

## Article

# Dark Side of Development: Modernity, Disaster Risk and Sustainable Livelihoods in Two Coastal Communities in Fiji

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**Abstract:** The world is changing rapidly, as are the remotest rural communities. Modernity is spreading across the world under the guise of development and it is transforming disaster risk. This raises issues concerning how disaster risk is changing in such milieus. Using a sustainable livelihood approach, this article investigates access to different types of capital that central to the vulnerability of two coastal communities in Fiji that are affected by modernity to different extents. This comparative case study is based on semi-structured interviews, focus groups and observation. The results indicate that modernity transforms access to and use of key capitals (natural, physical, financial, human, and social capital) on both community and household levels, increasing dependence on external resources that are unequally distributed, while undermining social cohesion and support. Although disaster risk might be of a similar magnitude across the board at the community level, modernity transforms vulnerability significantly and skews the distribution of disaster risk, to the detriment of the households left behind by development.

**Keywords:** disaster risk; development; modernity; Fiji; sustainable livelihood

## 1. Introduction

Rural communities find themselves in a rapidly changing world [1], but most studies of contemporary change focus mainly on the physical changes. Population growth, urbanisation, and migration are rewriting the demographic map [2–4], while globalisation is intensifying the links between remote localities in such a way that local happenings are shaped by distant events and vice versa [5]. Environmental degradation is threatening quality of life [6] and climate change is increasing the frequency and intensity of destructive extreme weather events [7,8]. These and other interlinked global processes of change are permeating all levels of society in all corners of the world [9,10], affecting to various degrees the lives and livelihoods of rural communities. However, most studies of sustainability challenges have neglected the social, cultural, and economic aspects by emphasising the physical aspects [11–13].

Contemporary change is neither random nor haphazard, even for the most remote communities, yet its implications for disaster risk have not attracted much explicit interest [14–16]. Although the lives and livelihoods of rural communities have always been open to change, the extent, intensity, and velocity of transformation started to accelerate with the advent of the industrial revolution [17,18] and associated social change commonly summarised in the concept of modernity [5,19,20]. The protracted debate about modernity and postmodernity aside [21–23], modernity is on the move across our world [24]; spreading steadily under the guise of development to increasingly remote rural communities. The coming of modernity results in both increasing affluence and deprivation [25], and this transforms disaster risk [26]. Many influential scholars suggest connections between development and disaster risk [14,16,27,28]. However, *how* modernity is transforming disaster risk when reaching remote communities is still understudied [29,30].

Small island developing states are generally considered most vulnerable to contemporary global change [31,32] and the islands of the South Pacific are among the last to experience the arrival of modernity apart from a few former colonial urban centres. However, this has been changing rapidly with the immense growth of tourism to some of these islands, attracting outside investments and people, while other parts are still largely unaffected. This is particularly pronounced in Fiji, with the most developed tourism sector in the region [33], but also with an abundance of secluded corners well off the beaten track.

The notion of sustainable livelihoods has been influential in complementing macro-level structural approaches to development, with micro-level approaches focusing on human agency and inequalities in the distribution of assets and power [34–36]. Such sustainable livelihood approaches have also been widely applied in relation to vulnerability and disaster risk [37,38], thus providing a suitable analytical lens for investigating how modernity is transforming disaster risk by altering peoples' access to different types of capital. The purpose of this article is to investigate how modernity transforms disaster risk in rural communities in South Pacific small island developing states from a sustainable livelihoods perspective.

The article is based on a comparative case study of two Fijian villages that have been affected by modernity in differing degrees. The data were collected in 2009 and a lot is likely to have happened since then. However, the purpose of the article is not to describe the current state of the studied villages, but instead to learn from comparison how modernity transforms disaster risk in such contexts. The comparative analysis of the two villages is therefore still relevant to the purpose of the article, even if the penetration of modernity has continued since then.

