The Relocation of Taro Island

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Abstract

Taro Island, a provincial capital of just over 1,000 people on a low-lying atoll in the Solomon Islands, is facing multiple existential threats resulting from climate change induced sea level rise: inundation, tsunami, salt-water intrusion, malaria, and freshwater shortages. In response, the community has decided to relocate the entire town to the main island of Choiseul, across a 1-mile stretch of water. With the assistance of international aid, a team of Australian planners, scientists, and engineers helped the local government to develop a strategic plan for relocation. However, without the support of the national government in Honiara, plans have stagnated. While architectural and urbanistic responses to climate change worldwide have focused on mitigation and adaptation, the accelerated rate of sea level rise and frequency of severe weather events is forcing communities to consider relocation. Isle de Jean Charles in coastal Louisiana, several small towns along the Alaskan coast, villages in the Carteret Islands, Kiribati, and Fiji are in various stages of the relocation process. Architects and urban planners must develop standards, protocols, and best practices to ensure that these projects are completed in a way that is sensitive to and involves members of those local communities. This paper examines Taro Island as a case study, tracing the history of development on the island, the risks it faces, the decision to relocate, the planning process to date, and the challenges the project is now confronting. Special attention is paid to the community's desire to become a model for sustainable development.

The Island Capital

Waters Begin to Rise

As the Solomon Islands—a Small Island Developing State (SID) of 600,000 people—experiences three times the average global rate of sea level rise, residents of the country's lowest-lying islands are faced with a critical decision: fight the constant threat of flooding or move to higher ground.

The largest of these vulnerable communities is Taro Island, a 100-acre island off the coast of the larger Choiseul Island, and one of the country's nine provincial capitals. Despite its precarious elevation less than ten feet above sea level, national officials designated the island a capital due to its vital infrastructure—a small clinic and grass airstrip—necessary to serve the province's 26,000 inhabitants. Situated at the northern end of the Solomon Island chain, it is also a gateway to the country along international shipping routes that connect Southeast Asia to larger cities of Gizo and Honiara. Crucially, the island is government-owned, obviating the need to procure customary land, a long and costly process.

Taro was to be a springboard for Choiseul Bay Township, a future expansion on the main island. While the Choiseul Provincial Government (CPG) sought to secure additional land from customary owners, unchecked development spread across Taro. Today, the island community of just over 1,000 is at a crossroads. For over two decades, residents have struggled to mitigate the effects of the rising water and adapt to changing environmental conditions. But as the population swells and the island cedes ground to the sea, Taro Islanders now believe the wholesale relocation of their capital to higher ground is their only way forward.

Figure 1. The site of the old market, now under water, from Taro Island Wharf. The beach once extended to the prows of the boats.

Geoffrey Pakipota, Choiseul Provincial Secretary, first noticed the rising sea in 1993. At the time he couldn't identify the cause. "We are used to seasons with very big tides, but this was something strange," he recalled. Roswita Nowak, formerly a physical planner for the CPG, recounted efforts to rebuild a beach along the island's northeastern coast. Officials installed barriers—sandbags, and walls of coral boulders—to protect the beaches and to encourage sediment deposition around the island. Despite some success, the CPG rejected further hard infrastructural measures due to a lack of labor, time, and because blockades that prevent erosion in one area may exacerbate the problem in others. Without further mitigation, sea level rise could claim 5-20 meters—3-12 percent of the island's landmass—by 2055 and 20-50 meters by 2090.[1]

Flooding is not the only threat to Taro. Interconnected, incremental changes caused or exacerbated by climate change, will continue to affect daily life in the coming decades: The clearing of trees for development on Taro has left residents vulnerable to extreme heat as global temperatures rise. The risk of saltwater intrusion into the island's freshwater swamp rises with the sea. Malaria-carrying mosquitoes thrive in brackish water, intensifying an existing health risk on the island. Because there are no sources of clean fresh water, residents depend on rainwater tanks for drinking, cooking, and bathing. Unpredictable rainfall patterns put the entire island at risk of dehydration and lack of sanitation. These erratic conditions, coupled with a scarcity of arable land, may contribute to food insecurity and a critical waste management problem as residents increasingly rely on packaged provisions. While these hazards alone might warrant the relocation of a portion of the population, it is the existential threat of catastrophic natural disaster that convinced the entire community to leave Taro behind.

