK: Edward Elgar Publishing, 2016).

10 *Sui Generis:* "Latin for of its own kind, and used to describe a form of legal protection that exists outside typical legal protections -- that is, something that is unique or different," "Sui Generis," LII / Legal Information Institute, accessed May 12, 2021, https://www.law.cornell.edu/wex/sui_generis.

11 *Protected Geographical Indication (PGI*): Constitutes of products that must be produced, processed, or prepared in the specified geographic area

12 *Protected Designations of Origin (PDO):* Comprises of products that must be both produced and processed in the specified geographic area

13 Mattei, "Integrating Adaptation Strategy to Climate Change into Geographical Indication Protection."

14 "Part II -- Standards Concerning the Availability, Scope and Use of Intellectual Property Rights."

15 Massimiliano Pasqui and Edmondo Di Giuseppe, "Climate Change, Future Warming, and Adaptation in Europe," *Animal Frontiers* 9, no. 1 (January 3, 2019): 6–11, https://doi.org/10.1093/af/vfy036.

average surface temperature warmed by 1.7 to 1.9°C over the last decade, far faster than the global mean of 0.94 to 1.03°C.[16] Such warming, especially within the Southern Five, accelerates the phenological development[17] of products, reduces biomass assimilation timelines, reduces photosynthesis and transpiration efficiency, and damages root development—all of which lead to reduced crop yields.[18],[19] Changes in these areas impact the essential protected qualities, changing the product itself and losing the integrity and authenticity guaranteed under the GI. The impacts are also economic as GIs make up 15.5% of the EU's total agri-food exports.[20] The first and most prominent GI affected by climate change is the EU's wine industry that produces two thirds of the world's wine.[21] However, it will not be the last as olive oil, among others, is beginning to face a similar fate. Under the threat of climate change, the cultural and legal implications of the EU's GI system require attention.

POSSIBLE SOLUTIONS

Solution 1:

Phase Out Currently Protected GIs

Continuing negative impacts of climate change within the Southern Five are inevitable; with increases in temperatures, water shortages, and extreme weather events, Europe's GIs are shrinking in terms of their arable boundaries. The entire basis under which GIs are protected is their terroir, making terroir-based products most vulnerable to strong climate changes.[22] While effort can be made to mitigate these effects, the integrity behind GIs cannot be accurately maintained; flexibility among standard practices may not uphold the rigid terroir induced organoleptic qualities.[23],[24] A part of the legal definition for each GI is the product specification (PS) that outlines the rules and procedures producers must abide by including the physical, chemical, and organoleptic characteristics along with cultivation, production, and packaging methods such as planting density, yield per hectares, and harvest methods.[25], [26] Current GIs impacted by climate change should continue under these initial specifications without the use of amendments in order to uphold the ultimate goal of authenticity. National authorities would deter the use of amendments and ensure compliance with official specifications.[27] Upholding these PSs without change will become untenable and GI protection will slowly phase out, ensuring quality and authenticity. With time, the climate is likely to affect the specific GI characteristics that grant them protection and force these products to lose their GI protection until very

16 "Global and European Temperatures — European Environment Agency," Indicator Assessment, accessed March 31, 2021, https://www.eea.europa.eu/data-and-maps/indicators/global-and-european-temperature-10/assessment.

17 *Phenological development:* the seasonal timing and the life cycle stages living organisms go through such as the length of time it takes for a plant to produce buds, "Phenology - an Overview | ScienceDirect Topics," accessed May 12, 2021, https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/phenology.

18 "Climate Change Adaptation in the Agriculture Sector in Europe — European Environment Agency," Publication, accessed March 21, 2021, https://www.eea.europa.eu/publications/cc-adaptation-agriculture.

19 See Appendix B

20 "Geographical Indications–a European Treasure Worth €75 Bn."

21 "Climate Change Adaptation in the Agriculture Sector in Europe — European Environment Agency."

22 Mattei, "Integrating Adaptation Strategy to Climate Change into Geographical Indication Protection."

23 Lisa F. Clark and William A. Kerr, "Climate Change and Terroir: The Challenge of Adapting Geographical Indications," *Journal of World Intellectual Property* 20, no. 3–4 (2017): 88–102.

24 *Organoleptic*: "being, affecting, or relating to qualities (such as taste, color, odor, and feel) of a substance (such as a food or drug) that stimulate the sense organs," "Definition of ORGANOLEPTIC," accessed May 2021, https://www.merriam-webster.com/dictionary/organoleptic.

25 Andrea Marescotti et al., "Are Protected Geographical Indications Evolving Due to Environmentally Related Justifications? An Analysis of Amendments in the Fruit and Vegetable Sector in the European Union," *Sustainability* 12, no. 9 (January 2020): 3571, https://doi.org/10.3390/su12093571.

26 "Technical-Legal Study on Geographical Designations for Olive Oil and Table Olives" (International Olive Council, 2010), https://www.internationaloliveoil.org/wp-content/uploads/2019/11/Technical-legal-study-on-GIs-Version-Dec2010.pdf.

27 Michaela Desoucey, "Gastronationalism: Food Traditions and Authenticity Politics in the European Union," *American Sociological Review - AMER SOCIOL REV* 75 (June 3, 2010): 432–55, https://doi.org/10.1177/0003122410372226.

few, if any, products are left unchanged.[28] Through this slow-paced phase out based on climatic changes, the EU GI system will be discontinued.

Solution 2:

Relax Product Specification (PS) Application

The application process for registering PDOs or PGIs for protection with the EU is based on collective action where producers or producer groups collectively negotiate and define the rules behind their product's production process, characteristics, and geographic boundaries.[29] Producers themselves dictate the regulations that then must be followed. An application consists of a description of the product including its type, feed or raw material, steps that take place in the specified geographical area, rules regarding slicing, grating, packaging, etc., and rules behind product labeling.[30] By itself, the application does not have overly specific requirements. Instead, the applicant creates the specificity and level of discipline themselves, keeping in mind that specifications must be detailed enough to protect against registered name misuse.[31] The meticulous nature of their rules creates difficulty in making even the slightest of changes without requiring an amendment. Thus, relaxing the expectation for producers to specify each detail in the production process allows for flexibility and preventing the effort of the amendment process. Changing producer expectations for eachother and themselves reduces rigidity in PSs allowing for flexibility in the specifications where producers can better adapt to the evolving environment.

28 Mattei, "Integrating Adaptation Strategy to Climate Change into Geographical Indication Protection."

29 Ruiz et al.

30 "Applications for Food and Agricultural Products," Text, European Commission, accessed April 1, 2021, https://ec.europa.eu/info/food-farming-fisheries/food-safety-and-quality/certification/quality-labels/registration-name-quality-product/applications-food-and-agricultural-products_en.

31 Riccheri et al., "Assessing the Applicability of Geographical Indications as a Means to Improve Environmental Quality in Affected Ecosystems and the Competitiveness of Agricultural Products."

Solution 3:

Condone the Use of GI Amendments

The specificity inherent to GI regulations is protected as intellectual property including the means, methods, and terroir behind a product. Within the application process, producers must provide a product specification (PS) outlining the exact methods and rules that must be followed throughout the production process that function as the legal basis for protection.[32] Such specifications can only be altered through amendments by due administrative process.[33] Amendments can be either minor or non-minor, with the latter consisting of changes that "affect the essential characteristics of the product, the defined geographical area, the link between the quality or characteristics of the product and the geographical environment…or represent an increase in restrictions on trade in the product or its raw materials."[34] Considering 17 percent of protected GIs within the EU have at some point significantly amended their initial PS at least once, it is clear that the use of amendments is necessary to adapt to evolving conditions.[35] PSs include exact methods of production for irrigation, planting density, soil drainage, crop covers, etc. However, without the legal amendment of the GI, adaptations are unauthorized. As technology advances and the climate continues to change, amendments are becoming more important for GIs to maintain their status and uphold their quality standards while being better equipped for successful crop yields under changing conditions.

32 Marescotti et al., "Are Protected Geographical Indications Evolving Due to Environmentally Related Justifications?"

33 "The European Commission Paper on Geographical Indications (GIs) in the EU - U.S. Transatlantic Trade and Investment Partnership" (European Commission), accessed April 3, 2021, https://trade.ec.europa.eu/doclib/docs/2016/march/tradoc_154384.Paper%20Geographical%20Indications%20FINAL.pdf.

34 Marescotti et al., "Are Protected Geographical Indications Evolving Due to Environmentally Related Justifications?"

35 Xiomara Fernanda Quiñones Ruiz et al., "How Are Food Geographical Indications Evolving? – An Analysis of EU GI Amendments," *British Food Journal* 120, no. 8 (2018): 1876–87, http://dx.doi.org.uidaho.idm.oclc.org/10.1108/BFJ-02-2018-0087.

Solution 4:

Incorporate Environmental Quality Standards within GI definitions

Just as PGI and PDO products receive price premiums for their product due to their unique quality, so too should products that prioritize sustainability. This serves as both a proactive and reactive response to the challenge climate change places among GIs. Since "sustainability is increasingly identified by consumers as a positive characteristic," it increases product quality.[36] Requiring environmental standards in addition to already existing production standards ensures that the production of GIs remains sustainable rather than suffering reduced yields due to worsening climatic conditions. Many GI products already tend to be more environmentally friendly by way of promoting connections to the territory and local production as well as protecting local produce and biodiversity.[37] Additional specifications could include limitations on non-environmentally friendly processes or provide incentive for GI holders to reach certain targets. Soil, air, water, landscape, and biodiversity can be monitored to assess the impact of each GI product on the environment.[38] Aiming to balance positive and negative impacts, quality standards should include specified maximum impact levels. Waste, resource use, and energy consumption should also have specified thresholds to ensure sustainability throughout the GI system. Although initial aims of GIs are to assure origin and quality, environmental standards in the product specification for GIs adds to the overall product quality and perpetuates a connectedness to the terroir that can safeguard the future of the GI system despite the impact of climate change.

Solution 5:

Expand Geographical Indication Boundaries Northward

Europe's warming temperatures caused by climate change have conflicting effects on its regions; the northern regions are seeing positive agricultural effects as opposed to the detrimental effects found in the Mediterranean and southern regions. This signals a possibility for expansion northward, offering predominantly southern located GI's the ability to grow in regions more suitable to their production as their original geographic area becomes less productive. Typical cultivation is becoming more difficult as temperatures rise within the south, reducing crop productivity and viability. As the agro-climate zones shift, northern Europe experiences more suitable crop conditions through its warmer and longer growing seasons and subsequent shorter frost periods.[39] Some zones' latitudinal velocity has moved them north as much as an estimated 100 km per 10 years.[40] For some GI products, this means the environment of neighboring areas are becoming more suitable for the production of food products at the same specified organoleptic quality.[41] Amendments with modifications to geographical areas have already been approved for various reasons, including climate change. Cítricos Valencianos is one that enlarged their boundary as it became equally suitable for their production.[42] Wine production has also seen this expansion from the Mediterranean into central and western Europe.[43] Although the southern regions initially provided unique production abilities

36 Mariano Riccheri et al., "Assessing the Applicability of Geographical Indications as a Means to Improve Environmental Quality in Affected Ecosystems and the Competitiveness of Agricultural Products," *Working Papers*, Working Papers (eSocialSciences, February 2007), https://ideas.repec.org/p/ess/wpaper/id847.html.

37 "Mitigating Climate Change with Geographical Indications and EU Quality Schemes" (Euromontana, October 21, 2016), https://www.euromontana.org/wp-content/uploads/2014/08/2016_10_21-Article-Mitigating-Climate-Change-with-Geographical-Indications-and-EU-Quality-Schemes.pdf.

38 Riccheri et al., "Assessing the Applicability of Geographical Indications as a Means to Improve Environmental Quality in Affected Ecosystems and the Competitiveness of Agricultural Products."

39 "Climate Change Adaptation in the Agriculture Sector in Europe — European Environment Agency."

40 A. Ceglar et al., "Observed Northward Migration of Agro-Climate Zones in Europe Will Further Accelerate Under Climate Change," *Earth's Future* 7, no. 9 (2019): 1088–1101, https://doi.org/10.1029/2019EF001178.

41 Marescotti et al., "Are Protected Geographical Indications Evolving Due to Environmentally Related Justifications?"

42 Marescotti et al.

43 Ceglar et al., "Observed Northward Migration of Agro-Climate Zones in Europe Will Further Accelerate Under Climate Change."

warranting GI protection, climate change allows for expansion northward that can still maintain the necessary typicity and production methods.

Solution 6:

Implement Water Use Efficiency (WUE) Measures

The foreseen increase in drought severity and high surface temperatures make water use efficiency of the utmost importance in maintaining GI viability. Some product specifications explicitly do not allow for the use of irrigation within its protected definition; Italy and Portugal are among those that have high percentages in restricting irrigation use, especially for olive products.[44] However, under these drier and warmer conditions, rain-fed specifications will be unattainable in producing crops of sufficient yield. Thus, the implementation of regulated deficit irrigation (RDI) and partial root drying (PRD) measures are sustainable short-term strategies to consider.[45] RDI is an irrigation method in which a crop receives less water at certain developmental stages in which there is little to no impact on the yield.[46] One approach to RDI is PRD where half the root system receives full irrigation while the other is exposed to drying soil.[47] This decreases the surface area for soil water evaporation, increases root activity, and improves mineral nutrient uptake. Through imposing water stress during the least sensitive stages, crops are sustained without traditional water levels. As a result, crops within climate change affected areas are still provided adequate water sustenance despite decreased availability. Most importantly, these strategies have shown no damaging effect on the quality of olive oils.[48] Although dependent upon crop type, general irrigation measures are a promising solution to drying environments without a significant impact on quality.