## 2. Conceptual Framework

Although the term development has been used for at least 250 years [39], it was not until the end of World War II that it became an important concept [40]. Since then, numerous and often competing definitions have been presented [41–46], creating a Babylonian confusion that to some extent is the result of the concept being used in three different ways: (1) as a description of a desired future state of society; (2) as a process of change over time; or (3) as the deliberate efforts of various stakeholders towards improvement [47].

Closely linked to development is the concept of modernity. It is at least closely linked to the dominant notion of development advocated by the most powerful actors of the international community, while less so to more radical alternatives [45]. In these cases, modernity captures an aspired condition that may result from development. Although it is a contested concept with various definitions across and within disciplines, at its simplest, modernity can be used as shorthand for modern industrial society [48]. It is most often juxtaposed with traditional society [49,50]. Modernity has as such been heavily debated, with influential accounts arguing that the western world has left many of the assumptions of such societies behind [21]. Regardless of the persuasiveness of several of these postmodernist arguments, which have attracted the support of many social scientists [23], the core of modernity is still very much alive in the west [51] and modernity is still spreading across the world under the guise of development [24,25]. Modernity is here associated with a certain set of norms and attitudes towards the world as open to transformation by human action [48], where the notion of risk gains salience [5,52] and individualism trumps the collectivism of traditional societies [24,50]. Modernity is also associated with a particular nexus of economic institutions, most notably industrial production, private ownership, and market exchange [48,53], as well as with particular kinds of political institutions (e.g., the nation–state and mass democracy) [24,48]. In this sense, modernity has already engulfed Fiji on the macro-level. However, modernity is not reaching all parts of society simultaneously and its benefits and drawbacks are not equally distributed across the population [25]. In other words, the spread of modernity does not result in unicity, as some proponents of globalisation suggest [54]. Globalisation is instead “a process of uneven development that fragments as it coordinates” [5], resulting in contextual variations between societies [24] as well as within societies [25]. This article

focuses on the latter. On the micro-level, the article focuses on the penetration of modernity in two coastal villages in Fiji and its effect on disaster risk as a result of changes in access to different capitals that are fundamental for sustainable livelihoods.

Risk is a contested concept with various definitions [55], but it is here defined as uncertainty about what could happen and what the consequences would be [55]. In other words, it is not sufficient to only consider a hazard to understand disaster risk, as it must be combined with vulnerability to have any consequences [14]. Modernity affects some hazards by making a much greater environmental impact than do traditional societies, e.g., deforestation is increasing erosion and water runoff and climate change is influencing storms and rainfall patterns [9]. However, many scholars suggest that it is by transforming vulnerability that modernity has its greatest impact on disaster risk [14,16]. One influential approach to grasping and addressing vulnerability focuses on sustainable livelihoods [56]. Building on Chambers and Conway [34], Scoones introduces in his framework for sustainable rural livelihoods the idea that vulnerability is determined by access to natural, financial, human, and social capital [57]. After Carney added physical capital [58], the resulting sustainable livelihoods framework or approach became highly influential and it is subsequently applied in both research and practice [36–38,59–62]. A sustainable livelihoods perspective is therefore suitable as an analytical lens for investigating how modernity transforms disaster risk.

