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Geography 466
Final Paper
5/11/16

Protecting an Area and its People: Papua New Guinea and the Impacts of Climate Change

General Introduction

Climate change is a multifaceted threat to protected areas that forces legal protections to be adapted in a variety of ways. In extreme circumstances these protections can be adapted so extensively as to no longer apply to an area, but a people. In the following paper I will explore the impacts of climate change on Papua New Guinea (PNG) and its surrounding Islands and consider how legal protections and the actors and authorities involved are adapting to these impacts. In certain areas, creative methods are being put into place in support of conservation. In other areas the impacts of climate change are so drastic that people have been forced to leave the area altogether. In each case, the most robust type of protections have been developed through community conservation programs while the national, regional and international governments involved have played an inadequate role both in protecting areas of PNG and in protecting the people forced to leave. The most intensive impact of climate change for PNG islanders, namely migration, has brought about complex new questions regarding how legal protections, failing to protect an area, might protect the people forced to leave who now must find new space, funds and forms of governance.

This paper will pay close attention to how decisions are being made about climate change in terms of the governance structures, actors, and kinds of assessments involved.

There is no overarching description of this for all PNG, but as particular protections and programs are assessed, these themes will be close to hand. But this paper is not only descriptive in content, it will conclude with prescriptive remarks concerning the adequacy of the current approaches to climate change and offer suggestions for the future. The paper will have a simple structure. It will begin with a description of the impacts of climate change on PNG and surrounding Islands. Following that, part I of the paper – entitled "Staying" – will describe conservation initiatives in PNG and consider how they are influenced by and acting to mitigate the impacts of climate change. Part II of the paper – entitled "Leaving" – will describe the most disruptive response to the impacts of climate change: migration. The paper will end with a conclusion that will retrace the most important strands of the analysis and offer prescriptive remarks. Again, throughout each section special attention will be paid to the structure, laws, processes, actors and the roles of organizations making up the nexus in which decisions regarding the impacts of climate change are being made.

The Impacts of Climate Change in PNG

The impacts of climate change are difficult to observe directly.[1] It is easy for a variety of complex factors to be subsumed under the single title of 'climate change' by the media. This is well catalogued in Connell 2016. So it will not be my goal to generalize across the whole of PNG and surrounding islands as to what the impacts of climate change are. Instead, I will focus in on a couple of particular places in the region to give account of those impacts. It will be my goal to strike the balance between taking climate change

[1] Following Connell 2006, when the author states, "It would be almost impossible to imagine any environmental phenomenon less directly observable (other than through extreme events), more remote from daily experience and more dependent on science for its ' truth' than climate change.

seriously as a real threat while at the same time attempting to avoid oversimplifying the clear cut source of certain phenomena to be climate change alone.

Some of the most tangible impacts of climate change are sea-level rise, heightened storm intensity and ocean warming. The Carteret Islands and Manus Island off the coast of PNG are each vulnerable to these phenomena. The Carteret Islands are a coral atoll that does not get higher than 1.5m above sea level. This is part of what makes it a site in which the impact of climate change is so visceral. It is worth keeping in mind, however, as Connell 2006 points out, that climate change is only one problem among many faced in this sort of precarious environment. But these impacts have been enough to generate several attempts and plans for resettlement in the last few years.

On Manus Island, a larger Island to the northwest of the Carterets, Islanders face similar problematic impacts. A king tide storm devastated parts of the Island in 2008 and storms have been becoming increasingly more intense. Also, one of the more gradual but sustained impacts of climate change – sea level rise – is affecting the island. According to Gorodetsky 2013, sea level has "consistently and rapidly risen" over the last fifteen years and is expected to rise between 7 and 15cm over the next 35 years (49). Sea level rise takes away habitable space, can salinize terrestrial areas making crop production more difficult or impossible. Warming of the ocean can lead to a decreased population of fish and the increased intensity of storms also contributes to the precariousness of these island habitats surrounding PNG. Though the situation is more complex than just climate change, it is clear that climate change is impacting the area in negative ways. The following section of the paper will describe one way these impacts are being addressed at the local level.