In April 2007, an 8.1 magnitude earthquake 100 miles southwest of Taro triggered tsunami warnings. Residents scrambled to evacuate to high ground on Choiseul Island, but the water of the lagoon receded as they guided their boats across the bay, leaving families stranded on shallow reefs. When the wave came, the people were thrust back to shore, barely managing to keep their boats upright. While Taro Island sustained no major damage, the tsunami killed six in Choiseul Province and left indelible fear in the community.

Rising sea levels make low-lying land increasingly susceptible to tsunamis. A single wave could overwhelm Taro Island in seconds. The Solomon Islands National Climate Change

Policy (2012) predicts a 0.3 inch (7.7 mm) increase in sea level each year, increasing the tsunami threat over time. The island's highest point is just under 10 feet above mean sea level (MSL). Models indicate that by 2030, the peak water level of a 100-year tsunami would be over 10.7 ft. MSL, rising to 12.8 ft. MSL by 2090.[2]

Choiseul Bay Township

A Plan for Relocation

In January 2013 the Choiseul Integrated Climate Change Program (CHICCHAP) organized by the Solomon Islands national government, brought international agencies and NGOs to Taro Island to plan adaptation strategies to environmental degradation and natural disasters in Choiseul Province. The program introduced the community to the science of climate change, providing an explanation for the environmental changes that residents had been observing for over a decade. CHICCHAP outlined several initiatives, including an effort under the Pacific Australia Climate Change and Adaptation Programme to develop an "Adaptation Action Plan and Master Plan" for Choiseul Bay Township—an official effort to coordinate the town's relocation to Choiseul Island.

In 2011, the CPG finalized the purchase of two detached parcels of land on the main island for Choiseul Bay Township. Lot 9, which sits at a secure 50 ft. above MSL is partially developed, the site of a jetty, boarding school, light industry, and a few residences. Across the Sui River to the south, Lot 277 is largely low swampland, still susceptible to sea level rise and tsunamis. Though a significant portion of Lot 277 will have to remain open or recreational space, the two lots provide ample acreage for expansion, easier access to high ground, and a reliable supply of fresh water.

On behalf of the Australian Department for the Environment, a team from Brisbane— scientists from the University of Queensland, engineers from BMT Global and urban planners from Ethos Urban—visited Taro Island in 2014.[3] The team collaborated with the CPG to assess the environmental risks on the island and relocation site and to work with local communities to develop a relocation strategy. Community engagement was central to the team's work and rigorous outreach ensured that the strategic planning document reflected the needs, ambitions, and desires of not only Taro Islanders, but people from across the region who rely on the capital for goods and services. Engagement methods ranged from interviews to group workshops and meetings to public presentations. Because English is a third language for many Solomon Islanders, the group worked with translators and printed all outreach material in English and Solomon Islands Pijin.

Visual tools were integral to collaborative planning. To elicit feedback, the team laid tracing paper over risk maps to demonstrate how to plan land use around potential hazards. The Australian experts provided a comprehensive overview of environmental hazards and the impacts of natural disasters that computational models predicted over time, but it was the CPG and community members who completed the risk assessment by explaining which buildings and infrastructural assets were most critical and describing how coastal erosion and sea level rise were already affecting the island. Local involvement was also crucial to the development plans for Choiseul Bay Township. The community helped the team identify locations on Lots 9 and 277 for fishing, subsistence gardens, pig hunting, gathering building material, and cultural sites and described the kinds of buildings and landscapes they hoped to see in the new town.