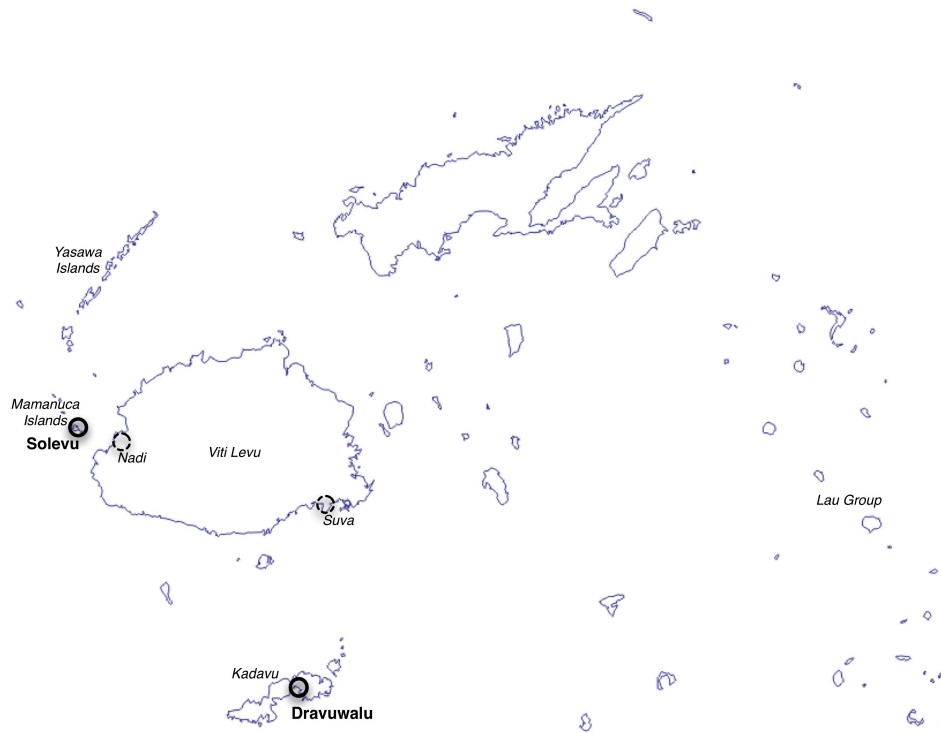
Natural capital refers to natural resources such as land, plants, water, wildlife, and natural beauty, which either directly or indirectly are beneficial for production [57] or protection [63]. Physical capital refers to the built environment, infrastructure, tools and technology, which provide for instance affordable transportation, safe shelter, adequate water supply and sanitation, energy, and access to information [60]. Financial capital consists of income, savings, remittances, credit and debt, which together provide the means to engage in market exchange to procure whatever is needed. Some suggest that this is the most versatile risk reduction strategy given sufficient access to markets [64]. Human capital includes health, nutrition, education, knowledge and skills, whereas social capital comprises networks, relations of trust and reciprocity, shared values, common rules and sanctions, mechanisms for participation in decision-making, etc. [57].

### 3. Methodology

A comparative case study is suitable to compare access to different capitals in two villages in Fiji that have been affected by modernity in differing degrees [65]. However, any analytical generalisations for which case study research has proven well suited [66], should not be applied to other cases “through abstraction and loss of history and context”, but through “conscious reflection on similarities and differences between contextual features and historical factors” [67]. To select cases for comparison, it was important to identify villages that were relatively similar in the past, but which have experienced different developments in recent decades. The purpose of the following short background description is thus to qualify the selection of cases.

Despite the minor internal cultural differences between ethnic Fijians [68], as well as the divide between ethnic Fijians and Indo-Fijians that is not included in this study, most of the ethnic Fijian population on the outer islands was relatively homogeneous at the time of independence. Distance separated them from the precolonial power centres of the tribal confederacies and the British colonial administration and industries. Although the opening of Nadi International Airport during World War II and other infrastructural developments opened up possibilities for a slow growth of international tourism, it was not until around independence that tourism started to boom [69]. Suddenly, the industrialisation of the economy started to reach outside the agricultural sector, dominated by the sugar industry, and outside the main islands. The annual number of tourists has increased eightfold since then [69,70], with only temporary recessions around the recurrent military coups and constitutional crisis. This immense growth in tourism has generated substantial economic benefits [71,72] and has had social, cultural and environmental impacts [73]. Most of the tourism industry is concentrated along the southwestern coast of Viti Levu, the main island, and to the

Mamanuca and Yasawa islands in the west, while the island of Kadavu and the Lau group in the east receives hardly any tourists [74]. In an effort to study how modernity has affected access to different capitals, two coastal villages were selected based on their equal distance from the capital city and the traditional power centres, but with very different experiences in terms of tourism. Hence, the villages of Solevu on Malolo and Dravuwalu on Kadavu stand out as a suitable pair, the former being on an island with mass tourism and the latter still being more isolated (Figure 1).