Solution 7:

Increase Soil Organic Carbon (SOC)

The decrease in rainfall and increase in temperature within the Mediterranean basin negatively impacts its soil fertility and exacerbates the already low soil organic carbon (SOC) levels.[49] Low SOC content levels increase a land's vulnerability to desertification and degradation due to the soil's reduced capacity for water infiltration that increases the likelihood of erosion and runoff. [50] Increasing SOC levels can help mitigate temperature increases through the biological sequestration of carbon, a process in which the soil and vegetation can capture and store atmospheric carbon dioxide.[51] One way this is achieved is through the reduction of conventional soil tillage or opting for conservation tillage practices. Conservation tillage, including reduced or zero tillage, leaves crop residues and organic matter on the field to trap CO2 emissions that are otherwise released through soil disturbances like ploughing.[52], [53] This process insulates the soil from temperature fluctuations and increases soil water retention through the reduction of soil evaporation and solar radiation. This increase in soil water retention results in higher crop yields, especially in areas facing limited water availability like the Mediterranean basin.[54] Along with no-tillage,

44 "Technical-Legal Study on Geographical Designations for Olive Oil and Table Olives."

45 Helder Fraga et al., "Mediterranean Olive Orchards under Climate Change: A Review of Future Impacts and Adaptation Strategies," *Agronomy* 11, no. 1 (January 2021): 56, https://doi.org/10.3390/agronomy11010056.

46 David Goldhamer, "Regulated Deficit Irrigation in Trees and Vines," in *Agricultural Water Management: Proceedings of a Workshop in Tunisia*, 2007, 71, https://doi.org/10.17226/11880.

47 Ibid.

48 Fraga et al., "Mediterranean Olive Orchards under Climate Change."

49 "Managing Soil Carbon for Climate Change Mitigation and Adaptation in Mediterranean Cropping Systems: A Meta-Analysis," accessed February 19, 2021, https://doi.org/10.1016/j.agee.2013.02.003.

50 "Organic Matter Decline" (European Communities, May 2009), https://esdac.jrc.ec.europa.eu/projects/SOCO/FactSheets/ENFactSheet-03.pdf.

51 "What Is Carbon Sequestration and How Does It Work?," CLEAR Center, September 20, 2019, https://clear.ucdavis.edu/explainers/what-carbon-sequestration.

52 Reji P. Mathew et al., "Impact of No-Tillage and Conventional Tillage Systems on Soil Microbial Communities," *Applied and Environmental Soil Science* 2012 (June 7, 2012): e548620, https://doi.org/10.1155/2012/548620.

53 Fraga et al., "Mediterranean Olive Orchards under Climate Change."

54 Alejandro del Pozo et al., "Climate Change Impacts and Adaptation Strategies of Agriculture in Mediterranean-Climate Regions (MCRs)," *Sustainability* 11, no. 10 (January 2019): 2769, https://doi.org/10.3390/su11102769.

cover crops can be utilized for nearly identical purposes. Rather than or in addition to past crop residue, cover crops create a symbiotic relationship providing additional residue cover with live roots to provide nutrients to the soil.[55] Both reduced tillage and cover crops work to achieve the same goal of increasing organic soil matter and stimulating soil fertility—especially during dry conditions.

RECOMMENDED SOLUTION

Despite the longstanding cultural importance of traditional GI specifications that producers wish to maintain, strategic compromises must be made in order to sustain the EU's renowned GIs as future climatic challenges are inevitable. While the long-term may force solution two to hold more weight, the current importance placed on the traditional notion of terroir is insurmountable. However, no single approach sufficiently combats the effects of climate change on Europe's GI system. Instead, a multifaceted approach combining solutions three, four, six, and seven provide the most optimal approach towards maintaining GI specifications while honoring and upholding the integrity of terroir and quality.

The use of GI amendments is of the utmost importance to provide producers the opportunity to adjust and overcome the effects climate change has on Europe's GI products. Considering the specificity in each aspect of a GI's product description, any change to the initial product specification as detailed in the solutions above would require an amendment. As such, amendments serve as the vital line of protection amidst climate change. Allowing amendments for adaptive cultivation methods like the strategies to increase SOC and improve WUE are increasingly viable in the short-term as they can be easily implemented within one to two seasons and target specific regional climate change threats.[56] The meticulous and varied water usage through RDI and PRD maximizes the limited water supply caused by drought. This irrigation management is most advantageous when alongside conservation tillage and cover crops that increase soil water retention. As retention increases, less water is needed to sustain crops making RDI, cover crops, and conservation tillage a powerful strategy to combat climate change, especially when implemented together. With high temperatures and water shortages forecasted within the Mediterranean and southern Europe where the majority of the EU's GIs are located, climate change is an imminent theat.[57] Therefore, the focus on minimizing these threats through water and soil management is key for GI crop survival. To supplement these reactive solutions, the implementation of environmental quality standards into the GI definition will prioritize the system's sustainability. Benchmark requirements for acceptable levels of waste, energy consumption, resource use can minimize climatic impacts and safeguard resources.

The integration of both preventative and proactive solutions mitigates current climatic challenges while also addressing future challenges. These solutions place producers in the position to accommodate the anticipated climatic conditions and adjust to other changes or advancements. Although the GI system has robust regulations, it is an evolving institution with the means to overcome climate change and sustain the EU's esteemed GI system through the endorsement of amendments that implement water use efficiency measures, increase soil organic carbon, and incorporate environmental quality standards into GI definitions. The inherent interdependence between products and the local environment makes the necessity for mitigating solutions paramount to the preservation of the EU's beloved GI system.

55 "Increasing Organic Matter by Using Cover Crops | NRCS Kansas," accessed April 5, 2021, https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ks/newsroom/?cid=nrcs142p2_033488.

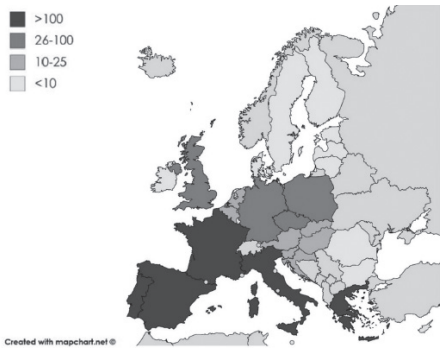
56 Fraga et al., "Mediterranean Olive Orchards under Climate Change."

57 Jørgen E. Olesen and Marco Bindi, "Consequences of Climate Change for European Agricultural Productivity, Land Use and Policy," *European Journal of Agronomy* 16, no. 4 (June 2002): 239–62, https://doi.org/10.1016/S1161-0301(02)00004-7.

APPENDICES

Appendix A

Map depicting the number of food GIs by country as of September 2020[58]



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Map 1.2 **Main climate change impacts on the agriculture sector for the main biogeographical regions in Europe**

Source: Adapted from EEA (2017b).

58 Huysmans, "Exporting Protection."

59 "Climate Change Adaptation in the Agriculture Sector in Europe — European Environment Agency."

Reducing Conflict Between Local Communities and Mining Companies in South America's Andean Countries

– Nicole Handlen

ABSTRACT

According to the Economic Commission of Latin America and the Caribbean, Latin America has the highest rate of socio-economic mining conflicts worldwide, with many centered in the Andean countries of Bolivia, Chile, Colombia, Ecuador, and Peru. The number of conflicts is amplified due to the large number of mineral deposits, which attract foreign investors. Investments and money from exports have led to a strong economic reliance on mining.

Studies have shown investors are willing to pay significantly more if there is a lower likelihood of conflict. As a result, ensuring a reduction in conflict between local communities and mining companies is imperative for the socio-economic future of the Andean countries. It is recommended that Bolivia, Chile, Ecuador, and Peru implement and require programs of prior community engagement, human rights-based approach to environmental impact assessments, programs to aid marginalized communities, greener mining practices, and compliance with the sustainable development goals.

INTRODUCTION

On the coast of Peru, el Valle de Tambo is one of the most important agricultural districts in the country, producing rice, potatoes, cane sugar, garlic, and numerous fruits. Agriculture has become an essential part of the community serving as a predominant employer. In 2009, the Mexico Group of Southern Peru proposed two open-pit copper mines within the valley, Tía María and La Tapada. Fearing the installation of the mines would bring an end to their agricultural subsistence and threaten water availability, 97% of the people in the six districts of the province voted to reject the Tía María project.[1] With blatant disregard for the community's desires, the government approved the installation, and construction of Tía María began. The project was met with resistance from farmers and the community for years, with two large movements in 2011 and 2014. The movements involved large roadblocks, numerous strikes, fatalities, and the criminalization of protests by the government on six separate occasions.[2]

The protests and discontent following the installation of Tía María is not an uncommon occurrence within South America. The region contains large mineral deposits that have long been an attraction to global investors. However, with each of these mining sites there is often conflict due to the uneven power dynamics between communities and mining corporations. The Economic Commission for Latin America and the Caribbean (ECLAC) states that the region has the highest rate of mining-related socioeconomic conflicts worldwide.[3] The concentration of mining conflicts is especially prevalent within the Andean states of Bolivia, Chile, Colombia, Ecuador, and Peru. Chile and Peru have had 49 and 46 conflicts respectively.[4]

Mining is a large economic driver for many of the countries in this region. Copper ore makes up roughly 26% of Peru and Chile's exports, while gold makes up 23% of Bolivia's (See Appendices A – E).[5] However, local communities close to the mine experience negative production externalities while receiving minimal direct economic benefit.[6] Despite the resulting local grievances, the national economic importance of this sector has motivated these projects' development.[7] Since studies have found that investors are willing to pay significantly more if the likelihood of local conflicts is lower, this should incentivize governments to reduce conflict.[8]

Given the high density of mineral deposits and conflicts within the Andean states, this analysis will focus on policy recommendations related to mining conflicts of this region (See Appendices F and G).[9] While the policies recommended within this paper may apply to Colombia, analysis is not included due to the country-specific complexity of paramilitary groups and mineral resources within the nation (See Appendix H). Violent mining conflicts will continue to be the norm within South America and the Andean region until interactions systematically change between local communities and mining companies. This paper will discuss the policy

1 Alejandra Diaz and Cesar Padilla, "¿Agua o Minería? Resistencias Comunitarias En América Latina," El Observatorio de Conflictos Mineros de America Latina, August 2019, https://www.ocmal.org/informe_no1corr-ultima-version/.

2 Ibid.

3 Victoria Dannemann, "Mining Projects Foment Unrest across Latin America: DW: 16.09.2019," DW, September 16, 2019, https://www.dw.com/en/mining-projects-foment-unrest-across-latin-america/a-50443084.

4 "Conflictos Mineros En América Latina," Observatorio de Conflictos Mineros de América Latina, OCMAL, accessed April 5, 2021, https://mapa.conflictosmineros.net/ocmal_db-v2/conflicto/index/.

5 Punam Chuhan-Pole, Andrew L Dabalen, and Bryan Christopher Land, "Mining in Africa: Are Local Communities Better Off?," Africa Development Forum (World Bank Group, 2017), https://openknowledge.worldbank.org/bitstream/handle/10986/26110/9781464808197.pdf.

6 Ibid.

7 Observatory of Economic Complexity, "Country Profile Exports," OEC, 2020, https://oec.world/en/profile/country.

8 Madison Condon, "Project Calculates the Cost of Social Conflict," State of the Planet, August 16, 2017, https://news.climate.columbia.edu/2016/04/18/project-calculates-the-cost-of-social-conflict/.

9 "Mining Conflicts in Latin America," Environmental Justice Atlas, accessed April 6, 2021, https://ejatlas.org/featured/mining-latam.

options available to the region to prevent and reduce further mining conflicts.

POSSIBLE SOLUTIONS

Solution One:

A Human Rights-Based Approach to Environmental Impact Assessments

Environmental Impact Assessments (EIA), mandated in the U.S. since 1969, are now used to evaluate mining projects globally.[10] In South America, project developers pay consultants to prepare EIA to evaluate how a proposed project will affect the human environment around it.[11] To reduce bias, EIA should be reviewed by environmental branches of the government rather than the government's mining authority, which is currently the case in Peru.[12]

The social aspect of the EIA is often ignored because of the ambiguity that surrounds it. There is no clear definition of what constitutes a social impact, and when one is identified, whether it should be handled by the private sector or the government.[13] To reduce the ambiguity, Repsol, an energy and petrol company, references the International Covenant on Civil and Political Rights and the Covenant on Economic, Social and Cultural Rights in EIA to ensure human rights standards are being met.[14] Andean governments could require the inclusion of these covenants in companies' human rights-based EIA to ensure a clear definition.

Implementing a human rights-based approach to EIA would provide clarity and improve the lives of people in mining communities. A human rights-based approach is centered around access to information, access to public participation, consultations with indigenous and tribal groups, and acceptance of general recommendations to the environmental assessment system. This focus would target the marginalized groups most affected by mining projects and would create a system for individuals to achieve restitution for environmental damage.[15]

Solution Two:

Community Engagement Prior to Installation of a Project

While community engagement is required under the current EIA system, public involvement only occurs after the EIA has been submitted, rendering the public involvement ineffectual and a formality.[16] A study in Mongolia found that a lack of prior community involvement leads to greater distrust in the mining companies. The study concluded that providing meaningful ways for communities to voice concerns through surveys, meetings, and monitoring systems as well as a mining company's greater focus on mitigating environmental effects were strong determinants of trust for the local community.[17] Maintaining community trust gives the government and companies goodwill (social license) to operate. Reducing costly

10 Tiffany Middleton, "What Is an Environmental Impact Statement?," American Bar Association, March 2, 2021, https://www.americanbar.org/groups/public_education/publications/teaching-legal-docs/teaching-legal-docs--what-is-an-environmental-impact-statement-/#:~:text=The%20environmental%20impact%20statement%20(EIS,project%20on%20its%20surrounding%20environment.&text=Environmental%20impact%20statements%20are%20meant,of%20policymakers%20and%20community%20leaders.

11 Marcelo Acerbi et al., "PDF," April 2014.

12 David Szablowski, "Transnational Law and Local Struggles: Mining, Communities, and the World Bank," in Transnational Law and Local Struggles: Mining, Communities, and the World Bank (Oxford, UK: Hart Publishing, 2007), pp. 37-58.

13 Ibid.

14 The Danish Institute for Human Rights, "Integrating Human Rights into Environmental, Social and Health Impact Assessments: A Practical Guide for the Oil and Gas Industry," IPIECA, 2013, https://www.ipieca.org/media/1571/integrating_hr_into_environmental_social_and_his.pdf.

