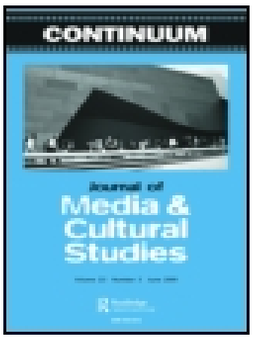

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Gemma Sou

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Climate change and SIDS in the transpacific region: flows of people, capital and goods

Gemma Sou

University of Manchester and RMIT University

ABSTRACT

This article will discuss how the impacts of climate change are shaping the flows of people, capital and goods within the transpacific region. These flows are intimately shaped by the geographies and colonial histories of transpacific small island developing states, as well as the migratory patterns and diaspora communities of small island developing states. Findings are drawn from 12 months of ethnographic research, which explored the recovery of twenty low-income households during the first year after hurricane Maria, which devastated the Caribbean island, Puerto Rico on 21 September 2017. The article is supplemented with images taken from two comics that graphically illustrate the research findings, and which demonstrate how academic research can be fruitfully supplemented with visual representations that can distil complex theoretical ideas into engaging visual formats.

Keywords

climate change; transpacific; SIDS; Puerto Rico; comics

Introduction

Across the transpacific region the adverse impacts of climate change are being felt as slow and rapid-onset hazards (Field 2014). However, the many small island developing states (SIDS) across the region are particularly affected by climate change. Most notably, since 1993, pacific island countries have experienced an annual sea level rise of approximately 4 mm per year, which is causing widespread coastal erosion and storm surges (Aucan 2018). An average global temperature over 1.5°C above preindustrial levels also poses a significant risk to Caribbean islands, which are also experiencing more extreme weather events, such as hurricanes Irma and Maria in 2017 (Hoegh-Guldberg et al. 2018). Looking at the Caribbean Island of Puerto Rico in particular, this article will discuss how the impacts of climate change are shaping the flows of people, capital and goods within the transpacific region. These flows are intimately shaped by the geographies and colonial histories of transpacific SIDS, as well as their migratory patterns and large diaspora communities. Findings are drawn from 12 months of ethnographic research, which explored the recovery of twenty low-income households during the first year after hurricane Maria, which devastated the island on 21 September 2017. Data were collected through five visits, where I conducted interviews with the household head. I also

CONTACT Gemma Sou gemma.sou@manchester.ac.uk University of Manchester, C1.44 Ellen Wilkinson, Manchester M139PL, UK

interviewed local and national government officials, as well as Non-Government Organizations (NGOs). Extensive observation and visual methods (i.e. photography and videos) were also conducted, and I consulted pertinent disaster recovery policies and data, as well as census data.

In collaboration with the illustrator, John Cei Douglas, I translated this research into a twenty-page comic *After Maria: Every Recovery from Disaster*[1] (Sou and Cei Douglas 2019). I also produced a second comic, 'Living with Climate Change' (forthcoming) in collaboration with Gina Ziervogel (University of Cape Town), Adeeba Risha (BRAC Bangladesh), and the London-based illustrator Cat Sims. The second comic threads together our research on grassroots climate change adaptation in Bangladesh, South Africa, Bolivia, Puerto Rico, and Barbuda. I chose to translate my research into a comic to increase public engagement in my research and so I could communicate the findings to research participants in an engaging and creative way. It was also an experiment that aimed to demonstrate how academic research can be fruitfully supplemented with graphic illustrations that can distil complex theoretical ideas into engaging visual formats. In this article I include several images from the comics which visually illustrate the findings and themes that are discussed.

Graphically illustrating research about how people live with, and experience climate change is particularly exciting because it presents researchers with an opportunity to challenge reductive and essentialist representations of climate change affected peoples that often circulate in popular culture and academic research. Within popular culture, and to a lesser extent in academic research, there is argued to be an over-reliance, a fetishizing perhaps, on documenting the suffering of people, which decontextualizes and uncomplicates why certain groups of people are disproportionately affected by climate change (Lewis, Rodgers, and Woolcock 2014; Tuck 2009). With this, there is also a tendency to homogenize whole groups of people, obscuring the unique personalities, voices, experiences, and histories of socio-politically marginalized groups (Chouliaraki 2013). Yet, combining the power of ethnographic research, with the unique aesthetic elements of comics allows researchers to tell stories in meaningful ways and to not only document the painful elements of social realities but also the wisdom, hope and personalities of participants, a fuller spectrum of research participants and their experiences. Such an axiology is intent on depathologizing the experiences of disenfranchised communities and upending commonly held assumptions of paralysis within dispossessed communities (Scott 2014).