**Figure 1.** The location of the two selected coastal villages of Dravuwalu and Solevu.

The research consisted of three steps. The first step was to construct indicators for each of the five types of capital introduced above. The indicators follow the description of the five types of capital in the theoretical framework, but were limited to the data that could be collected without being too intrusive on the community members. The result was a set of 25 indicators, between three to six per type of capital, which was used to guide data collection and analysis (Table 1).

The second step included the analysis of 27 semi-structured interviews, focus groups and observations. The data was analysed by going through each interview, focus group discussion, and the observation material, looking for data that in various ways describe one or several of the indicators (Table 1). The interviews with 27 key informants (10 women and 17 men) focused on establishing what destructive events had occurred in the past and on mapping the spatial and social setup of the villages and the overall access to livelihood assets and infrastructure. Key informants included the chiefs, *Turaga ni Koro* (village headsmen, appointed administrators), nurses, teachers and representatives from different *mataqali* (clans). The interviews also included collecting narratives from four to five women and four to five men per village, asking them to describe their life in the village over the course of a month. The interviews last around one hour and were captured by written notes. In addition to the interviews, four focus groups with 3–7 community members each, focused on mapping the spatial and social setup of the villages and the overall access to livelihood assets and infrastructure. The focus groups were asked to share their knowledge of a wide range of issues, spanning from the decision-making mechanisms to the type of toilets in the village, and from the main source of livelihood of each household to which house belongs to which *tokatoka* (extended family, sub-division of clan).

Each focus group discussion lasted 3–6 h and was captured by written notes. Finally, observation was used to collect data, both in terms of observations while just staying in the villages (including informal interviews) and in terms of structured transect walks. The two villages are mapped (Figures 2 and 3) and each house is photographed and its structure assessed. The combination of interviews, focus groups and observation allowed for data to be cross-checked between the data collection methods, especially the input concerning specific households. The data were collected during the first half of 2009. Informed consent was obtained from all respondents at the time of data collection and is still valid [75].

**Table 1.** Qualitative indicators for access to five types of capital.

Capital	Qualitative Indicators
Natural capital	Access to land resources [57,60] Access to marine resources [57,60] Vegetation coverage [57,60] Natural beauty and wildlife [57] Natural protection [63]
Physical capital	Quality of housing [60] Access to boats and transport infrastructure [60] Access to shops and markets [60] Access to water, sanitation and waste management [60] Access to electricity [60] Access to telephone, radio and TV [60] Physical protection [60]
Financial capital	Paid labour [57,60] Trade income [57,60] Capital income [57,60] Remittances or redistribution [57,60] Access to credit [57,60]
Human capital	Access to healthcare [34,60] Nutritional status [60] Access to education [57,60]
Social capital	Household composition [76] Community decision-making and projects [60] Community groups [60] Reciprocal behaviour and community cohesion [60] Social protection [60]

The third step in the analysis included plotting the data on the constructed maps to facilitate spatial analysis and the visualisations of any patterns in the data. However, the maps of the villages below (Figures 2 and 3) include only kinship for ethical reasons, as data on households' access to different capitals are intrusive and potentially hurtful to the people. The data from each village were then compared and contrasted to analyse potential similarities and differences.