15 "Recommendations for Incorporating a Human-Rights Based Approach in Environmental Impact Assessment of Mining Projects," Economic Commission for Latin America and the Caribbean (Economic Commission for Latin America and the Caribbean, November 2019).

16 Szabloski, 37 – 58.

17 Lavdmaa Dagvadorj, Bolorchimeg Byamba, and Mamoru Ishikawa, "Effect of Local Community's Environmental Perception on Trust in a Mining Company: A Case Study in Mongolia," MDPI (Multidisciplinary Digital Publishing Institute, February 27, 2018), https://www.mdpi.com/2071-1050/10/3/614/htm.

grievances also helps the government attract investors.[18]

One of the most tangible environmental effects communities face is the degradation and dispossession of their water and land due to the water-intensive nature of metal mining.[19] Bolivia, Ecuador, Peru, and Chile have experienced 69 mining conflicts that were a result of water rights within the communities.[20] In the Andean countries, water rights currently exist in a legal pluralism, where many laws often overlap and conflict so communities and regions develop their own structures to allocate water usage.[21] When mining companies enter a region, water agreements are formalized and the community-defined water rights are ignored.[22] Formalizing community involvement prior to projects would provide more equal ground for communities to voice their concerns to mining companies and the government.

Solution Three:

Increase Local Land Rights

In Latin America, like many other parts of the world, minerals found underneath someone's land do not belong to the individual but rather to the country; individuals only own surface rights.[23] This has led to a consistent undervaluation when companies purchase the land from individuals, resulting in economic and social disadvantages for rural mineral-rich communities.[24] Additional laws allow governments to "expropriate" land when it is for a public purpose. In Peru, companies can apply for a "servitude", enabling mining operations to commence without a transfer of title, forcing local landowners to give up their property.[25] Collective campesino community lands in Peru became eligible for mining servitude applications and sale by the community in 1993. While not granted, the servitude system and the privatization of indigenous land opened the region for procurement making it more attractive to potential mining investors.[26]

The loss of community land has potential ramifications for many rural communities once the mine is no longer financially solvent. After the mine is abandoned, environmental problems persist impacting the profitability of other industries, such as agriculture. Implementing policies to strengthen communities' and individuals' land rights will minimize the unequal balance of power and allow communities to experience some redress. [27] However, this policy option would be difficult for the governments in the region to implement due to the complex nature of establishing a secure property rights system and registering each property.[28]

Solution Four:

Mandate Compliance of the Sustainable Development Goals

The Sustainable Development Goals (SDGs), established in the 2030 Agenda for Sustainable Development, have created guidelines for future development and play a significant role in the future of mining. Each of the seventeen goals can be implemented to improve the

18 Kieren Moffat and Airong Zhang, "The Paths to Social Licence to Operate: An Integrative Model Explaining Community Acceptance of Mining," Commonwealth Science and Industrial Research Organisation, November 13, 2013, https://doi.org/Elsevier.

19 Milagros Sosa, Rutgerd Boelens, and Margreet Zwarteveen, "The Influence of Large Mining: Restructuring Water Rights among Rural Communities in Apurimac, Peru," Human Organization 76, no. 3 (2017): pp. 215-226.

20 "Conflictos Mineros En América Latina," Observatorio de Conflictos Mineros de América Latina, OCMAL, accessed April 5, 2021, https://mapa.conflictosmineros.net/ocmal_db-v2/conflicto/index/.

21 Leontien Cremers, Marjolein Ooijevaar, and Rutgerd Boelens, "Institutional Reform in the Andean Irrigation Sector: Enabling Policies for Strengthening Local Rights and Water Management," Natural Resources Forum 29 (2005): pp. 37-50.

22 Milagros Sosa, Rutgerd Boelens, and Margreet Zwarteveen.

23 David Szablowski, "Transnational Law and Local Struggles: Mining, Communities, and the World Bank," in Transnational Law and Local Struggles: Mining, Communities, and the World Bank (Oxford, UK: Hart Publishing, 2007), pp. 37-58.

24 Han Wang, John R Owen, and Guoqing Shi, "Land for Equity? A Benefit Distribution Model for Mining-Induced Displacement and Resettlement," Business Strategy and the Environment, June 24, 2020, https://onlinelibrary-wiley-com.uidaho.idm.oclc.org/doi/epdf/10.1002/bse.2585.

25 Szabloski, 37 – 58.

26 Ibid.

27 Han Wang, John R Owen, Guoqing Shi.

28 "Who Owns What?," The Economist (The Economist Newspaper, September 12, 2020), https://www.economist.com/leaders/2020/09/12/who-owns-what.

sustainability and inclusivity of the mining industry (See Appendix I).[29] The United Nations Development Program published *Mapping Mining to the Sustainable Development Goals: An Atlas*, outlining the specific goals the mining industry should accomplish. It breaks down the guidelines into three subsections: environmental sustainability, social inclusion, and economic development relating each subsection to multiple SDGs.[30]

All 193 member states of the United Nations have signed onto the 2030 Sustainable Development Agenda, the Andean countries and the home-countries of mining companies included.[31] Requiring that mining companies operating within their borders comply with the SDGs would assist countries in achieving the sustainable development goals and would improve the livelihoods of their citizens. Given the economic importance of these mining companies and the resulting decreased will to imperil the relationship, host countries could also rely on diplomacy to gain joint pressure from a mining company's home country.

Solution Five:

Reward Greener Mining Practices and Increased Remediation

While mining has become more environmentally friendly and efficient, there are still many methods and technologies, such as drainage and runoff treatment and the green mining method, that can be implemented to reduce their adverse effects.[32] The green mining method, used in California metal mines, requires mining sites to have their own heat and power plant, reducing the impact on the region's power grid. Additionally, the green mining method recycles the initial freshwater used in the mining project, reducing freshwater use by roughly 90%. This reduction would greatly assist local communities who struggle to maintain water access when mines open.[33] To mitigate previous environmental damage, companies must invest in environmentally friendly remediation processes, such as phytoremediation, runoff management, and prioritize sustainable design alternatives during mine construction.[34]

Many of these technological advancements are most effective in conjunction with government policy. Governments must implement guidelines to encourage mining companies to implement greener practices.[35] Mining companies in Chile currently pay a corporate tax of 27% and a mining tax of between 5 – 14%. Australia is the only country with a higher mining tax.[36] Instituting tax credits for mining companies that implement greener technologies and remediation strategies, similar to the R&D incentives that already exist, would make Chile more attractive to potential investors and reduce the environmental impacts of mining within their country.[37]

Solution Six:

Implement Programs to Aid Marginalized Communities

Mining conflicts arise when local communities bear the environmental and socioeconomic ramifications of mining projects but are met

29 UNDP, "How Can Mining Contribute to the Sustainable Development Goals?," Africa Renewal (United Nations), accessed April 5, 2021, https://www.un.org/africarenewal/news/how-can-mining-contribute-sustainable-development-goals.

30 World Economic Forum, "Mapping Mining to the Sustainable Development Goals: An Atlas," July 2016, https://www.undp.org/content/undp/en/home/librarypage/poverty-reduction/mapping-mining-to-the-sdgs--an-atlas.html.

31 "Sustainable Development Goals Officially Adopted by 193 Countries," United Nations, accessed April 5, 2021, http://www.un.org.cn/info/6/620.html.

32 "Hardrock Mining: Acid Mine Drainage," Hardrock Mining: Acid Mine Drainage (Earthworks, n.d.).

33 "Environmentally Sensitive 'Green' Mining," Green Mining, 2016, https://web.mit.edu/12.000/www/m2016/finalwebsite/solutions/greenmining.html.

34 Paulo J.C. Favas et al., "Chapter 17: Phytoremediation of Soils Contaminated with Metals and Metalloids at Mining Areas: Potential of Native Flora," in Environmental Risk Assessment of Soil Contamination, ed. Joao Pratas (InTech, 2014).

35 "Environmentally Sensitive 'Green' Mining,".

36 "Snapshot: Mining Taxes in Chile and Argentina," BNamericas.com (Bnamericas, March 6, 2020), https://www.bnamericas.com/en/features/snapshot-mining-taxes-in-chile-and-argentina.

37 KPMG, "The KPMG Green Tax Index: An Exploration of Green Tax Incentives and Penalties," July 2017.

with limited benefits.[38] Two of the groups most affected by mining projects are women and indigenous communities. Women, who often work in agricultural roles, experience a threat to their livelihoods and an increase in prostitution and sexual violence with the presence of mining developments. This, in conjunction with some women's spiritual connection to the Earth, has led the Andean women of Peru and Ecuador to participate in anti-mining protests.[39]

When analyzing the development of anti-mining protests, they can be broken into escalation stages by the type of mobilization and the reaction by the government or company. A 2020 study analyzed the type of commodity, operator origin, mobilization groups, timing of mobilization, environmental impacts, and socioeconomic impacts to ascertain which factors led a conflict to escalate violently. The study concluded that the presence of marginalized groups (such as women and indigenous communities) led to more violent responses.[40] Given the disproportionate effect mining has on women, it is important to factor women into EIAs and provide economic opportunities for women. This could be accomplished through the government programs and the diversification of supply chains, allowing for the inclusion of women.[41]

RECOMMENDED SOLUTIONS:

Solutions 1, 2, 4, 5, and 6

As in the case of Tía María, mining conflicts arise and escalate to greater violence when communities feel that their needs are being overlooked.[42] It is important to address the disproportionate impacts of mining so communities do not bear all the negative effects. The escalation of violence is particularly strong when protests are reactionary to mining issues rather than a preventative measure against the start of a project.[43]

Governments, NGOs, and mining companies within the Andean countries should implement programs that bring communities into the planning process. The proposed solutions that address this condition are human rights-based approaches to environmental impact assessments, prior community engagement, greener mining practices, mandating compliance with the sustainable development goals and programs to assist marginalized communities. Systems of prior community engagement already exist within South America. NGOs and other community-based organizations use methods of engagement to ascertain views on mining projects. While this already established system is not commissioned by the government, it would be easily incorporated into the steps required to start a mining project. Prior community engagement would reduce the number of conflicts in years to come.[44]

In addition to these community-oriented policies, green mining practices that mitigate mining's impact should also be incorporated. Remediation programs will reduce the existing harmful effects of mining for communities and introduce more sustainable mining methods for the future. Given the critical nature of water

38 Mariana Walter and Leire Urkidi, "Community Mining Consultations in Latin America (2002-2012): The Contested Emergence of a Hybrid Institution for Participation," Geoforum 84 (August 2017): pp. 265-279.

39 Katy Jenkins, "Unearthing Women's Anti-Mining Activism in the Andes: Pachamama and the 'Mad Old Women,'" Antipode 47, no. 2 (March 2015): pp. 442-460, https://onlinelibrary.wiley.com/doi/abs/10.1111/anti.12126.

40 Mara Weiß, "Mining and Social Conflict in Latin America: Which Factors Drive Conflict Escalation?," fineprint, August 7, 2020, https://www.fineprint.global/publications/briefs/mining-conflict-escalation/#ref-Yasmi.2006.

41 Valentina Ruiz Leotaud, "IGF Proposes Policy Actions to Support Women in Mining," MINING.COM, March 8, 2021, https://www.mining.com/igf-proposes-policy-actions-to-support-women-in-mining/.

42 Alejandra Diaz and Cesar Padilla "¿Agua o Minería? Resistencias Comunitarias En América Latina," El Observatorio de Conflictos Mineros de America Latina, August 2019, https://www.ocmal.org/informe_no1corr-ultima-version/.

43 Mara Weiß.

44 Mariana Walter and Leire Urkidi, "Community Mining Consultations in Latin America (2002-2012): The Contested Emergence of a Hybrid Institution for Participation," Geoforum 84 (August 2017): pp. 265-279.

for both the local communities and the mining companies, a policy that uses water more efficiently can help reduce disputes.[45]

Another step towards a more sustainable future for mining communities is the implementation of the sustainable development goals. Bolivia, Chile, Ecuador, and Peru have all signed the 2030 Sustainable Development Agenda and are working towards accomplishing these goals within their own country.[46] Extending these expectations to the multinational mining companies that operate within their borders would improve the nations' abilities to accomplish the development goals. Additionally, with this unified front, a smaller decrease in investment would be anticipated since more lax alternatives are no longer available. In contrast, increasing local land rights has the potential to reduce mining investments and would be labor-intensive.[47] Given the large volume of mining products that the Andean countries export, increasing local land rights would be less desirable for the governments.[48] As a result, this solution is less likely as long as Bolivia, Ecuador, Chile, and Peru have such significant economic ties to mining.

While the Andean states remain dependent upon natural resources and foreign investment to maintain their economic stability it is unlikely that the states will transition away from mining. As a result, the Andean countries must implement policies to reduce conflict between local communities and mining companies, improving their citizens' quality of life and ensuring larger investments in the region.

45 "Conflictos Mineros En América Latina," Observatorio de Conflictos Mineros de América Latina, OCMAL, accessed April 5, 2021, https://mapa.conflictosmineros.net/ocmal_db-v2/conflicto/index/.

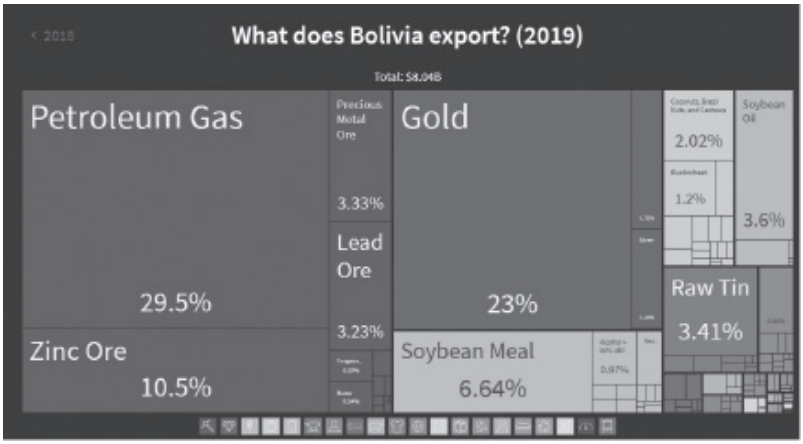
46 "Sustainable Development Goals Officially Adopted by 193 Countries," United Nations, accessed April 5, 2021, http://www.un.org.cn/info/6/620.html.