Hurricane maria

On 21 September 2017, hurricane Maria devastated several Caribbean islands; however, Puerto Rico was particularly impacted with major damage to the fragile infrastructure and economic activity, and economic damages were estimated USD $31.5 billion (FEMA 2017). As with disasters across the world, the lowest-income and socio-politically marginalized groups were the most adversely affected as they are the most vulnerable to climatic hazards (García-López 2018). At the neighbourhood and household level, impacts included deaths, injuries, employment losses, damage to the built environment, disruption of basic services, and damage or loss of household items, which are visualized in image 1 below. Other impacts were intangible and more difficult to quantify, such as the

adverse impacts on people's feelings of belonging, comfort, and subjective wellbeing (Sou and Webber 2019).

Image 1. After Maria comic.

Migratory flows

When Hurricane María struck, more Puerto Ricans lived outside of Puerto Rico than lived on the island. Mobility has long played a prominent role in Puerto Rican identity and movements are principally to the US as Puerto Ricans can enter freely

as US citizens (Wang and Rayer 2018). Much of the migration in the two decades before María was economic in nature, related to increasing unemployment, high levels of public debt, and the imposition of austerity programs by a federal commission (Bonilla and LeBrón 2019). Following Hurricane Maria, the Puerto Rican diaspora supported and organized aid for those in Puerto Rico. Social media became a place for the diaspora to send social remittances in the form of messages of solidarity and hope, and as a platform to communicate their frustrations and make the crisis visible in order to pressure politicians to assist those living on the island (Rodríguez-Díaz 2018).

Following hurricane Maria migration (as opposed to evacuation) to the US increased significantly and was facilitated by the Puerto Rican diaspora living in the US. On average, studies suggest that Puerto Rico lost 8.5% of its total populations between July 2017 and July 2018. The principal destinations were Miami and Jacksonville, both major cities in Florida, and which have large Puerto Rican populations (Acosta et al. 2020). Whole households or individuals migrated to the US, and relocation varied between a few months during the most difficult period after the storm, to long-term relocation. However, because Puerto Rico is a U.S. territory, all of this was considered internal displacement rather than international migration (Griffith 2020). There was also a rural – urban shift in Puerto Rico as individuals migrated to more densely populated areas, principally the capital San Juan, to access basic services and infrastructures, which were recovered more quickly in urban centres. Puerto Ricans relocated in the short-term until services were recovered in their home neighbourhoods, whilst others resettled in urban areas due to increased access to resources in the long term (Acosta et al. 2020).

The Puerto Rican case is not unique in the transpacific. Climate change is among important factors that contribute to migrations of island populations either across an international border or within a state (UNHCR 2021). There are many examples of island populations turning to short and long-term international and internal migration as a strategy to cope with, or adapt to, weather events and climatic variability within the region (Thomas and Benjamin 2018). For instance, the entire population of Barbuda was temporarily evacuated to neighbouring Antigua following the devastation left by Hurricane Irma in 2017 (Cloos and Ridde 2018). An estimated fifth of Dominicans temporarily moved to neighbouring islands such as St Lucia following Hurricane Maria. These movements are facilitated by the Organization of Eastern Caribbean States, which allows for free movement of labour during times of peace and crisis, and the support of a diaspora community that is spread across island nations. In the pacific, drought and sea level rise are shaping migrations. For instance, inhabitants of Nauru are moving internationally to Fiji and Australia because of the small size of the island and diaspora populations in destination countries (Campbell, Oakes, and Milan 2016). In Tuvalu, movement is overseas, primarily to Fiji and New Zealand and some internal movements to Funafuti the

capital (Milan, Oakes, and Campbell 2016). In Kiribati, mobility is less common and tends to be domestic, with large numbers moving to the capital South Tarawa (Oakes, Milan, and Campbell 2016).