Part I. *Staying*

PNG does have a climate change authority called the Office of Climate Change and Development. This is the national government body responsible for designing policy to mitigate and adapt to climate change. This body meets regularly with government officials. It has designed a policy for climate compatible development based on one pillar of the government's 2050 vision, namely, the fifth pillar entitled "environmental sustainability and climate change." The policy includes proposals for mitigation like increased forest cover and using non-forested lands for agriculture. It also includes measures to reduce the country's vulnerability to climate change impacts like storms through enhanced warning systems (Losi 2015). However, the office faces challenges regarding the enforcement of these policies and it is hard to find data that any mitigation strategies are effectively unfolding anywhere in the country. For this reason the focus of the paper will be on community conservation initiatives, which, in a variety of places have sophisticated programming and governance and are effectively working to mitigate and adapt to climate change. In this section I'll discuss two initiatives in particular - a tree kangaroo conservation program in Huon Peninsula and a fishing conservation program on Ahus Island which is just off the northern coast of the previously discussed Manus Island. These programs illustrate the ways in which the people of PNG are adapting to and finding creative ways to help mitigate climate change, working from the ground up.

I.a. On the Huon Peninsula

Some of the broader terrestrial impacts of climate change in PNG and worldwide are the destruction of habitat and the decline of endemic species (Ancrenaz 2007). The impacts of climate change, as mentioned above, aren't always straightforward. The commercial extraction of resources, which destroys habitats, is something that contributes to climate change both in the carbon produced by most commercial activities and by the removal of carbon sequestering forest areas. On the other side of this process the reality of climate change then also contributes to habitat destruction via impacts like sea level rise, ocean warming and drought. So any efforts to conserve habitats, species and biological diversity is an effort to both mitigate the effects of climate change by conserving habitats and carbon sequestering resources but it is also to adapt to the effects of climate change in that more and more species and their habitats are becoming vulnerable and in need of robust protections. The Tree Kangaroo Conservation Program (TKCP) on Huon Peninsula, PNG is an example of an organization that is responding to these concerns.

The goal of TKCP is to create a community conserved area that is managed by the community itself. Indigenous populations own 95% of the land in PNG (Ancrenaz 2007). This being the case, any conservation initiative must partner with the local community to be effective. The primary actors in this initiative are TKCP staff, local landowners and volunteers from a local university. TKCP offers, through money acquired by external grants, educational and health-care services to local community members. Their teacher training programs have led to the re-opening of three previously closed schools (Ancrenaz 2007). It is by leveraging these benefits that TKCP forges partnerships with community members and landowners and works to educate them on the impacts of

climate change, like habitat loss and species decline. This education ultimately fosters a more caring spirit for the land among community members and creates a renewed perception of the value of the local habitat and species (Ancrenaz 2007).

With the parcels of land that community members have pledged, TKCP has created a conserved area of over 60,000 ha. on which no hunting or resource extraction is authorized. This land works directly to sequester carbon, protect habitats, maintain species diversity and acts as an intact area that is not degraded by commercial extraction. It is also consistent with historical community strategies of conservation that marked off land as taboo. This practice was ended by missionaries (Ancrenaz 2007).

TKCP has worked to formalize this conserved area via the Conservation Areas Act of PNG (1978), which provides the legal framework for protecting habitats and species (Ancrenaz 2007). However, this organization would land far to the right on the IUCN continuum of collaborative management. The government plays virtually no role other than providing legislation in which it can be legally grounded. TKCP is working to transfer full authority to community members. To achieve this they have involved landowners and community members in developing the management plan including "the mapping…the management rules, and fines" (Ancrenaz 2007, 2447). The TKCP is an example of a successful community conservation initiative that is working to adapt to and mitigate the effects of climate change as well as other phenomena that adversely impact the environment and community therein.