47 Han Wang, John R Owen, and Guoqing Shi, "Land for Equity? A Benefit Distribution Model for Mining-Induced Displacement and Resettlement," Business Strategy and the Environment, June 24, 2020, https://onlinelibrary-wiley-com.uidaho.idm.oclc.org/doi/epdf/10.1002/bse.2585.

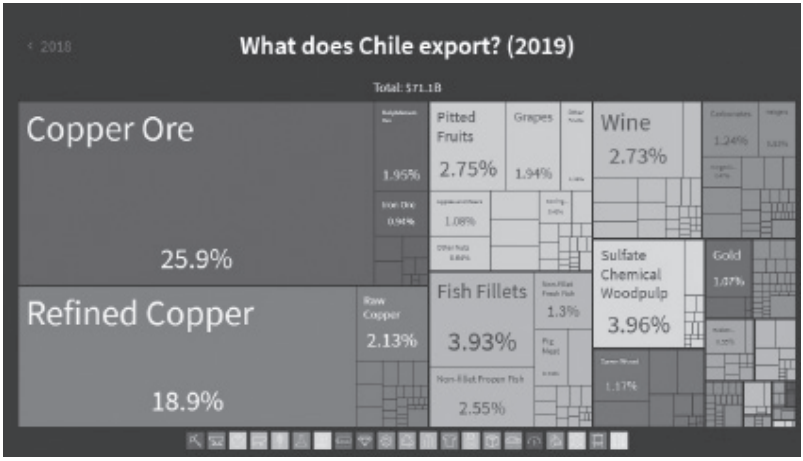
48 Observatory of Economic Complexity, "Country Profile Exports," OEC, 2020, https://oec.world/en/profile/country.

APPENDICES

Appendix A[49]



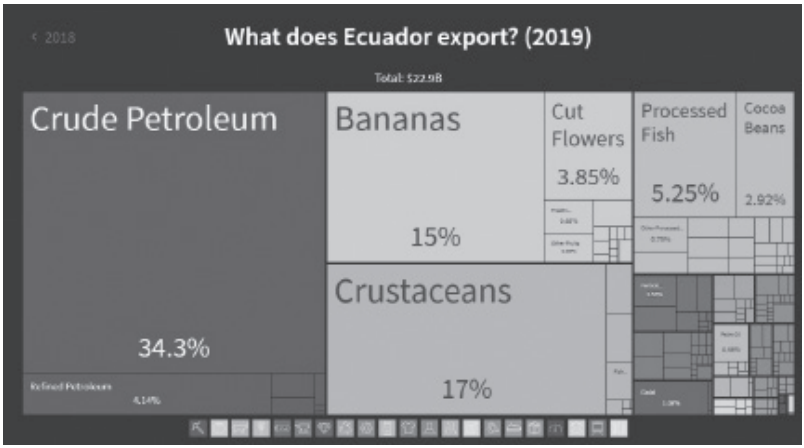
Appendix B[50]



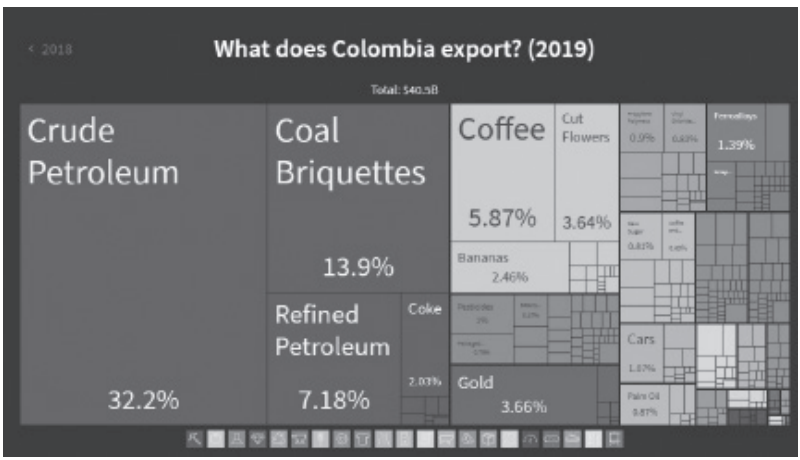
49 Observatory of Economic Complexity, "Country Profile Exports," OEC, 2020, https://oec.world/en/profile/country.

50 Ibid.

***Appendix C*[51]**



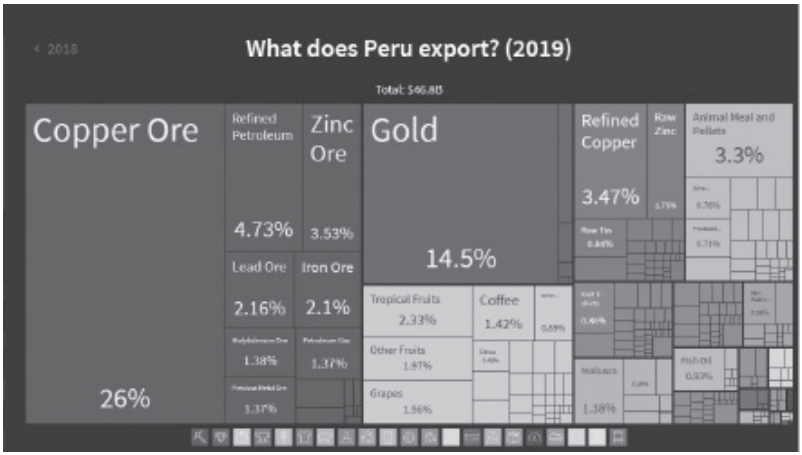
***Appendix D*[52]**



51 Ibid.

52 Ibid.

***Appendix E*[53]**



Appendix F:

Social Unrest and Mining Conflicts in Latin America 1970 – 2020 [54]

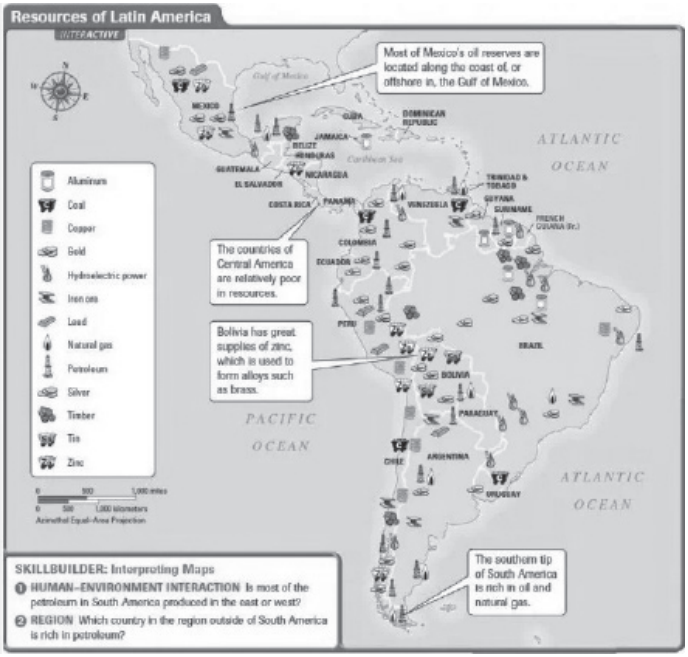
Mining conflicts and social unrest are ranked at each site by their intensity level. The rankings are low, medium, and high. Conflicts and social unrest include street protests, visible organizing, group mobilization, violence, and arrests.

53 Ibid.

54 "Mining Conflicts in Latin America," Environmental Justice Atlas, accessed April 6, 2021, https://ejatlas.org/featured/mining-latam.

Appendix G:

Mineral Resources in Latin America[55]

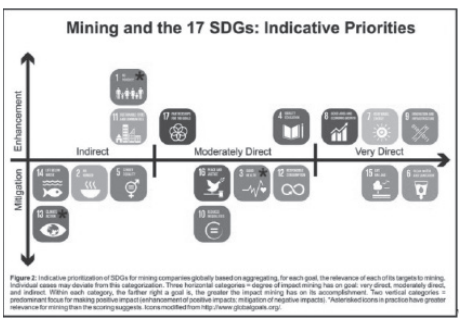


2021, https://geography.name/latin-america-landforms-and-resources/.

Appendix H

Within Colombia the violence concerning the price of commodity changes based on the type of commodity. When the price of oil increases, violence in Colombia increases. However, when the price of coffee increases violence declines. This is a result of the paramilitary groups that move into control the high-value resource (gold or other minerals), thereby disrupting the mining conflicts that typically occur between local communities and mining organizations.[56]

Appendix I[57]



56 Ramiro Albrieu and Gabriel Palazzo, "Mapping Social Conflicts in Natural Resources: a Text Mining Study of Extractive Activities," CEPAL Review 131 (August 2020), https://www.cepal.org/en/publications/46586-mapping-social-conflicts-natural-resources-text-mining-study-extractive.

57 UNDP, "How Can Mining Contribute to the Sustainable Development Goals?," Africa Renewal (United Nations), accessed April 5, 2021, https://www.un.org/africarenewal/news/how-can-mining-contribute-sustainable-development-goals.

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Mitigating the Impacts of Overtourism in Populous Western European Cities

– Olive Swan

ABSTRACT

In recent years, the problem of overtourism has become increasingly apparent as globalization has made traveling more affordable and more attractive. While the tourism sector offers its destinations a range of socio-economic and cultural benefits, historic European cities are buckling under the pressure of massive hordes of tourists within their streets. The impacts of tourism can be categorized into three main categories: social, economic, and environmental. Given the pollution, increased cost of living, crowding, and disorderly conduct of tourists, residents across Western Europe have felt that their cities were becoming unlivable and have reacted with tourism-phobia sentiment and anti-tourist protests. Understanding the tourism threshold of large, populous cities is critical to properly managing tourism. Now, in the wake of COVID-19, international arrivals have decreased exponentially, with Europe suffering some of the greatest economic losses. As we look to the future, a variety of possible policy solutions may enable European countries to address overtourism, while reopening their cities in sustainable ways that improve both residents' and tourists' experiences.

BACKGROUND AND OVERVIEW

As traveling both domestically and internationally has become much easier and more affordable, tourism has become one of the fastest-growing industries in the world, with a more than 56% increase over the past seven decades.[1] The definition of tourism varies. The most commonly agreed-upon definition describes tourism as the movement of people for less than a year from their usual environment for purposes of business, leisure or other personal reasons.[2] It is important, however, to make a distinction between tourism and mass tourism. Mass tourism involves large, organized flows of people to popular tourist destinations.[3] Following the end of World War II, the phenomenon of mass tourism arose after military personnel returned home and shared their positive experiences from abroad. Modern travel via jet has since been popularized, as has widespread internet access that has enabled people to research and plan vacations to far-away destinations. That, combined with the creation of travel companies, has only made group travel that much easier and more attractive.[4]

Today the tourism industry continues to grow exponentially. In 2019, tourism was the leading economic industry, accounting for 10.3% of the world's GDP and providing 330 million jobs around the globe.[5] The tourism industry is a driver not only of economic development but also of peace, requiring states to interact and communicate with each other and fostering better international relations.[6] With these benefits in mind, it is clear why global stakeholders are eager to use tourism to facilitate socio-economic growth.

The tourism industry has been the center of debate in recent years as it holds many benefits, but also poses a number of unique challenges. In 2019, tourist flows reached almost 1,460 million international arrivals, half of which involved travel to Europe.[7] While many Europeans rely on tourism for their livelihoods (in 2018, the sector directly contributed 782 billion euros to Europe's GDP[8]), they have been exasperated by the issues that arise from the massive influx of tourists to various regions around Europe and even staged protests against overtourism in a number of these cities in 2019.[9] Overtourism occurs when popular destinations are saturated with visitors beyond the destination's holding capacity, often negatively affecting the quality of inhabitants' lives or tourist experiences. Thus, the effects of overtourism include, but are not limited to, anti-tourist sentiment, overcrowding, environmental degradation such as pollution and litter, overloaded infrastructure and cultural deterioration.[10]

In 2019, Paris, Barcelona, Prague and Amsterdam were among the leading European

1 Roser, Max. "Tourism," Our World in Data, retrieved April 4, 2021, https://ourworldindata.org/tourism.

2 "Glossary of Tourism Terms," UNWTO, retrieved April 4, 2021, https://www.unwto.org/glossary-tourism-terms.

3 Naumov, Nikola., Green, David. "Mass Tourism," *Encyclopedia of Tourism,* (Jafari, J., Xiao, H., 2016), https://doi.org/10.1007/978-3-319-01384-8_378.

4 Cook, R., et al., *Tourism – The Business of Hospitality & Travel,* Pearson, 6th edition, (2018), Pgs. 12-14, https://www.pearsonhighered.com/assets/samplechapter/0/1/3/4/0134484487.pdf.

5 "Economic Impact Reports," World Travel & Tourism Council, retrieved April 4, 2021, https://wttc.org/Research/Economic-Impact.

6 Cook, R., *Tourism,* (2018), Pg. 14, https://www.pearsonhighered.com/assets/samplechapter/0/1/3/4/0134484487.pdf.

7 Statista Research Department, "Number of international tourist arrivals worldwide 2010-2019, by region," *Statista*, last modified March 5, 2021, https://www.statista.com/statistics/186743/international-tourist-arrivals-worldwide-by-region-since-2010/.

8 Statista Research Department, "Travel and tourism in Europe - Statistics & Facts," *Statista*, last modified December 3, 2020, https://www.statista.com/topics/3848/travel-and-tourism-in-europe/.

9 Milano, Claudio., Cheer, Joseph., Novelli, Marina. "Overtourism: a growing global problem," *The Conversation* (July 18, 2018), https://www.researchgate.net/profile/Claudio-Milano/publication/326573468_Overtourism_a_growing_global_problem/links/5b570f2a45851507a7c4e29a/Overtourism-a-growing-global-problem.pdf.