Based on a combination of environmental assessments, community and CPG feedback, and best practices, the draft Local Planning Scheme (LPS) laid out a seven-point vision for the new town. Choiseul Bay Township would be a "provincial, prosperous, safe, clean and green, living, connected, and well-serviced" town. The airstrip and landfill would remain the only active uses on Taro Island. A wharf on Lot 9 would be the relocated capital's primary port. Opposite a green buffer zone, the lot would also host a new hospital, medical staff residences, and low-impact industry. Due to its hazard susceptibility, much of Lot 277 would remain open/recreational. Higher, inland ground would provide a residential neighborhood and the provincial government headquarters. The existing logging road network would be expanded, and additional customary lands would be secured to accommodate a pedestrian boardwalk connecting the two parcels. In 2016 the national government approved the LPS, a major milestone to begin the process of securing technical and financial support from federal ministries and international partners.

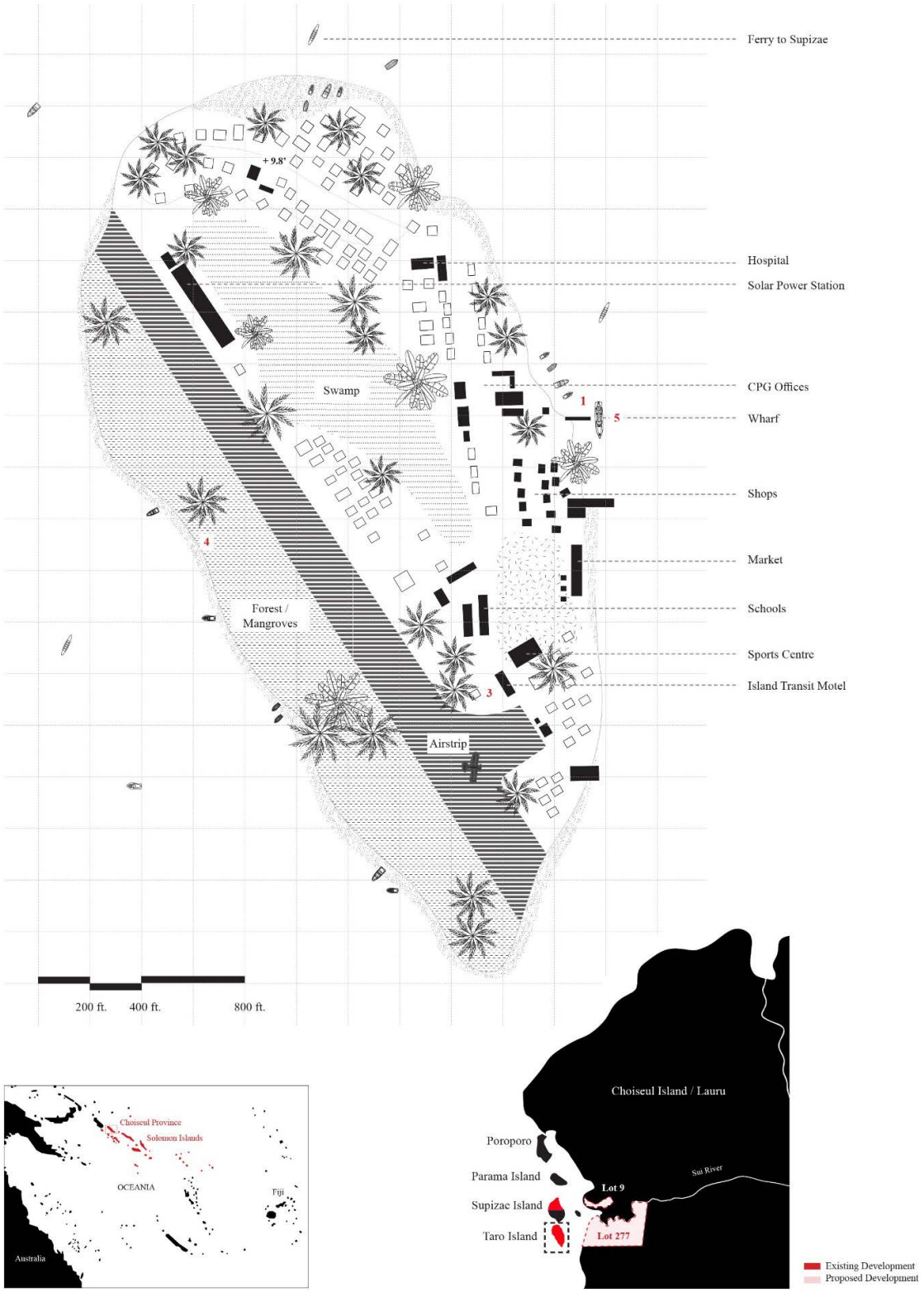

Figure 2. Map of Taro Island. Intended for illustration only, all figures approximate. Inset map of Oceania

Figure 3. Rainwater catchment tanks at the Island Transit Motel. Rainwater is the only potable source of fresh water on Taro Island.

An Equal Partnership

Determination and Hope in the Face of an Uncertain Future

Four years later, the relocation site remains untouched—a horizon of impenetrable bush from the wharf on Taro Island. The CPG is flooded with requests for information about settlement on the new site. Officials are eager to move forward, but they are also wary of the poorly managed and unregulated development that plagues larger Solomon Islands cities like Honiara and Gizo. They believe there is a different way forward. "Things cannot happen quickly because we need to make sure that things are done correctly," Roswita Nowak insisted. Geoffrey Pakipota, who has devoted much of his public service career to the realization of Choiseul Bay Township, is determined to build a modern, "clean, green, town"—a model of responsible and sustainable development for Solomon Islands and its Pacific neighbors. For Choiseul leadership, there is a moral imperative for the new capital to be distinct from the kind of wasteful and short-sighted development that has caused and continues to contribute to climate change. Though the vision of the CPG is admirable, their dream is unattainable without strong national support and international assistance. Choiseul Bay is meant to be unlike any other city in the Solomon Islands and the experience, competence, and technology required to develop an urbanistically and architecturally complete master plan for the city they envision will likely have to come from overseas.