Flows of goods and remittances

Migration is not a universal option for populations affected by climate change (Nawrotkzi et al. 2017). In Puerto Rico, many households did not want to leave, or they lacked the necessary resources, demonstrating the inequality of mobility in post-disaster contexts (Hinojosa 2018). For the families that 'stayed put', the country's dependency on importing products and the associated geopolitical power imbalance between the US and Puerto Rico made it particularly difficult for people to access the products and goods needed to recover their houses, lives, and livelihoods. As with other SIDS across the transpacific, Puerto Rico imports most of its products – 85% from the US (Garriga-López 2020). Over decades US policies have deliberately weakened the manufacturing and agricultural sectors in Puerto Rico, which means Puerto Rico no longer produces sufficient reserves of its own consumables and non-consumables (Iglesias 2018). All imported goods must arrive to Puerto Rico on ships from the US with US crews – a process agreed under the Jones Act, which limits international trade competition and punishes Puerto Rican consumers by making imported commodities costly, slow to arrive and limited in availability (Cortés 2018).

During the first six weeks after the hurricane, the flows of goods into the island focused on humanitarian relief aid. Many complained that the food was bland, unvaried, and unhealthy (Sou and Webber 2019) and that supplies did not meet their needs and concerns. The inadequacy of relief aid may seem an unspectacular and minor experience in the grand scheme of large-scale disasters, yet comics, with their focus on the everyday are well suited to communicate and capture the gravity and personal impacts of relief aid with poor nutritional standards, as captured in images 2 and 3 below (Bonilla and LeBrón 2019). Whilst the import of relief aid increased, the import of regular consumables and non-consumables declined rapidly, and Puerto Ricans were left to wait for regular trade processes to be re-established. Between six weeks and six months after the hurricane, routine consumables e.g. food, and non-consumables e.g. electrical items and furniture began entering the island again, but at a lower rate than before the storm. Puerto Rican retailers of consumables and non-consumables responded by increasing prices to mitigate losses and because demand outstripped supply. Although the process of import dependency resulting in localized price hikes is certainly a complex idea, the 'Living with Climate Change' comic can succinctly and engagingly illustrate this process in the four panels displayed in Image 4 below. On average, the cost of everyday products rose by 35% between Month 2 and 8 after the hurricane, which undermined households' capacities to recover.[2]

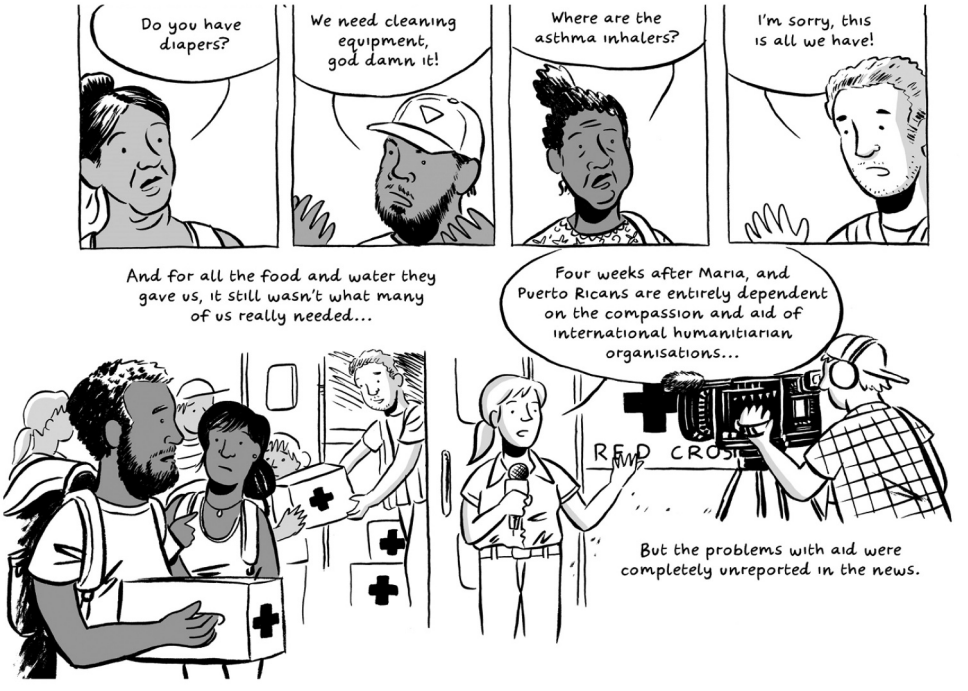

Image 2. After Maria comic.