10 Capocchi, Alessandro., et al. "Overtourism: A Literature Review to Assess Implications and Future Perspectives," *MDPI* (June 15, 2019), https://www.mdpi.com/2071-1050/11/12/3303/htm.

city destinations.[11] Each city has felt the negative effects of overtourism, ranging from exorbitant rent increases to degradation of World Heritage sites.[12] Europe finally got a reprieve from the overtourism debacle when the COVID-19 pandemic struck, which decreased tourist arrivals by 66% at the beginning of 2020.[13] With international tourist flow not expected to reach 2019 levels for another 2 ½ to 4 years,[14] now is the time to develop succinct policies to mitigate the future impacts of overtourism.

POSSIBLE SOLUTIONS

APPROACH 1

Controlling Visitor Flows

Visitor flows can be managed in a variety of ways to ease pressures on host communities and facilitate better tourist experiences. Implementing such measures in cities like Barcelona, which has experienced a quadruple in tourists over the past 10 years, is crucial.[15] These strategies could include the redirecting of tourists to lesser-known areas, reducing the attention given to popular tourist attractions, encouraging people to plan their visits in the off-season, limiting visitor access to vulnerable areas and educating tourists on the importance of minimizing dwell time in popular tourist destinations.[16] These measures for managing visitor flows seem to work best when they are facilitated through the joint effort of the government, destination marketing organizations (DMOs), and other stakeholders in the tourism industry. Amsterdam has been particularly effective in reducing tourism congestion in historically overcrowded destinations. The success of the city's "Visit Amsterdam, See Holland" project has been largely due to the way Amsterdam has marketed Holland as a whole, boosting the spread of visitors to areas outside of the city.[17] As tourists explore "hidden gems" of Holland such as the historic city of Leeuwarden or the Dutch Coast[18], tourist flows are directed outside of Amsterdam and reducing overcrowding in Amsterdam itself.[19] Similar projects and campaigns implemented by other Western European cities could foreseeably achieve comparable levels of success.

APPROACH 2

Revenue Management

Post COVID, the overcrowding occurring in these European cities could be limited using taxes, fines, pricing and other revenue-management tools.[20] By making the process of traveling to and staying in popular destinations more expensive, countries can manage the flow of tourists more easily, especially given that many tourism industries around Europe failed to provide adequate price controls pre-COVID. With the demand for tourist hotspots

11 Statista Research Department, "Leading European city tourism destinations in 2019, by number of bednights," *Statista*, last modified December 8, 2020, https://www.statista.com/statistics/314340/leading-european-city-tourism-destinations-by-number-of-bednights/.

12 Henley, Jon., "Overtourism in Europe's historic cities sparks backlash," *The Guardian*, last modified January 25, 2020, https://www.theguardian.com/world/2020/jan/25/overtourism-in-europe-historic-cities-sparks-backlash.

13 "International Tourist Numbers Down 65% in First Half of 2020, UNWTO Reports," *UNWTO*, September 15, 2020, https://www.unwto.org/news/international-tourist-numbers-down-65-in-first-half-of-2020-unwto-reports.

14 "Impact Assessment of the COVID-19 Outbreak on International Tourism," UNWTO, last modified December 2020, https://www.unwto.org/impact-assessment-of-the-covid-19-outbreak-on-international-tourism, see Appendix A

15 Henley, Jon., "Overtourism," 2020, https://www.theguardian.com/world/2020/jan/25/overtourism-in-europe-historic-cities-sparks-backlash, see Appendix B

16 "Guide 8: Managing visitor behaviour," *UNESCO*, retrieved April 4, 2021, http://whc.unesco.org/sustainabletourismtoolkit/guides/guide-8-managing-visitor-behaviour.

17 Koens, Ko., Postma, Albert., "Understanding and Managing Visitor Pressure in Urban Tourism," *Centre of Expertise*, Pgs. 36 – 37, https://www.celth.nl/sites/default/files/2018-09/Avoiding%20visitor%20pressure%20in%20European%20cities.pdf.

18 "Destinations and regions in Holland," *The Netherlands Board of Tourism & Conventions*, https://www.holland.com/global/tourism/destinations.html.

19 Koens, Ko., Postma, Albert., "Understanding and Managing Visitor Pressure in Urban Tourism," *Centre of Expertise*, Pgs. 36 – 37, https://www.celth.nl/sites/default/files/2018-09/Avoiding%20visitor%20pressure%20in%20European%20cities.pdf.

20 Seraphin, Hughes., "Overtourism," 2020, https://doi-org.uidaho.idm.oclc.org/10.1057/s41272-020-00241-7, see Appendix C.

outpacing the supply, raising airport, port, parking and hotel fees, along with significantly increasing ticket prices for attractions, are effective measures that can and should be taken to reduce overtourism in sensitive areas. Such measures, including introducing a seasonal tourist tax, could promote traveling in the off-season and further mitigate the impacts of overtourism.[21] Barcelona, for example, has used revenue management tools and taxes to reduce overcrowding. This past year, the city implemented a tourism tax of 3.5 euros per person, per day.[22] Although these steps have been effective in limiting tourist flows, one should be wary of the risk that imposing too many revenue regulations poses. It should be noted that locations that rely on tourism for their livelihood could see significant drops in revenue if they levy excessive taxes on tourism.[23]

APPROACH 3

Comprehensive Urban City Planning

Urban planning is desperately needed to manage tourist flows that have been highly concentrated in urban areas. Such planning describes the physical planning of the city and can make a large impact on the ability of the city itself to manage tourist flows. Until recently, including tourism in urban planning was not a common practice. Considering tourism to be a part of urban city planning when introducing regulations and restrictions is often hailed as the most effective approach in mitigating overcrowding.[24] The use of such regulations and restrictions is crucial, as the lack thereof has resulted in the overcrowding of popular tourist attractions. Often clustered unevenly throughout cities, unregulated hotspots can severely stretch neighborhood carrying capacities.[25] Residents in Paris in particular suffer from this problem, some even claiming to feel like they live in a "theme park,"[26] with massive tourist crowds often displacing traditional neighborhood activities. This kind of overcrowding often leads to tourism-phobia. This sentiment becomes widespread when residents come to feel estranged from their own cities as the boundaries blur between residential and tourist areas. Tourism-phobia has been related to conflicts and protests that arise from the gentrification of neighborhoods, increases in housing costs, and the diminishing ability of residents to identify with their cities. Recognizing this, local government institutions should implement zoning strategies, reinforce boundaries between residential and tourist districts, and consider both tourism and urban planning together when creating plans for future urban development.[27]

APPROACH 4

Introducing Codes of Conduct to Improve Tourist Behavior

Recent events such as disorderly conduct of drunken visitors in Amsterdam, the degradation of ancient neighborhoods in Prague, pollution and high noise levels in a variety of other historic European cities[28] have highlighted the need to reinforce methods that support better tourist behavior. Understanding this, in Prague, night mayor Jan Štern was elected to collaborate with bar and club owners to help develop policies that would ease noise levels

21 Seraphin, Hugues., Ivanov, Stanislav., "Overtourism: a revenue management perspective," *Journal of Revenue Pricing Management,* no. 19, Pgs. 146–150 (April 11, 2020), https://doi-org.uidaho.idm.oclc.org/10.1057/s41272-020-00241-7.

22 A. Diaz, "Tourist accommodation tax in Barcelona, *Statista,* last modified February 12, 2021, https://www.statista.com/statistics/773883/tourist-accommodation-tax-in-barcelona-spain/.

23 Abend, Lisa., "Europe Made Billions from Tourists. Now It's Turning Them Away," *Time*, last modified July 26, 2018, https://time.com/5349533/europe-against-tourists/.

24 Vaquero, Manuel de la Calle., et al., "Urban Planning Regulations for Tourism in Context of Overtourism," *Sustainability* (2020), https://www.mdpi.com/2071-1050/13/1/70.

25 Shoval, Noam., "Urban planning and tourism in European cities," *Tourism Geographies,* no. 20 (2018), https://www.tandfonline.com/doi/full/10.1080/14616688.2018.1457078.

26 Isère, Karen., "Tourisme de masse: la grande menace," *Paris March*, last modified November 8, 2019, https://www.parismatch.com/Actu/Environnement/Tourisme-de-masse-la-grande-menace-1641696.

27 Zemla, Michal., "Reasons and Consequences of Overtourism in Contemporary Cities," *Sustainability* (2020), Pgs. 10-12, https://www.mdpi.com/2071-1050/12/5/1729.

28 Henley, Jon., "Overtourism in Europe's historic cities sparks backlash," *The Guardian*, last modified January 25, 2020, https://www.theguardian.com/world/2020/jan/25/overtourism-in-europe-historic-cities-sparks-backlash.

and drunken behaviors among tourists.[29] Such efforts may be furthered by using the United Nations World Tourism Organization "Global Code of Ethics for Tourism (GCET)." The GCET includes a set of declarations and standards of best practices that serve as a point of reference that industry stakeholders can use to mitigate the negative effects of tourism.[30] Cities could address many tourism-industry impacts by distributing the GCET framework guidelines to various European cities or popular tourist attractions.[31] This initiative would require the implementation of best standards of practice at each city attraction or tourist destination. The guidelines could then be publicized and distributed for use in specific areas of high vulnerability. This, in conjunction with regular feedback from visitors and inhabitants of host cities, would ensure that guidelines for improved tourist conduct are being adhered to and being altered to each unique attraction.[32] Introducing standards of best practices could foster mutual respect between citizens and tourists, resulting in a more positive experience for both parties.

APPROACH 5

Better Governance for Sustainable Tourism

To address the more nuanced impacts of tourism, a government strategy must be developed to reflect a shared vision and philosophy and shared objectives and constraints. The strategy should be the result of collaboration between different levels of the government and various stakeholders within the public and private sectors.[33] Without input from stakeholders, a lack of communication and consensus between local and national government structures can result in a failure to provide a shared framework for promoting sustainable tourism.[34] With input from tourists, the private sector, host communities and other institutions, governments can lead explorations into a variety of topics associated with achieving sustainable tourism. Such topics could include the effects of overtourism, the carrying capacity of cities, the environmental impacts of tourism and overall tourist satisfaction. The inclusion of *all* stakeholders is crucial in the development of a model for sustainable tourism, as the interests of the private sector often take precedent over the needs of local citizens.[35] Pursuing a bottom-up approach would eliminate discrepancies between differing national and local attitudes regarding sustainable tourism, and would enable better governance through the development of succinct policies and standards.

RECOMMENDED APPROACH

While the concept of overtourism has only recently materialized in academia and the media, the effects of "too much" tourism have been felt for decades. As such, policymakers, government organizations, private and public institutions, and inhabitants of host cities have held differing views on how to properly manage tourism. Navigating the intricacies of overtourism is no easy task and must be addressed, not by one singular approach, but with the culmination of a select few.

Each aforementioned approach has its own unique set of strategies to address the various moving parts of overtourism. Recognizing this, they should be pursued together to encompass the needs of everyone within the European tourism industry. The complexity of this issue requires the guiding principles found in

29 "Prague: Measures against overtourism," *Urbanauth*, last modified November 8, 2019, https://urbanauth.eu/prague-measures-against-overtourism-eng/.

30 "Background of the Global Code of Ethics for Tourism," *UNWTO*, retrieved April 4, 2021, https://www.unwto.org/background-global-code-ethics-tourism.

31 "Global Code of Ethics for Tourism," *UNWTO*, retrieved April 4, 2021, https://www.unwto.org/global-code-of-ethics-for-tourism.

32 "GSTC Destination Criteria," *Global Sustainable Tourism Council,* no. 2 (December 6, 2019), Pgs. 12 – 14, https://www.gstcouncil.org/wp-content/uploads/GSTC-Destination-Criteria-v2.0.pdf.

33 OECD, "Tourism," 2010, ., https://www.oecd-ilibrary.org/industry-and-services/oecd-tourism-trends-and-policies-2010/tourism-2020_tour-2010-4-en., see Appendix D

34 OECD, "Tourism 2020: Policies to Promote Competitive and Sustainable Tourism," *OECD Tourism Trends and Policies* (2010), Pgs., 10 - 11., https://www.oecd-ilibrary.org/industry-and-services/oecd-tourism-trends-and-policies-2010/tourism-2020_tour-2010-4-en.

35 Antonio dos Anjos, Francisco., Kennell, James., "Tourism, Governance and Sustainable Development," *Sustainability* (2019), https://www.mdpi.com/2071-1050/11/16/4257/htm.

approach 5, better governance for sustainable tourism, and the support from aspects found within the other approaches. A shared vision between residents, all levels of the government and the private sector on tourism policies and objectives must be developed and implemented based on the input shared through their collaboration. Such an approach can be implemented quickly and can continue to be used in the long term to address any further problems if and when they arise. In the past, it is the failures of communication and collaboration that have led to shortcomings in addressing overtourism.[36]

To effectively utilize good governance, policymakers should use a bottom-up approach to create policies that are a product of local responses and needs. Such an approach is critical, given that the main objective with tourism for destination marketing organizations (DMOs) and most local governments is growth in visitor numbers. The topic of sustainable growth should then be introduced, with policymakers encouraging public discourse and facilitating town hall meetings between public and private-sector organizations. Such public discourse allows industry stakeholders such as DMOs and government agencies to discern when the threshold for tourism among residents, as well their cities' capability to handle tourist flows, has been reached.[37] In alignment with this overarching theme of good governance, actually acting on the feedback from residents will help better both the quality of residents' lives and tourists' experiences.

Controlling visitor flows, utilizing revenue management tools, actualizing codes of conduct to support better tourist behavior and upholding comprehensive urban planning can be incorporated as elements to use under the scope of approach 5. Former secretary general to the UNWTO Taleb Rifai has noted that "Growth is not the enemy, it's how we manage it that counts."[38] As the vaccine for the COVID-19 pandemic rolls out and life begins to return to normal, it will be critical to use good governance in conjunction with the components of the above-mentioned approaches to guide the recovery of Europe's tourism industry in a sustainable fashion.

36 Peeters, Paul., et al., "Overtourism: impact and possible policy responses," *Research for TRAN Committee* (2018), Pgs. 103 – 105, https://www.europarl.europa.eu/RegData/etudes/STUD/2018/629184/IPOL_STU(2018)629184_EN.pdf.