Taro Island has many sponsors. From the new Premier's Residence to the hospital's emergency boat, water tanks, and even garbage cans, foreign aid provides critical support to a province with few resources to fund its own development, improvement, expansion, and now, relocation. In the past, aid organizations failed to make meaningful connections with local communities. Any aid from technical consulting to urban and architectural design must be done in close consultation with the provincial government and the community as a whole. The CPG and Taro Island do not wish to be the passive recipients of international aid, but equal partners in the establishment of Choiseul Bay Township. While the provincial

Figure 4. The west coast of Taro Island just after high tide (6.40 AM) and nearing low tide (1.30 PM). This large tree was once set back several feet from the water even during high tide.

Figure 5. Children playing on Taro Island wharf, future site of Choiseul Bay Township (Lot 277) beyond

government is eager to find international donors and has had preliminary conversations with foreign aid organizations, they cannot supersede the national government, which allotted no funding to the project last year.

Rising waters are not the only change that the developed world has brought to Taro Island. Solar panels now provide 24-hour electricity to the island for the first time, a proposed undersea telecommunications cable from China would bring more reliable mobile connectivity, and increased trade has opened larger markets for imported goods. “Whether we like it or not, development is coming, and the world is changing. We need to try to open up to meet the standard, to improve our living,” said Roswita Nowak. Choiseul Bay Township is not a re-creation of Taro Island on a new site, but an opportunity to build a better town, one that redirects the forces of modernization into improved and expanded infrastructure, services, and spaces for a growing population. Residents desire running water, reliable electricity, and mobile coverage, but wish to foster their Melanesian culture—outdoor kitchens and living areas, strong ties to the ocean, and land for subsistence farming. The people of Taro Island must be partners, empowered in the planning and realization of their future capital and prepared to lead it as it expands and evolves. “Today we’re living in a western world,” Simmy Vazara, Provincial Premier from 1997 to 2000, acknowledges, “We need to change, but in our own way.”