Image 3. Living with climate change comic.

Image 4. Living with Climate Change comic.

The slow import of consumables and non-consumables was because US ships focused on importing materials to reconstruct houses e.g. timber, tiles, windows, doorframes, doors, tin sheets, tools (Kim and Bui 2019). Yet, construction items were subject to long waiting times – approximately three months for non-standard products, and households ultimately paid premium prices due to incumbent import tariffs and further localized price hikes caused by demand outstripping supply (Rodríguez-Díaz 2018). As such, the lowest-income households had to wait for many months to reconstruct their houses, often living in uncomfortable and/or precarious housing conditions (Sou and Webber 2019). For example, many families lived without internal doors, whilst other people slept on the floors of extended families' houses (sometimes up to 12 months) until materials to reconstruct their damaged roofs were imported and were affordably priced. Ultimately, the sense of privacy for many Puerto Ricans was undermined by the slow import of materials and localized price hikes. Once more, comics celebrate and focus on the 'ordinary' and 'mundane' moments of everyday life, which makes them particularly appropriate for visualizing the 'unspectacular' ways that people's privacy was undermined during recovery from hurricane Maria, as can be seen in image 5 below.

Image 5. After Maria comic.

To circumvent the rising costs and extra resources needed to recover, many Puerto Ricans – particularly women – responded to the lack of fresh foods by collectivizing and growing their own vegetables and raising chickens, often in the gardens of abandoned houses. The vegetables and eggs were shared out based on how many people were in each family. The produce was not enough to replace reliance on retailed produce, however, it supplemented people's household's diet with renewable and nutritious ingredients and fresh produce, which they valued after relying heavily on relief aid for

the initial months (Sou 2022). Image 6 not only visualizes how Puerto Rican women collectivized, but also shines a light on who they are by giving them a face, a style of dress, a body language and placing them within their own setting. This humanizes the participants in my research and resists the tendency in mainstream media and to some extent in academia to dehumanize climate change affected people by homogenizing the into groups such as 'victims'. Rather, comics force readers to acknowledge the individual identities of people living with climate change.

Image 6. Living with Climate Change comic.

Another way that Puerto Ricans circumvented rising living cost was via support from the diaspora. The Puerto Rican diaspora increased the amount of economic remittances sent back to the island in the aftermath of hurricane Maria. The increase in remittances supported people to buy routine consumables as well as purchase household items needed to recover the home in ways that increased people's sense of comfort, homeliness and privacy as visualized in image 5 below. Remittances play a significant role in people's efforts to recover from disasters (De, Gaillard, and Friesen 2015) and are increasingly compared with an informal or people-based insurance (Ambrosius and Cuecuecha 2013). The surge in remittances is typical following humanitarian crises as 'sending remittances to relatives is seen by emigrants to be a moral obligation which intensifies during periods

of hardship' (Chikanda, Crush, and Walton-Roberts 2016, 126). These flows of capital are particularly important in contexts such as Puerto Rico where the state is unable and/or unwilling to adequately support the disaster recovery of low-income households (De, Gaillard, and Friesen 2015). However, diasporic remittances were not only in the form of cash but included medical supplies, clothing, furniture, letters and cards of support and solidarity (Setser and Marxuach 2020). As such, remittances not only have monetary implications, but have emotional, psychological, social, and cultural implications as well (Vertovec 2001). Remittances are also important for several of the transpacific SIDS that are experiencing adverse impacts from climate change. For example, in 2011, Tonga experienced multiple cyclones and the Tongan diaspora within New Zealand, Australia, and the United States increased the amount of remittances they sent home, which equated to a 33% increase in the country's GDP (World Bank 2013).

Image 7. After Maria comic.

Conclusion

Puerto Rico demonstrates how climatic variability and extreme weather events are shaping the flows of people, capital and goods across the transpacific. These flows are intimately shaped by the geographies and histories of transpacific SIDS, as well as their patterns of migration and large diaspora communities. Most notably, transpacific SIDS

have highly mobile populations and the large diaspora community across the region often mobilizes to support recovery in the event of adverse impacts from climate change. Diasporic support comes in many forms, but an increase in the informal flows of social and economic remittances as well as goods to support recovery are particularly critical. The diaspora also facilitates the migration of individuals and families who choose to leave islands as a means to cope with, or adapt to climate change. However, movement overseas is not possible for all given the inequality of mobility within transpacific SIDs.