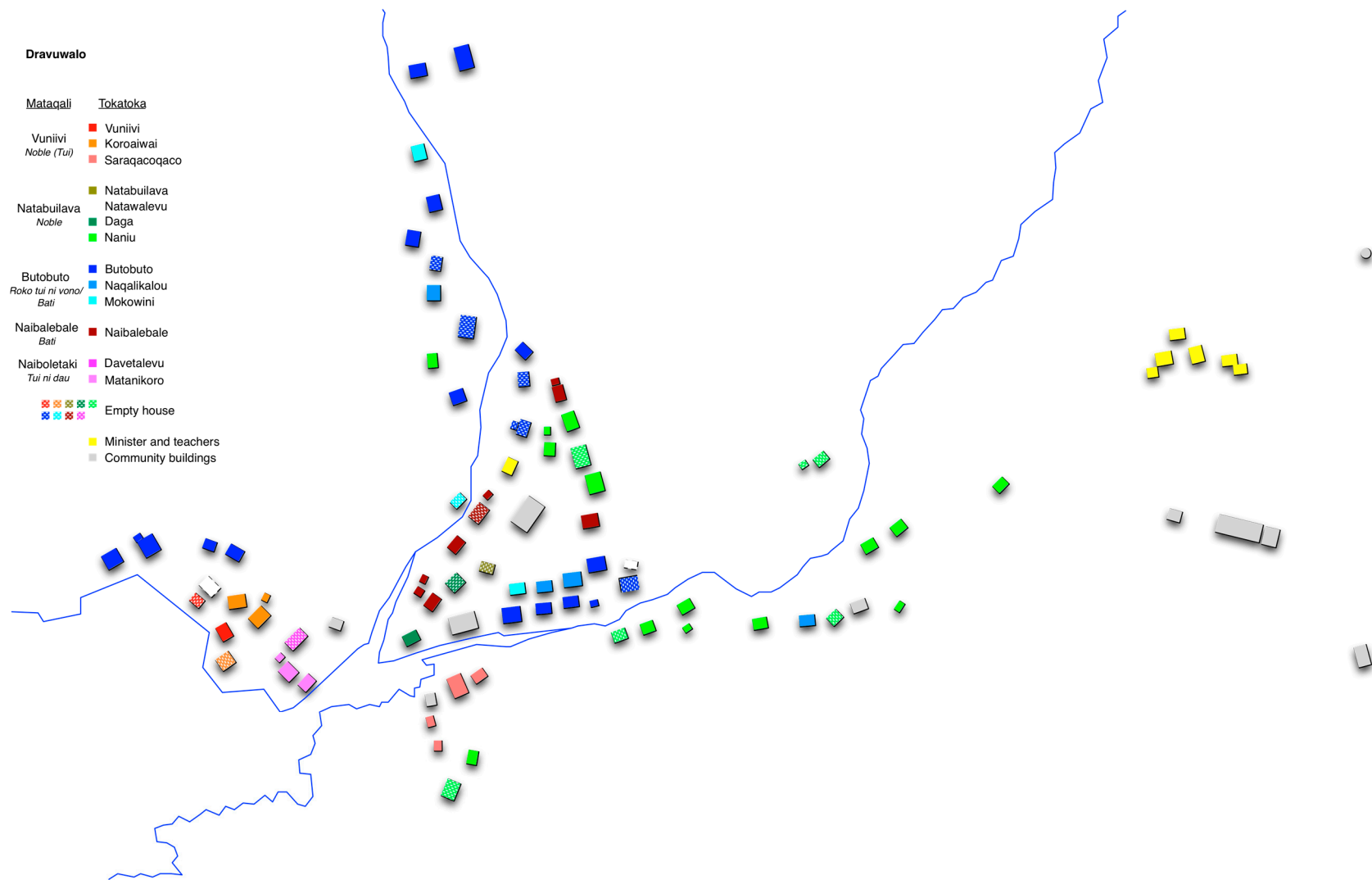