Relocation is an intensely human project—moving homes, businesses, places of private refuge, and spaces of collective celebration. Urban designers and planners map the relationship between buildings, infrastructure, and the environment largely from a birds-eye view. They understand how spatial propositions intersect with technical logistics and policy. They can select geographic areas that are safe for inhabitation, recommend where infrastructure must be built to support industry, and where the hospital must be located to maximize accessibility. Though architects must also be able to engage urban-scale components of a site, they are trained to understand physical space at a human scale. Both urban and architectural design must be an integral part of relocation planning. The Local Planning Scheme was not a master plan; it did not provide ample visual representation, drawings or rendered imagery to describe how the Choiseul Bay Township will look and feel. The project now requires a level of refinement that will depend critically on thoughtful human-scale design that respects the relationship between a place and its inhabitants.

Founded less than a century ago, Taro Island is important as an administrative and economic regional hub, not as an ancestral home. Though few residents have familial or traditional attachments to the Island itself, many are accustomed to ways of living that may not be possible on the Choiseul Bay Township site. Life on Taro revolves around the sea—boating, fishing, and swimming. However, on the new site, the community living areas are set back from the coast. Residents will have to find new places to store their boats and recalibrate their lives to this new environment. Architectural and urban representation can help the community understand what those changes are and how they can adapt.

1,500 miles away, Fiji has become a leader in relocation policy and practice. In February 2019, the Ministry of Economy's Climate Change Unit released the world's first Planned Relocation Guidelines. The country has completed three full relocations of coastal villages threatened by rising sea levels. Though these projects—villages of no more than 200 people—have been much smaller than the resettlement of Taro to Choiseul Island, Fiji's guidelines and institutional relocation framework offer templates for similar efforts in the Solomon Islands. The guidelines prioritize a transparent, inclusive, community-driven process to achieve long-term economic and environmental sustainability.

The incremental devastation climate change brings—what author Rob Nixon calls 'slow violence'—operates on a time scale that enables an anticipatory rather than reactive response to disaster. Because it is easier to ignore the slow demise of a town than a catastrophic event, relocation efforts have been ignored and under supported for decades. As we pass the point of no return—the IPCC 2018 Special Report indicates that a 1.5 degree (C) increase in global temperature is nearly unavoidable over the next 25 years—world leaders must prioritize preemptive responses to gradual environmental threats by allocating a portion of the $60 billion in climate change related programs specifically to relocation projects.[4]

In twenty-five years, Taro could be lost to a tsunami; it could be a stagnant settlement, suffering from chronic water and food shortages, unable to support economic and population growth; or it could be thriving port city and a standard for sustainable development. Geoffrey Pakipota remains determined, explaining that the CPG has already laid the foundation for the relocation and needs support to realize their vision, "we have secured the site, we have the documentation, we have a plan."

Endnotes

1. Philip Haines, Shannon McGuire, Kylie Rolley, et.al., Integrated Climate Change Risk and Adaptation Assessment to Inform Settlement Planning in Choiseul Bay, Solomon Islands. (BMT/WBM: Brisbane, Queensland Australia, June 2014), 85-86.
2. Ibid., 73-6.
3. BMT Global, formerly BMT/WBM and Urban Ethos, formerly Buckley Vann
4. Globally, industrialized nations have set aside funding to respond to climate change. According to the Organization for Economic Cooperation and Development, developed countries have contributed an increasing amount to climate change-related programs in the developing world— from 37.9 billion in 2013 to nearly $60 billion in 2017, a number that is projected to rise. While capital exists, there is competition for these funds and the Solomon Islands national government needs to convince donors that Choiseul Bay Township is worth the investment.