For families that do not leave their island, recovery is made difficult because of the import dependency that is typical across formerly and currently colonized SIDs. More specifically, there can be a scarcity of the resources needed to recover societies, and artificial price hikes can occur as demand for goods outstrips supply. As such, there is a need for further investigation of the geopolitical relationships between SIDS and the larger transpacific nations that they rely on for goods. The preparedness and recovery of transpacific SIDS may be improved by expediting the flow of goods needed to recover islands after hazard impacts, coupled with developing the ability of SIDS to produce their own reserves. Although island diasporas extensively support disaster recovery across the region, this community's activities should not excuse or absolve state's responsibilities to support the recovery of island populations.

Notes

1. The After Maria comic can be found here: https://www.hcri.manchester.ac.uk/research/projects/after-maria/.
2. Public information on the market values of consumables, non-consumables, materials and labour were not available.

Disclosure statement

No potential conflict of interest was reported by the author.

References

Acosta, R. J., N. Kishore, R. A. Irizarry, and C. O. Buckee. 2020. "Quantifying the Dynamics of Migration After Hurricane Maria in Puerto Rico." *Proceedings of the National Academy of Sciences* 117 (51): 32772–32778. doi:10.1073/pnas.2001671117.

Ambrosius, C., and A. Cuecuecha. 2013. "Are Remittances a Substitute for Credit? Carrying the Financial Burden of Health Shocks in National and Transnational Households." *World Development* 46: 143–152. doi:10.1016/j.worlddev.2013.01.032.

Aucan, J. 2018. Effects of Climate Change on Sea Levels and Inundation Relevant to the Pacific Islands. *Pacific Marine Climate Change Report Card, Sciences Review*, 43–49.

Bonilla, Y., and M. LeBrón, edited by. 2019. *Aftershocks of Disaster: Puerto Rico Before and After the Storm*. Chicago: Haymarket Books.

Campbell, J., R. Oakes, and A. Milan. 2016. *Nauru: Climate Change and Migration - Relationships Between Household Vulnerability, Human Mobility and Climate Change No.19*. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS)/.

Chikanda, A., J. Crush, and M. Walton-Roberts, edited by. 2016. *Diasporas, Development and Governance*. New York: Springer International Publishing.