I.b. Just Off Ahus Island.

Ahus Island is an Island of roughly 28 ha. off the coast of Manus Island. It has a population of about 600 residents. The fishing practices on this island give us a chance to learn about another instance of community conservation and consider the ways in which the effects of climate change can be mitigated in these vulnerable island communities. The community conservation on this Island is still in its traditional form. It is not facilitated by a nonprofit organization or a government entity and it seeks its authority in no legal document – only in traditional customs and the clear utility of the conservation practice (Cinner 2005). In an area of the globe that is already vulnerable to the impacts of climate change, it is important that key resources and habitats are carefully dealt with as to not contribute other factors to their degradation. The community conservation on Ahus Island helps to prevent over fishing and maintain a strong and healthy ecosystem for the fish off of which the community lives. However this doesn't mean that the system isn't threatened by the impacts of climate change.

Ahus Island has a series of restricted areas with regard to fishing practices. These restrictions apply both to areas and to methods of fishing. Net and spear fishing are restricted for most of the year except for perhaps 2 or 3 fishing events a year. Line fishing, however, is always permitted (Cinner 2005). There are no formal methods of enforcing these regulations, leading Cinner 2005 to believe that they are supported through "intrinsic motivation" (1721). There are a series of traditional marine tenure rights, which allot certain areas to certain tribes as well as restricting mainlanders from marine resource extraction and islanders from mainland resource extraction which maintains a robust trading system (Cinner 2005). Community members respect the

authority of these traditional ownership rights and understand the economic importance of their fishing practices. Community members are led to see the restricted areas as legitimate and effective also because of their participation in them.

The restricted areas are opened to net and spear fishing two or three times a year for traditional ceremonies or communal events. Community participation in these catches allows the community to recognize the effectiveness of the protections via the size and amount of fish they are able to catch during these events. Islanders attest to these factors and Cinner 2005 found that fish in the restricted areas averaged a significantly greater biomass than those in non-restricted areas. Because of the perceived legitimacy and effectiveness of the traditional regulations, enforcement is built into personal motivations. It is also important that line fishing is allowed and therefore the restricted areas are not a total ban, which can lead to hardship, which can then lead to low compliance with regulations (Cinner 2005).

This brief example from a small Island shows how traditional governance structures can support the robust conservation and protection of important habitats and resources. If perhaps these restrictions do not directly mitigate the effects of climate change, they certainly mitigate other human factors – like overfishing – which in combination with the impacts of climate change can severely threaten communal livelihood and ecosystem integrity. These sorts of traditional protections, however, remained threatened by the impact of climate change. Due to the fact that they exist solely at the communal level and do not exist in a larger network leaves these protections vulnerable. They have no power to mitigate impacts generated by errant environmental practices around them in the larger surrounding areas. For now, traditional protections

can maintain the precarious livelihood of small islanders. But the storms, sea level rise and warming associated with climate change could offset that balance relatively quickly and degrade important habitats and resources. The second portion of the paper will take us to a place in which these impacts have already started down this path and where communities and governments are being forced adapt to these new challenges.

Part II. *Leaving*

This portion of the paper focuses on the Carteret Islands. These islands are coral atolls in the northeast of PNG. The impacts of climate change in this region are severe enough to force populations to migrate. We will consider the unique challenges that these populations, as well as the PNG government, face in adapting to the situation. The following will show that there is a serious lack of governance and legal frameworks at both the state and international level for facilitating this process. This means that not only have *places* like the Carteret Islands been subject to a failure in protections but the *people* forced to leave these places are now subject to failed protections in their migration as well.