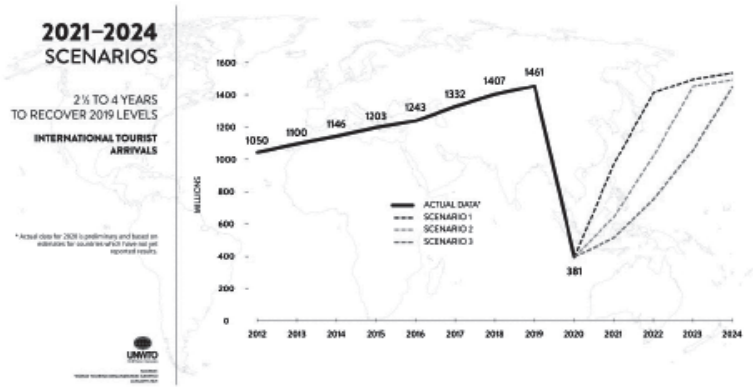
37 Gössling, Stefan., «Overtourism, optimisation, and destination performance indicators: a case study of activities in Fjord Norway,» *Journal of Sustainable Tourism,* no. 27 (2019), https://www.tandfonline.com/doi/full/10.1080/09669582.2018.1533020.

38 Rifai, Taleb., "Tourism: growth is not the enemy; it's how we manage it that counts," UNWTO, last modified August 15, 2017, https://www.unwto.org/archive/global/press-release/2017-08-15/tourism-growth-not-enemy-it-s-how-we-manage-it-counts.

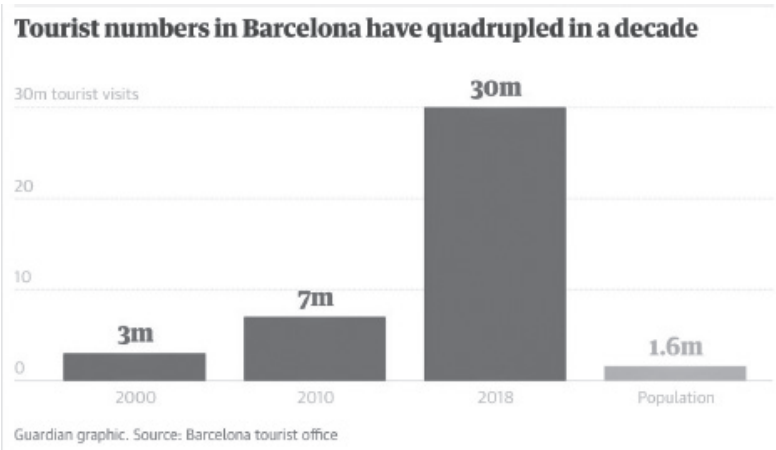
APPENDICES

APPENDIX A:

2021–2024 SCENARIOS



APPENDIX B:



APPENDIX C:

Fig. 2

From: Overtourism: a revenue management perspective

APPENDIX D:

Figure 2.1. **Developing a government strategy for tourism**

Source: Goeldner and Ritchie (2003).

ADDITIONAL WORKS CONSULTED

Buckley, Julia., "Destinations have vowed to fight back against overoturism for 2020," *CNN*, last modified January 23, 2020, https://www.cnn.com/travel/article/overtourism-europe-2020-destination-measures/index.html.

Peeters, Paul., "Overtourism: impact and possible policy responses," *European Parliament*, last modified November 6, 2019, https://www.europarl.europa.eu/cmsdata/188404/20191106_Overtourism_Peeters-original.pdf.

Regional Cooperation for Agricultural Development in West Africa

– Karsten Schumaker

ABSTRACT

Agriculture is a key driver of gross domestic product and employment in West Africa and holds strong potential for growth. The challenge of development of the agricultural sector is observed from a regional perspective in order to find ways that West African states can work together on strategies for growth. A number of recommended approaches are introduced, one of which is explained further due to its feasibility. Given the tendency of states to focus exclusively on internal agricultural development, the best solutions tend to focus on the value that non-state actors can provide as long as the state provides the necessary policy structure. National extension frameworks that set clear priorities and promote a pluralistic approach involving regionally focused organizations and private businesses are recommended as a way of reaching farmers, whether larger or small, and providing resources necessary for value chain development.

ISSUE OVERVIEW

Agriculture makes up 23% of gross domestic product (GDP) in Sub-Saharan Africa,[1] much of which comes from smallholder farmers who make up 60% of the population.[2] West Africa reflects this broader trend. Appendix A provides a visual of the amount of land in the region that is dedicated to agriculture. Therefore, emphasizing development of the agricultural sector will significantly boost GDP as well as incomes for the poorest in West Africa's economy.

There is no lack of room for improvement in Western Africa's agriculture. Much of the

1 Goedde, Lutz, et al. "Winning in Africa's Agricultural Market." *McKinsey & Company,* McKinsey & Company, 20 Mar. 2019, www.mckinsey.com/industries/agriculture/our-insights/winning-in0-africas-agricultural-market.

2 Ibid

agricultural infrastructure was developed during colonialization and in a way that emphasized exportation out of the region and high yields with little care for sustainability. This colonial history has laid the foundation for the challenges that it experiences today including crop yields,[3] infrastructure, access to fertilizers, poor efficiency in trade due to systemic corruption, greater access to education and resources for smallholder farmers, more drought resistant crop varieties, and an improved ability of producers to adjust to market demands. West African producers are also hindered by a lack of technology, resulting in 60% of farm labor being provided by human muscle.[4] West African farmers are also adversely exposed to climate change while also working in an industry that contributes heavily to greenhouse gas emissions.[5]

Despite its regional importance and homogeneity, the challenge of agricultural development has not been met with the sort of cooperation that many suggest is necessary. Policymakers are hindered by a lack of clarity as to which areas of development are most addressable through regional cooperation, and what forms of cooperation are most likely to produce results. Nigeria, as the number one economy in Africa, has been the most prominent example of this hesitance towards cooperation. The state's strategy for agricultural development has largely consisted of import limiting policies aimed at protecting producers from competition, sometimes at the expense of consumers who face rising commodity prices and a weakening currency. It was only November of 2020 that Nigeria finally ratified the African Continental Free Trade Area Agreement (ACFTA)[6] after delaying becoming a signatory over fears of disadvantageous trade policy.

One of the other hinderances to regional cooperation lies in the proportion of agriculture that is carried out by smallholder farmers who lack the means to come together to address challenges. Government entities such as the United States Foreign Agriculture Service (FAS) as well as the Economic Community of West African States (ECOWAS)[7] play key roles in fostering relationships between the private and public sector. The level at which large international actors engage the issue is one that risks leaving the poorest behind[8] in land deals where local elites and foreign investors have an advantage over farmers who lack the power to effectively claim their rights to their land.[9] Therefore, regional cooperation must be carried out in a very strategic fashion in order to ensure inclusive and sustainable development as well as participation of all West African states.[10]

Approach 1:

Promote Open Trade Policy in Nigeria

As the economic powerhouse in the region, Nigeria's regional trade policy is a key bridge to cross on the road to agricultural development. To start, Nigeria could focus on reducing import barriers on commodities that are high demand inputs to its own agricultural sector. One such area could be the inputs of corn and

3 Ibid

4 "Farming Equipment, a Luxury for African Farmers." Farm Sahel. Farm Sahel, December 27, 2020. https://www.farmsahel.org/post/farming-equipment-a-luxury-for-african-farmers?gclid=Cj0KCQiAj9iBBhCJARIsAE9qRtAtl79l49NdKzFvvE6oqOliHOigd-n-RHLVwlgD32MqWnVcqi-1tG0aAvM3EALw_wcB.

5 *Agriculture and Climate Change: Towards Sustainable, Productive and Climate-Friendly Agricultural Systems*. OECD Meeting of Agriculture Ministers: Background Notice. OECD, 2016.

6 "UPDATE 1-Nigeria's Government Ratifies Africa Free-Trade Membership." Reuters. Thomson Reuters, November 12, 2020. https://www.reuters.com/article/africa-trade-nigeria/update-1-nigerias-government-ratifies-africa-free-trade-membership-idINL1N2HY20R .

7 Whose member states will define the use of the term West Africa in this paper – see Appendix B

8 Willoughby, Robin. Rep. *Moral Hazard? 'Mega' Public-Private Partnerships in African Agriculture*. Oxfam International, September 1, 2014. https://policy-practice.oxfam.org/resources/moral-hazard-mega-public- private-partnerships-in-african-agriculture-325221/ .

9 Zagema, Bertram. Rep. *Land and Power: The Growing Scandal Surrounding the New Wave of Investments in Land*. Oxfam International , September 22, 2011. https://policy-practice.oxfam.org/resources/land-and-power-the-growing-scandal-surrounding-the-new-wave-of-investments-in-l-142858/ .

10 "Economic Community of West African States (ECOWAS)." Economic Community of West African States ECOWAS, 2016. https://www.ecowas.int/ecowas-sectors/agriculture/ .

soybeans in support of the poultry sector. As Nigeria develops, the demand for protein such as poultry increases; but despite the efforts of national policy, local producers are struggling with production. This has been due largely to a fifty percent increase in the cost of chicken feed, which consists largely of corn and soybeans.[11] Nigeria's current production, along with minimal imports is meeting estimated demand by a razor thin margin, leaving Nigeria highly vulnerable to supply shocks[12] (see Appendix C and D). Nigeria should look for ways to increase exports, meet government demand for foreign exchange and promote regional importation in order to bring down prices for consumers and allow more sustainable growth of domestic industries.

Additionally, by formalizing regional trade relationships and backing policy with strong institutional support, Nigeria and other trade partners can capture the benefits of regional trade, 75% of which currently goes on in the informal sector.[13] The caveat of this policy is the need for it to be met with increased productivity from regional trade partners.[14] Nigeria could move forward by creating a defined plan for achieving their recent commitments to the ACFTA. [15]

11 "Poultry Owners Lament Low Patronage, as Price of Chickens Jump by 40% during Christmas." Nairametrics, December 30, 2020. https://nairametrics.com/2020/12/30/poultry-owners-lament-low-patronage-as-price-of-chickens-jump-by-40-during-christmas/.

12 Anderson, B. B. (2019, November 06). Nigeria: Commercial Market in the Making. Retrieved March 26, 2021, from https://www.ilsoy.org/article/nigeria-commercial-market-making#:~:text=Last%20year%2C%20Nigeria's%20soybean%20imports,total%20some%2038%2C000%20metric%20tons .

13 Torres, Carmen, and Jeske van Seters. "Overview of Trade and Barriers to Trade in West Africa: Insights in Political Economy Dynamics, with Particular Focus on Agricultural and Food Trade." *European Center for Development Policy Management* 195 (July 2016).

14 Ibid

15 "Nigeria Signs African Free Trade Area Agreement." BBC News. BBC, July 7, 2019. https://www.bbc.com/news/world-africa-48899701

Approach 2:

Begin New Phase of the West Africa Agricultural Productivity Program (WAAPP)

The WAAPP was a ten-year program[16] begun in 2008[17] by ECOWAS and the African Union[18] through funding from the World Bank to promote regional cooperation for agricultural development. One of WAAPP's greatest strengths lies in the way it was designed to adapt to the unique needs and priorities of its members.[19] Methods involved supporting research centers with

a focus on commodities that held a competitive advantage for the center's host country and disseminating new technology and information by means of cooperatives and extension centers.[20] The WAAPP also worked directly with producers to create incentives for planting and reselling of new seed varieties.[21] Additionally, the relatively small portion of funding derived directly from beneficiary states allowed for buy in from member states without creating financial barriers.[22]

Within the first eight years of the project, WAAPP is estimated to have increased

16 West Africa Agricultural Productivity Program. Accessed March 26, 2021. http://www.waapp-ppaao.org/en/content/who-we-are#:~:text=The%20WAAPP%20is%20a%20ten,phases%20of%205%20years%20each.

17 "West Africa Agricultural Productivity Program (WAAPP/PPAAO)." Devex. Accessed March 26, 2021. https://www.devex.com/organizations/west-africa-agricultural-productivity-program-waapp-ppaao-58457#:~:text=It%20started%20in%202008%20under,regional%20level%20by%20CORAF%2FWECARD .

18 "West Africa Agricultural Productivity Program," February 10, 2016. https://www.worldbank.org/en/topic/agriculture/brief/the-west-africa-agricultural-productivity-program.

19 Stads, Gert-Jan, and Nienke Beintema. Rep. *The West Africa Agricultural Productivity Program*. Washington, DC: International Food Policy Research Institute, 2017.

20 Ibid

21 "Times are Hard and Uncertain: Senegal Adopts Climate Smart Agriculture to Mitigate Effects of Climate Change." World Bank, December 3, 2015. https://www.worldbank.org/en/news/feature/2015/12/02/times-are-hard-and-uncertain-senegal-adopts-climate-smart-agriculture-to-mitigate-effects-of-climate-change .

22 Stads et al, *The West Africa Agricultural Productivity Program*

beneficiary incomes by about 34%. This included 6.1 million farmers, processors, and small businesses.[23] Additionally, WAAPP has created localized programs that are both revenue-generating and sustainable for their beneficiaries.[24]

The Coronavirus pandemic has changed the landscape for funding availability in the developing world. Because of its global scale it has become a priority of all major donor countries. Nevertheless, ECOWAS, the African Union, and the West and Central African Council for Agricultural Research and Development should work together to obtain the necessary funding to begin a new phase of the program.

Approach 3:

Build Extension Networks

As of 2016, only one state in West Africa had a formally adopted national extension policy.[25] Extension services are designed to build the capacity of farmers and provide education regarding farm practices.[26] Each state in West Africa should develop official policy related to extension services based on the criteria outlined by the Food and Agriculture Organization (FAO). These criteria include the goals of agricultural extension, the responsible agencies and personnel, the clientele to be served, the broad programmatic area to be addressed and other relevant guidelines.[27] The FAO also suggests that extension services be reevaluated regularly and that all major groups of farmers be involved and that relevant agricultural organizations be consulted.[28] Clear policy allows for better understanding of what the core function of services should be, how scarce resources should be allocated, what sort of training is necessary for extension officers, and what public private partnerships should be working towards.[29] Many extension services are coordinated through universities, and the availability of regionally focused NGOs such as the Centre National de Recherche Agronomique, the Agence Nationale de Développement Rural, and the Agence Nationale de Conseil Agricole et Rural allow for states to indirectly cooperate with producers and researchers across borders. International Actors such as AgriCorps can also function as part of the extension chain by aiding with program development and bringing professionals from different states together to share expertise.