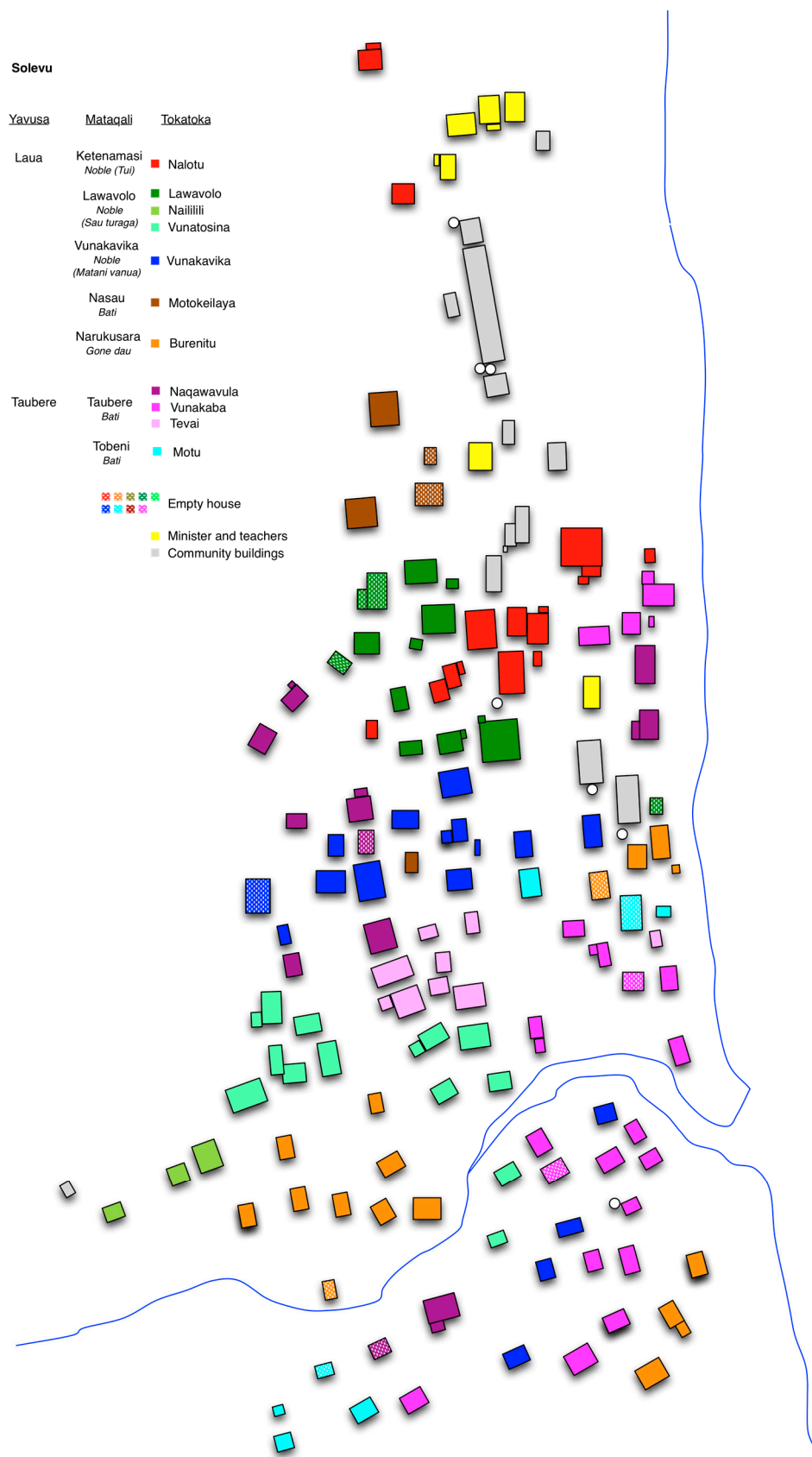