Thus far in this paper we have seen instances of communities making use of their own resources and networks with little to no government involvement in order to adapt to and mitigate the impacts of climate change. This dynamic only intensifies when considering the Carteret Islanders. These Islanders provide a strong example both of the power of community conservation and community–driven governance and logistics in adapting to climate change. Their story also throws into sharp relief the gap in governance, funding and effective policy at the regional, national and international levels.

According to Pascoe 2015, since “1994, almost 50% of the surface of the Carteret Islands has been lost as a result of rising sea levels and inundation” (77). As was made clear in the initial section on the impacts of climate change in PNG, it is hard to say that this is completely due to climate change. Other factors exist. However given the rate of sea level rise and recent intensity of storms and flooding events, it is probable that climate change has a significant role. The recognition that the islanders would need relocated has been growing over time.

The regional government to which the Carteret Islands belong is the Autonomous Bougainville Region (ABR). The government of this region has been in talks since 2001 about a relocation program for the Carterets. The national government of PNG distributed $800,000 to the ABR government but these funds to date have not turned into functional relocation programming (Pascoe 2015). The ABR government has its own set of challenges after having come out of a civil war in the 1990’s and its capacity for governance in the form of economic and social development is precarious (Pascoe 2015). Other than the allocation of funds just mentioned, the national government has played no role. The climate change policies discussed above regarding PNG’s Office of Climate Change and Development prove ineffective, unfunded and lacking of any programmatic features in terms of aiding the Carteret Islanders. There are likewise no international legal frameworks with effective programs for climate change migrants even though climate change is an internationally driven phenomenon.

Due to the lack of government involvement at the national level and inadequate and untimely programming from the ABR government, the islanders decided to take matters into their own hands. In 2006, the Carteret Islanders formed a non-profit

organization called, “Tulele Peisa” or “Sailing the Waves on Our Own.” (Pascoe 2015, 78). The goal of this organization is to fund and facilitate the relocation of all the families on the island. Tulele Peisa has acquired three sites for relocation from the Roman Catholic Church on Bougainville Island. By 2015 five heads of household had moved to one of these areas to begin building houses and cultivating gardens (Pascoe 2015). Aware of the cultural and economic differences between the Carteret Islanders and Bougainville, Tulele Peisa has conducted exchange programs to help develop salutary relations between the two peoples and engender cultural awareness and acceptance (Pascoe 2015). However, Tulele Peisa has had its share of difficulties.

The land acquired from the Catholic Church totals at 71 ha. but estimates for the amount of land necessary for complete relocation total around 1500 ha. The community ownership of land makes it difficult for land to change hands in ABR. Land is not individual owned, but owned by groups and the national PNG government is responsible for any ownership changes, leaving the ABR government unable to help. In PNG other customary landowners or the national government are the only ones who can acquire customary land. Individuals or other groups cannot be sold land (Pascoe 2015). This makes it exceedingly difficult to facilitate the relocation without a strong role being played by the national government. Tulele Peisa struggles in a similar fashion when it comes to funding. They are working from private donations and to facilitate this process they need far more money than they are currently working with.

However, Tulele Peisa is continuing to unfold planning and fund raising efforts to ensure the continued relocation of their people. Besides the funding and governance concerns they also must address the social and spiritual angst that comes with leaving

their homeland. In addressing this, they have found other creative ways to adapt to the impacts of climate change and work to conserve what they have left of their homeland. Tulele Peisa is seeking to develop a program that will turn the islands into a Conservation and Marine Management area along with sustainable transport channels between the area and their new home. The goal is to maintain ties to their ancestral land and continue to be in connection with its resources in sustainable ways (Rakova 2009).

The example of the Carteret Islands expresses two main issues in how areas and peoples are adapting to the impacts of climate change. It shows that international, national and regional governments can often lack the necessary legal protections and funded programs that are necessary to adapt to the impacts of climate change – in this case the impacts which result in migration. However, it does show that good planning and programming are possible. We learn this from the continued resilience and creativity of the Carteret islanders by their formation of new organizations, procurement of funds and lands despite the challenges of community land ownership and the lack of effective government decision-making.