Approach 4:

Add Value to Agricultural Products for Market Expansion

Much of West Africa's agricultural production is exported as raw material; but demand in the region is growing and shifting with development, and producers and sellers are not currently able to meet the broader demand.[30] Adding value to products can allow for increased availability to regional markets, and thus increase regional trade and cooperation. Efforts such as these have been supported by entities such as the U.S. foreign Agricultural Service (FAS). For example, FAS has been working with producers in Benin to add value to pineapple production in order to meet demand from Nigerian consumers while avoiding the middleman of industries outside of the region.[31]

States who want to support a competitive edge in the key commodities that they produce can focus on commodities with agro-climate characteristics specific to their region as well as

23 "West Africa Agricultural Productivity Program", 2016

24 Abolagba, E., Abolagba, B. Agbonkpolor, S. Idoko, K. Ijie, and P. Imarhiagbe. "Impact of the West Africa Agricultural Productivity Programme (WAAPP) on Beneficiaries: A Case Study of Adopted Villages and Secondary Schools in Edo State, Nigeria." *Direct Research Journal of Agriculture and Food Science* 4, no. 9 (September 2016).

25 Abdu-raheem, K A, and S H Worth. "Suggesting a New Paradigm for Agricultural Extension Policy: the Case of West African Countries." *South African Journal of Agricultural Extension* 44, no. 2 (2016).

26 Ibid

27 Ibid

28 Ibid

29 Ibid

30 West Africa: Prospects for U.S. Exporters." United States Department of Agriculture: Foreign Agricultural Service: Data and Analysis. USDA: FAS, October 25, 2019. https://www.fas.usda.gov/data/west-africa-prospects-us-exporters .

31 "2015 Food for Progress Priority Countries and Issues." 2015 Food for Progress Priority Countries and Issues Issues | USD A Foreign Agricultural Service. United States Department of Agriculture: Foreign Agriculture Service , 2015. https://www.fas.usda.gov/2015-food-progress-priority-countries-and-issues .

the relatively lower costs of labor.[32] These states should also note that the ratio of value added in agribusiness to that of farming is thirteen in the U.S. and .6 in Sub-Saharan Africa.[33] This should be considered by states setting target ratios for the development of their agribusiness sectors.

Upgrading the value chain of rice could be particularly beneficial as it is the most important calorie source in the region.[34] Rice is also the most harvested crop in Guinea, Liberia, and Sierra Leone and the second most harvested in Guinea-Bissau (Appendix E). Potential funding for such improvements could come through Japan's Policy and Human Resources Development Fund, which previously funded development of the rice value chain through the WAAPP.[35]

RECOMMENDED APPROACH:

Build Strategic Framework for Extension systems at the National Level

Creating an official extension framework focused on regional organizations as well as private businesses is a feasible and effective way for ECOWAS members to provide necessary inputs and investment into agricultural development. Early efforts can be as simple as providing a phone number that farmers are able to call to attain dependable advice, as was seen in the case of the Avaaj Otalo project in India which saw a high response rate followed by a concrete change in farm practices.[36]

By working with NGOs, states can reach out to remote farmers and help them develop plans to move further up the value chain and build strategies that allow them to improve practices. Additionally, NGOs can support extension services by helping the state go beyond information provision towards actually providing the resources farmers need to implement new techniques.[37] NGOs also offer connectivity to communities in a way that makes it easier to customize programs and utilize social networks. This role is crucial in ensuring that best practices are both adopted and maintained.[38]

West African states should consider utilizing the funding and efforts of the Regional Agricultural Investment Plan as a tool towards achieving the goals outlined by the ECOWAS Agricultural Policy which includes promoting strategic products for food security & food sovereignty, an enabling environment for regional agricultural development, food security and sustainable access to food.[39] Extension services can contribute to these goals by providing services through businesses, non-governmental organizations and state entities, allowing farmers to gain access to a wider array of service options with greater potential

32 Schaffnit-Chatterjee, Claire. "Agricultural Value Chains in Sub-Saharan Africa: From a Development Challenge to a Business Opportunity." *Current Issues: Emerging Markets* , April 14, 2014. https://www.dbresearch.com/PROD/RPS_EN-PROD/PROD0000000000466865/Agricultural_value_chains_in_Sub-Saharan_Africa%3A_F.PDF?undefined&realload=~/nH9u1dCrBg~z8aDzdmLzeOl4ufl9UzqDPuDHWjIDdYi3eIFwpeqcU6EUiJPoJzFcJ/fQ8PdOy4Gsyrt1g/Xw== .

33 Schaffnit, Agricultural Value Chains

34 Soullier, Guillaume, Matty Demont, Aminou Arouna, Frederic Lançon, and Patricia Mendez del Villar. "The State of Rice Value Chain Upgrading in West Africa." *Global Food Security* 25, no. 100365 (June 2020)

35 Stads et al, *The West Africa Agricultural Productivity Program* .

36 Cole, Shawn A., and A. Nilesh Fernando. "The Value of Advice: Evidence from Mobile Phone-Based Agricultural Extension." Harvard Business School Working Paper, No. 13–047, November 2012.

37 Perret, S., Mercoiret, Marie-Rose, CIRAD, & IFAS. (2003). *Supporting small-scale farmers and rural organisations: learning from experiences in West Africa ; a handbook for development operators and local managers* (1st English ed.).

38 Caldwell, Richard, Rachel Lambert, Jeremy Magruder, Craig McIntosh, and Tavneet Suri. "Improving Agricultural Extension and Information Services in the Developing World." *VoxDev: Agriculture*. VoxDov, November 1, 2019. https://voxdev.org/topic/agriculture/improving-agricultural-extension-and-information-services-developing-world.

39 "Regional Agriculture Partner: The Economic Community of West African States (ECOWAS): Fact Sheet: West Africa Regional." Archive - U.S. Agency for International Development. USAID. Accessed March 31, 2021. https://2012-2017.usaid.gov/west-africa-regional/fact-sheets/regional-agriculture-partner-economic-community-west-african-states .

for adding value to their products.[40] Further, Extension programs should be structured in a way that aligns with the goals of various UN agencies, such as focusing specifically on the unique challenges that women face in the agricultural industry, a key area of importance for agencies like the FAO and UN Women. By aligning extension goals and strategies with these organizations, states can lay the foundation for cooperation and project coordination while also building a competitive advantage in applying for grants and loans. This in turn minimizes the financial burden of state governments. This sort of strategy can be seen in Ethiopia through the rural women economic empowerment component of their joint program on gender equality and women empowerment.[41]

The benefits of such projects can then be documented and presented as evidence to state leaders as to why they should fulfill the commitment made in 2003 in the Maputo Declaration to dedicate 10% of public expenditures to the agricultural sector.[42] Extension programs would not pose significant budgetary constraints if such commitments were actually met.

The extension strategy benefits stakeholders even if only a portion of states take part and allows for a feedback loop between beneficiaries and providers that efficiently communicates how priorities should be placed and how structures ought to change over time.

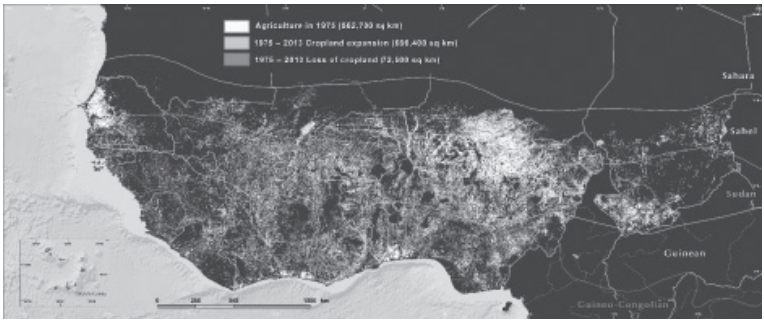
40 Abdu-Raheem and Worth "Suggesting a New Paradigm for Agricultural Extension Policy: the Case of West African Countries."

41 "Joint Programme on Gender Equality and Women Empowerment - Rural Women Economic Empowerment Component - United Nations Partnerships for SDGs Platform." United Nations. United Nations, 2016. https://sustainabledevelopment.un.org/partnership/?p=10476 .

42 Aparajita, Goyal, and John Nash. Rep. *Reaping Richer Returns Public Spending Priorities for African Agriculture Productivity Growth*. World Bank Group, October 2016. https://pubdocs.worldbank.org/en/988141495654746186/E3-AFR-ReapingRicherReturns-Overview.pdf .

APPENDICES

Appendix A

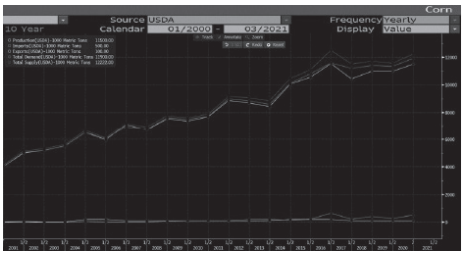


Appendix B

43 "West Africa: Land Use and Land Cover Dynamics." Agricultural Expansion Across West Africa | West Africa. Accessed March 8, 2021. https://eros.usgs.gov/westafrica/agriculture-expansion .

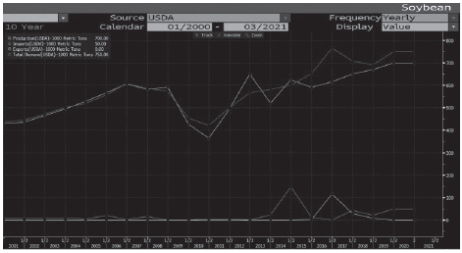
44 ECOWAS Map [Digital image]. (2017, March 23). Retrieved March 25, 2021, from https://ladagroupgh.com/qubic/images/spsimpleportfolio/economic-community-of-west-african-states-ecowas-2/ecowas-map_600x400.png .

Appendix C



Nigerian Supply and Demand for Corn[45]

Appendix D



Nigerian Supply and Demand for Soybeans[46]

Appendix E

Top 5 harvested crops per country in West Africa (as a percent of country total harvested area, based on 2010–2013 average) (Data source: FAOSTAT, 2015)

Crops	Bénin	Burkina Faso	Cabo Verde	Côte d'Ivoire	Gambia	Ghana	Guinea	Guinea Bissau	Liberia	Mali	Mauritania	Niger	Nigeria	Senegal	Sierra Leone	Tchad	Togo
Millet	1%	19%		1%	38%	3%	8%	3%		36%	3%	41%	6%	34%	2%	34%	2%
Sorghum	2%	21%		1%	6%	4%	9%			22%	42%	19%	11%	1%	2%	26%	8%
Maize	21%	9%	46%	4%	6%	15%	14%	3%		11%	3%		12%	6%	2%	4%	35%
Cassava			7%	6%	1%	12%	4%	1%	11%				12%	1%	22%	1%	4%
Cow peas		10%						1%		4%	10%	31%	3%	6%			
Rice	2%	2%		3%	10%	3%	27%	22%	62%	11%	2%		6%	3%	48%	4%	4%
Yams				11%												1%	4%
Groundnuts	1%	6%		1%	28%	5%	6%	1%	1%	6%		3%	6%	21%		13%	3%
Cocoa				22%		24%							3%		3%		11%
Oil, palm fruit	1%			4%	1%	3%		2%	3%				7%		2%		1%
Seed cotton	3%	8%		3%			9%	1%		13%			1%	1%		3%	5%
Cashew nuts	19%	1%		12%		1%		44%					1%	1%			
Sugar cane			11%						8%								
Pulses	1%		40%		3%	4%	2%	1%	1%		19%				3%	1%	1%
Tomatoes	1%		2%			1%							1%				
Natural rubber				2%					12%				1%				
Beans, dry	4%			1%		3%					2%					3%	11%
Sesame seed		2%			2%					1%		1%	1%			3%	
Plantains				2%		5%	3%	1%	4%				1%				
Coconuts	4%			3%				2%									
Fonio							3%			1%							
Peas											3%						

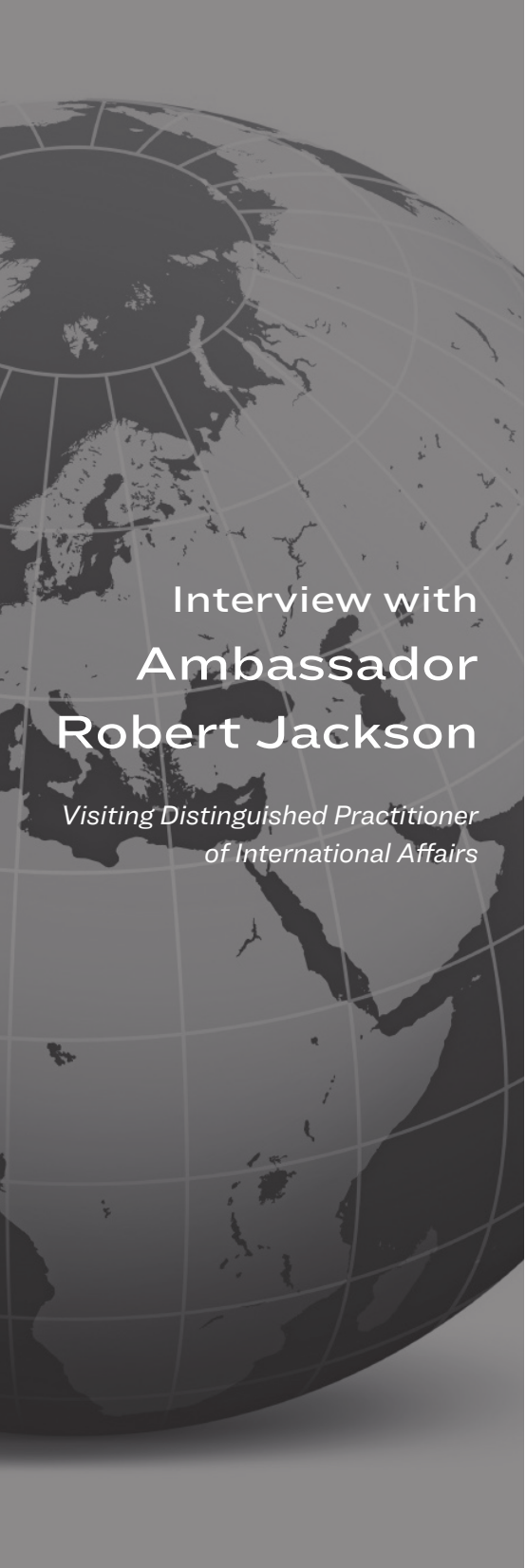
Crop rank by country 1 2 3 4 5

47

45 "Nigeria Supply and Demand Graph of Corn 2001-2021." *Bloomberg* March 2021.