Chouliaraki, L. 2013. *The Ironic Spectator: Solidarity in the Age of Post-Humanitarianism*. London: John & Sons.
Cloos, P., and V. Ridde. 2018. "Research on Climate Change, Health Inequities, and Migration in the Caribbean." *The Lancet Planetary Health* 2 (1): e4–5. doi:10.1016/S2542-5196(17)30176-6.
Cortés, J. 2018. "Puerto Rico: Hurricane Maria and the Promise of Disposability." *Capitalism Nature Socialism* 29 (3): 1–8. doi:10.1080/10455752.2018.1505233.
De, L., J.C. Gaillard, and W. Friesen. 2015. "Remittances and Disaster: Policy Implications for Disaster Risk Management." *International Migration Journal* 2 (1): 1–12.
FEMA 2017. Hazus: Estimated Damage and Economic Losses Puerto Rico, United States. (Accessed October 18 2018). https://data.femadata.com/FIMA/NHRAP/Maria/HurricaneMaria_ARA_InitialRun.pdf
Field, C. B., edited by. 2014. *Climate Change 2014–Impacts, Adaptation and Vulnerability: Regional Aspects*. Cambridge: Cambridge University Press.
García-López, G. A. 2018. "The Multiple Layers of Environmental Injustice in Contexts of (Un) Natural Disasters: The Case of Puerto Rico Post-Hurricane Maria." *Environmental Justice* 11 (3): 101–108. doi:10.1089/env.2017.0045.
Garriga-López, A. M. 2020. "Debt, Crisis, and Resurgence in Puerto Rico." *Small Axe: A Caribbean Journal of Criticism* 24 (2 (62)): 122–132. doi:10.1215/07990537-8604538.
Griffith, D. 2020. "Environmental Change and Human Migration: Stylized Facts from Puerto Rico and Honduras." *Coastal Management* 48 (5): 398–417. doi:10.1080/08920753.2020.1795968.
Hinojosa, J. 2018. "Two Sides of the Coin of Puerto Rican Migration: Depopulation in Puerto Rico and the Redefinition of the Diaspora." *Centro Journal* 30 (3): 230–253.
Hoegh-Guldberg, O., D. Jacob, M. Bindi, S. Brown, I. Camilloni, A. Diedhiou, R. B. Zougmoré, et al. 2018. "Impacts of 1.5 C Global Warming on Natural and Human Systems." *Global Warming of 1.5° C*, Vol. 1.
Iglesias, J. A. 2018. "El origen del colono en Puerto Rico. Un balance historiográfico del agricultor de la industria azucarera en el siglo XX." *Revista de Indias* 78 (273): 533–560. doi:10.3989/revindias.2018.016.
Kim, K., and L. Bui. 2019. "Learning from Hurricane Maria." *International Journal of Disaster Risk Reduction* 39: 101244. doi:10.1016/j.ijdrr.2019.101244.
Lewis, D., D. Rodgers, and M. Woolcock. 2014. *Popular Representations of Development: Insights from Novels, Films, Television and Social Media*. London: Routledge.
Milan, A., R. Oakes, and J. Campbell 2016. Tuvalu: Climate Change and Migration –Relationships Between Household Vulnerability, Human Mobility and Climate Change. Report No. 18. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS
Nawrotkzi, R. J., J. DeWaard, M. Bakhtsiyarava, and J. T. Ha. 2017. "Climate Shocks and Rural-Urban Migration in Mexico: Exploring Nonlinearities and Thresholds." *Climatic Change* 140 (2): 243–258. doi:10.1007/s10584-016-1849-0.
Oakes, R., A. Milan, and J. Campbell 2016. Kiribati: Climate Change and Migration - Relationships Between Household Vulnerability, Human Mobility and Climate Change. Report No. 20. Bonn: United Nations University Institute for Environment and Human Security (UNU-EHS).
Rodríguez-Díaz, C. E. 2018. "Maria in Puerto Rico: Natural Disaster in a Colonial Archipelago." *American Journal of Public Health* 108 (1): 30–32. doi:10.2105/AJPH.2017.304198.
Scott, M. 2014. *Media and Development*. London: Zed Books.
Setser, B., and S. Marxuach. 2020. "The Puerto Rican economy." In *Handbook of Caribbean Economies*, 221–235. Routledge.
Sou, G. 2022. "Reframing Resilience as Resistance: Situating Disaster Recovery Within Colonialism." *The Geographical Journal* 188 (1): 14–27. doi:10.1111/geoj.12413.
Sou, G., and J. Cei Douglas. 2019. *After Maria: Everyday Recovery from Disaster*. U.K: University of Manchester.

Sou, G., and R. Webber. 2019. "Disruption and Recovery of Intangible Resources During Environmental Crises: Longitudinal Research on 'Home'in Post-Disaster Puerto Rico." *Geoforum* 106: 182–192. doi:10.1016/j.geoforum.2019.08.007.

Thomas, A., and L. Benjamin. 2018. "Policies and Mechanisms to Address Climate-Induced Migration and Displacement in Pacific and Caribbean Small Island Developing States." *International Journal of Climate Change Strategies and Management* 10 (1): 86–104. doi:10.1108/IJCCSM-03-2017-0055.

Tuck, E. 2009. "Suspending damage." *Harvard Educational Review* 79 (3): 409–428. doi:10.17763/haer.79.3.n0016675661t3n15.

UNHCR. The Environment and Climate Change. United Nations High Commissioner for Refugees, Geneva2015. (accessed Feb 12 2021). http://www.unhcr.org/540854f49.

Vertovec, S. 2001. "Transnationalism and Identity." *Journal of Ethnic and Migration Studies* 27 (4): 573–582. doi:10.1080/13691830120090386.

Wang, Y., and S. Rayer. 2018. *The Growth of the Puerto Rican Population in the United States*. Gainesville: University of Florida Bureau of Economic Research.

World Bank. 2013. Personal Remittances, Received (% of GDP) Tonga. http://databank.worldbank.org/data/reports.aspx?source=2&series=BX.TRF.PWKR.DT.GD.ZS&country=TON. Accessed 15 2 2021