Concluding Remarks

The impacts of climate change are threatening legal protections for conserved areas across the globe and forcing communities and governments to adapt these protections. Climate change offers a unique challenge in the international nature of its generation and the difficulty in directly pinpointing its impacts and their sources. PNG provides examples of particular areas in which these impacts are felt acutely. This paper has sought to catalogue ways in which particular communities are adapting to climate change

and the protections that they are unfolding in order to mitigate its impacts. It is also a story of a lack of good governance at a national and regional level in order to support, fund and facilitate the programs being conducted at a community level. In this concluding section I will offer some suggestions, based on what can be gleaned from the positive community programming described in this paper, as to how government policy and programming might move forward in addressing the impacts of climate change.

I will start by offering a couple of quick and single-pointed suggestions followed by one more comprehensive suggestion with regard to those displaced by climate change in PNG and how the government ought to approach the issue. Firstly, it is clear the PNG's Office of Climate Change and Development has excellent plans and policies that have been formulated. However, it is not clear that these are leading to any on-the-ground programs or activities. My first suggestion is that this office should unfold a series of tangible, relatively inexpensive programs and projects in order to allow its impact to be felt among the communities of PNG. What I have in mind here is fairly simple – funding a small community managed forest reserve here, a small park or sanctuary there, perhaps some educational programs on the impacts of climate change as well. This would allow the tangible effects of the office to be perceived by various stakeholders and citizens and begin to gain faith and build networks that would help facilitate the future development of the office. This might help it gain the public buy-in that is necessary for further funding, organizing and the sort of enforcement that will really allow it to be effective in more robust ways like regulating industry.

The government of PNG ought to recognize the value of community conservation organizations like the TKCP discussed in part I. There ought to be further funding

available for organizations like this. TKCP receives no government funds. The government also needs to create legislation that allows organizations like this to operate more effectively. TKCP grounds its legitimacy in the Conservation Areas Act of 1978, however further legislation could be drafted and funding marshaled to help facilitate the linkages between conservation and healthcare and conservation and education so that organizations like TKCP can proliferate elsewhere in PNG.

The last series of prescriptive recommendations will be with regard to communities displaced by climate change in the Carteret Islands. The disruptive activity of climate change migration must be facilitated in someway by the government. The Carteret Islanders have shown themselves capable of beginning the process but they lack to resources to complete it for the whole community. The main resource lacking is land in the ABR. Because of the customary tenure laws, the Carteret Islanders of Tulele Peisa are not able to acquire land directly from other groups. However, the government is. It is my contention that the government ought to procure land from existing customary tenure groups and sign it over to the Carteret Islanders. But the national PNG government should do this with some restrictions. The Office of Climate Change and Development has conservation goals to meet, and the Carteret Islanders are in need of land. There may be the possibility for an arrangement similar to the Conservation Reserve Program in the United States.

In the US the CRP program allows the government to meet conservation goals by renting land from farmers and dedicating it to conservation. In the PNG scenario, the government could reach conservation goals by purchasing land for the Carteret Islanders with certain restrictions that would allow the islanders to facilitate conservation. This

could be done in ways similar to the traditional community conservation discussed in Part I.b. on Ahus Island. Such protections would allow the Carteret Islanders to maintain their livelihood in coastal areas of ABR while also conserving important habitats and species. A program like this would have active conservation goals that would help mitigate the impacts of climate change but it would also show that the PNG government is able to creatively adapt to the impacts of climate change and facilitate the creation of new protections and good governance for its people and places.

It is clear that climate change poses extensive problems for PNG and its people. However when closely examining the powerful ways community conservation has been unfolding in the region alongside the gaps in governance, we can see clear ways forward. The suggestions above are only the beginning of what may be possible for PNG if the national government recognizes the strength of its communities and begins to partner its funding and legislative resources in support of those communities.

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