46 "Nigeria Supply and Demand Graph of Soybeans 2001-2021." *Bloomberg* March 2021.

47 "Top 5 Harvested Crops Per Country in West Africa: As a Percentage of Country Total Harvested Area Based on 2010-2013 Average." Agricultural Expansion Across West Africa | West Africa. Accessed March 8, 2021. https://eros.usgs.gov/westafrica/agriculture-expansion.



Interview with Ambassador Robert Jackson

Visiting Distinguished Practitioner of International Affairs

Interview with Ambassador Robert Jackson, 2021 Visiting Distinguished Practitioner of International Affairs with the Martin Institute. His final State Department posting was as Ambassador to Ghana from 2015-18.

Interviewed by Molly Feeley and Natalie Mesplay on 11 February 2021

Thank you way for taking the time to answer questions with us. This is really exciting for us.

Ambassador Jackson: It's a pleasure.

How do inflammatory comments from back home by top officials about countries in the African region affect your relationship with people in Ghana and others you have formed friendships within the region?

Ambassador Jackson: So, that's a complicated question. In terms of my relationship, it didn't have a big impact because people knew based on knowing me and my long experience working in Africa and with Africans that that was not how I viewed their countries or them.

But it did have a negative impact on how the United States was perceived because the President is the leader of the United States, he was chosen by a plurality of the American people and so it led people to question whether attitudes in the United States towards Africa were becoming more negative. And so, complicated: on the personal level not much impact but on the public diplomacy level it caused us headaches.

Going off that question in light of the polarizing political climate and the 2020 presidential election ... how is it for diplomats to work for an administration that may not exactly align with their own views?

Ambassador Jackson: Well, it depends on how different the alignment is. I've worked for six presidents and even more Secretaries of State from both political parties and fortunately I have never been in the position where I disagreed so strongly with the policy that I felt like I should resign. Some of my colleagues have been in that position, they've been in other parts of the world where they felt like they could not implement the policy being initiated by the administration. I think you have to be loyal to yourself and to your values and if you find that you are not comfortable with the policy you have to decide what your level of discomfort is. If it's something you're not directly involved with then you can put it aside to some degree. If you really disagree with it and you're involved in implementing the policy, then I think the only viable option is for you to first protest to see if you can get it changed and if you can't get it changed - I felt like I should never be partied into doing something that I believed went against my values and my principles.

Are certain types of initiatives easier for the US to promote? Like, for example, health care is easier because it's not as political?

Ambassador Jackson: Actually, health care is generally political. Of course, there's controversy in some countries about working with certain populations. In Africa we do a lot of work around HIV/AIDS and working with commercial sex workers or working with LGBTQ populations - particularly men who have sex with men - is very controversial in some countries. So while maternal child health and Malaria eradication programs are very popular and very easy to implement, when it comes to HIV there can be a lot of cultural issues involved and a lot of politics that becomes involved. So, you can't universally say that health is easier. I think education is easier. People have no quarrel with educating people but when you get into governance programs like anti-corruption programs or programs where you're providing election assistance if the ruling party wants to maintain its advantages, they don't always welcome having election assistance from foreign countries so there are a lot of places where are assistance can become very politicized very quickly.

Ghana has a stable political situation and has had peaceful transitions of power for decades. What do you think has made Ghana different in this regard from other countries in its region?

Ambassador Jackson: I think there are a couple things . . . I think (what) makes Ghana exceptional and why there is a limited amount of terrorism in the country has to do with an initiative that the first president took that really broke down barriers and built essential Ghanaian national identity. The president insisted that children who went to high school go to high school outside their region so they would go to boarding school in a different part of the country and this system is maintained to some extent today. Boarding schools are still very important - not every child goes to boarding school for high school, but a significant percentage do and this practice of sending you to a different part of the country brought you into contact with people from different ethnic groups who spoke different languages who might have a different religion from you. And as a result, Ghana's political and economic leadership all know one another and at school in the early days they were not allowed to even use their names every child was known by a number and if you ask Ghanaians who are my age or a little younger what their number was they will. The logic being that that would not give their classmates any clue about what part of the country they were from what religion

Speaking of politics and presidents, in 2019 the Ghanaian president announced the Ghana Beyond Aid initiative with the goal of making Ghana less dependent on foreign aid. How does this change if at all the U. S's relationship with Ghana especially given that the U.S is the largest donor. Is this something you foresee other countries in the region doing as well?

Ambassador Jackson: I'd like to see other countries in the region do it too. President Akufo-Addo has long talked about Ghana's self-sufficiency and independence and that's a goal that the United States strongly supports. The last administrator of the U.S Agency for International Development, Ambassador Green, visited Ghana with former first lady Mrs. Trump and they talked about Ghana Beyond Aid. We made a relatively small and targeted contribution to Ghana's health system and education system and to its agriculture, but we should still be encouraging all countries to do everything they can to grow their economies. The Ghanian government over the last ten years has been growing by more than 5 percent per year which is very strong. So, I think achieving Ghana Beyond Aid is a worthy and achievable goal.

Other countries which have been so stressed by civil unrest, famine, or both - like Central African Republic - are going to need assistance from the U.S much longer. South Sudan comes to mind as another example but there are more and more countries in Africa with rapidly growing economies that do not need as much outside assistance, and the assistance they need can be very targeted based on negotiation with the government. The United States does not provide budget support, some other countries and their foreign assistance programs simply do a transfer of funds to the host country's treasury, and it can be spent however the country wishes. We do that with Israel which is practically the only example of that for us, but many countries do it with a variety of recipients. We tend to be much more deliberate about targeting our

assistance based on our assessment needs and the host assessment of needs and the host countries assessment of needs and looking at where our strengths can best combine with their weaknesses to have the greatest impact.

US assistance in/aid to Africa often focuses more on military aid than democratic or governance assistance. How do you feel about this military disparity and in the governance, assistance was increased, do you think it would result in less security concerns in Africa?

Ambassador Jackson: I do, I long believe that we should be investing more in governance and anti-corruption initiatives plus electoral system strengthening and human rights um and I think that if we made those larger investments which we were doing in the '90s and the very early years of President George W. Bush's administration (but have done less and less over the last decade), then I believe that we would have less need to invest in security assistance so I'm a big fan of devoting more money into governance. The challenge is that money invested in government does not pay immediate dividends; it's much more difficult to measure the short- term impact, and the US Congress and American taxpayers have a right to demand results. Still, we need to explain to them that in the long term this is a good investment even if in the short term you're not likely to see the immediate results. If I were running USAID, I don't know how Ambassador Powers is thinking about this, but if I were running USAID, I would make a major effort to invest more in governance and human rights and democracy programs than we're currently doing because I think that would allow us to decrease our security assistance over time. Right now, we're still spending much more on health and education and agriculture than we are on security assistance, but security assistance is way ahead of what we're spending on democracy and governance programs.

Can you think of any government assistance programs recently in Africa that have had a great deal of success?

Ambassador Jackson: So certainly some of our election assistance led to confidence in elections in Nigeria in 2015. We invested over 50 million dollars in the elections working with the election commission working with domestic poll monitors and working with governors on security issues. In Ghana in 2016 we invested about eight million dollars again working with the election commission monitors and civil society. In 2020 in Ghana, we invested about three million dollars in those same sectors, so election assistance has been a success story. On the governance side the best example that I can point to is that U.S Agency for International Assistance trained Ghana's auditors to examine contracts. At the end of 2016 as the previous government was leaving office it awarded a significant number of contracts for goods and services in the billions of dollars. An audit done of those contracts found that 1.2 billion dollars in those contracts were for goods and services that were never going to be delivered. They were paper contracts to political allies and loyalists and that 1.2 billion dollars was sufficient to pay for a new initiative for free high school education for more than a year. So that was a real success story. That's one that I'm very familiar with.

Chinese influence on the African continent has been growing. Is this something that concerns you at all and if so, what recommendations do you have for combating Chinese sway on the continent?

Ambassador Jackson: China has been an important player in Africa for a number of years and will continue to be. It provides development assistance without the kinds of strings that the United States tends to attach in terms of performance on democracy, human rights, and governance issues. So grants and loans from China for infrastructure projects and for roads, bridges, dams, and railroads are common. . . Where I have a problem with China is when China used unfair practices including bribes from Chinese companies to obtain contracts because I believe that an American company can compete well with for the construction of an energy plant against a Chinese company, or the development of a cobalt asset in Cameroon for example, but the playing field must be level. American companies offer superior quality of products, they offer technology transfer, and they usually employ far more local labor than Chinese companies do and so there are definite advantages for going for an American product or service over comparable Chinese products or services, but as I said the American products often come with conditions and so countries have to weigh their pros and cons of each offer and make a decision about where the benefits will accrue most to them. I think American companies and American projects are generally very competitive and I'm proud to support them and stand behind them and I think there's room for both the United States and China to partner with African countries and increasingly we've been able to cooperate between the United States and China on health programs and environmental and conservation programs and I hope that will lead to greater cooperation in the future.

You spoke a little bit about some of the corruption within those trade deals and just in general how do you think the U.S. can help combat that corruption and promote meritocracy.

Ambassador Jackson: The best and simplest way to promote good governance is through public tenders for contracts. So many African countries have a practice of awarding contracts to a single company – not through competitive bidding but just awarding it - and that's where the opportunity for bribery and kickbacks really becomes apparent. The more public the entire procurement process is, the fewer opportunities for graft and corruption along the way. I would like to see every public contract done through a very public tendering process, so that everybody knows what is being acquired and from whom, and if that happened across the world then there would be far fewer opportunities for corruption. It would not end corruption - I'm not being pollyannaish about this - but it would certainly reduce opportunities for corruption, and I think would go a long way in channeling government funds through economies more effectively and efficiently.

So, you had testified to the Senate Foreign Relations Committee about Boko Haram and the kidnapping of the schoolgirls. How do you as a U.S. official deal with that sort of sub-state conflict, and what can the U.S do to combat these groups like Boko Haram?

Ambassador Jackson: So it's not easy to combat any terrorist group, but the approach that we have taken is twofold. One: enhance the capacity of local security forces or national security forces and the national armies to maintain security and combat Boko Haram and

other terrorist groups. Al- Qaeda and the lands of the Islamic Maghreb, Al- Shabab in Somalia and ISIS in Mozambique and so on. We want to enhance local capacity, but we also want to provide humanitarian assistance to those that have been displaced by terrorism and civil unrest and it's very important to have a communication strategy from donors and from the government to educate people about Boko Haram and the dangers that it poses and how communities can protect themselves. There's often a lot of distrust between the army and the local population because the army has also been responsible for human rights abuses. You've got to make an effort to build that trust which is a long-term endeavor but that can be done by new military leadership and by doing civil projects involving the military to help communities. The United States military is very good at joint civil-military projects where we'll equip clinics, we'll build schools, will help communities at a very basic level to build trust in the military presence and we encourage other countries to follow that model. Some do and some don't, but I think the more effective African militaries are involved more and more in civil-military projects and it really builds the sense of community and unity.

We just have one last question for you. To what extent do ethnic dynamics affect your approach to diplomacy and how do you work around or with those?

Ambassador Jackson: So nearly every country has multiple ethnic groups within it, and certainly when traveling around each country it's important to meet with traditional chiefs and rulers and I've become friendly with them over the course of the years. In Ghana, the traditional chiefs play an important role today in local government and even in national government, and they have significant wealth in Ghana. The chiefs control about 70% of the land and so how they choose to allow that land to be used is critical to the development of the economy. But the United States ambassador, the United States embassy, and the United States government deal with other governments and with nations. We try to avoid dealing with ethnic groups. We are not the ambassadors to the Ashanti kingdom or the Akupem/Akyem Kingdom, we're the ambassadors to Ghana or Cameroon or Morocco or South Africa. Take your pick but my point is we're there to work with the nation, with all parts of the nation with all people in the nation, whether they're living in cities or rural areas, whether they're poor or wealthy. Ours is an approach that is intended to not discriminate based on what ethnic group that they hail from, and I think that approach is necessary to avoid any perception that the United States had any favorites in local or national elections or in coordinating assistance programs. And I'm very proud in our ability to build relationships with people from different ethnic groups and different sectors of society because I think it's essential to the conduct of good diplomacy. When we look at back at the Iran hostage crisis and our management of Iran in the days before the fall of the Shah, one of the mistakes that we made was to concentrate too much on the Shah and his supporters to the exclusion of human rights groups and religious leaders and we've had to learn from that to make certain that we are not only working with governing parties but also people in the opposition and people in civil society and so those contacts with people from every major ethnic group are as important as our contact with people in government.

Thank you, those are all the comments or questions we have for you. Do you have any comments or any messages that you would like the people reading the journal to hear?

Ambassador Jackson: I would really like people to think about careers in international affairs whether they choose to go to work for the state department or the World Bank or a non-governmental organization or a business that has offices inside and outside the United States. I think our lives are enriched when we meet people from other countries and other cultures and so I encourage people with the desire to really explore opportunities to expose themselves to other parts of the world to learn another language to get to know another culture because I think it makes us appreciate the United States more. I have been very privileged to represent the United States overseas to be an American ambassador two different times but there's no place like home and having spent many years living and working overseas. I'm proud of the work we have done but I would not like to live any place except the United States on a permanent basis.

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