Figure 2. Map of Dravuwalo showing the clan and extended family structure.



**Figure 3.** Map of Solevu showing the tribe, clan and extended family structure.



## 4. Results

### 4.1. Natural Capital

#### 4.1.1. Access to Land Resources

In both villages, access to farmland is determined by belonging to a *mataqali* (clan). The ministers of the churches and the teachers at the schools are also given land for farming. Any households in Dravuwalu wanting to farm on a certain piece of land could ask permission from the *mataqali* controlling that land. However, one respondent in Solevu stated that his *mataqali* has land that could expand his farm, but that it is better to lease other land so that he does not stir up the jealousy of other members of his *mataqali*.

A more substantial difference between the two villages was the extent and intensity of farming activities. It is clear that only a few households in Solevu engaged in farming as a significant livelihood activity. In Dravuwalu, on the other hand, all households had farms and farming was the main livelihood activity for all but very few households. In Solevu, many households had a small vegetable garden and they bought the largest proportion of their vegetables in Nadi on the mainland. Most of the gardens appeared to be small and not well maintained, while some looked more or less abandoned. In Dravuwalu, many families even had two plantations as a precautionary measure against landslides, as most farming is done on hillsides. In addition, cyclones and floods, the two most common disasters, affect different crops, and the people of Dravuwalu are preoccupied with crop resistance, crop diversification, and ways to manage different crop damage. Solevu was not dealing with these issues to the same extent in Solevu, as only two respondents mentioned damaged crops.

In Dravuwalu, farming was also the main income generation activity, with the cultivation of *yaqona* (kava or *piper methysticum*, a root used to produce a sedative and anaesthetic drink). The island of Kadavu is famous for the best and strongest *yaqona* in Fiji and all families in Dravuwalu had *yaqona* plantations. *Yaqona* is a rather lucrative crop, and the plants themselves are described as resistant to cyclones. Many households in both Solevu and Dravuwalu kept chickens, making them a rather visible feature running around in the villages. Some households in both villages also reared pigs, but it was only in Solevu that farmers are doing this for more commercial interests.

#### 4.1.2. Access to Marine Resources

Access to fishing rights (*qoliqoli*) was determined by membership of a *yavusa* (tribe) in Solevu and a *vanua* (village) in Dravuwalu, which is one of the few cultural differences between the two villages. Although these two terms are rather different—*yavusa* meaning a larger social unit made up by a number of *mataqali* (clans) and *vanua*, meaning land or home—the practical implications for fishing rights are rather similar. In Solevu, each of the five *yavusa* in the *tikina* (district) of Malolo had fishing rights in specified areas, but it was possible for any member of a *yavusa* to fish anywhere in the *tikina*. Similarly, for Dravuwalu, each of the four villages of the *yavusa*, of which Dravuwalu is the first, had fishing rights in specific areas, but any member of the village could ask permission to fish in the other villages' waters. However, there were substantial differences between the two villages in terms of the extent and intensity of fishing activities.

All households fish every week in Dravuwalu, and, next to farming, fishing was the most important livelihood activity there. People fish with traps, hooks, hands, nets and spear or spear gun, wading, swimming or from boat, along the shore or on the reefs. Both women and men fish, though there are gendered differences in fishing methods. The all-male traditional fishing expeditions mainly spear fish or use nets from boats or swimming along the reefs, while women mainly fish wading along the shore or in the creek for prawns (Figure 2), using primarily nets or their hands. In Solevu, on the other hand, only some people were fishing, and then mainly for fish or shellfish to sell to the resorts or on the markets in Nadi on the mainland. Again, most people who can afford to buy food do not fish or eat much fish, but eat mainly what they buy in Nadi. Although there is still



substantial occasional fishing in Solevu, the more regular fishermen were all from the less affluent households, which were also the ones mainly engaged in more intense farming. The only fishing activity that was more intense in Solevu than in Dravuwalu is picking *beach-de-mer* (sea cucumber) to sell to Chinese agents for export.

#### 4.1.3. Vegetation Coverage

Another striking difference between Solevu and Dravuwalu is the vegetation cover of the surrounding areas. In Solevu, grass and shrubs mainly covered the hills, while lush forests covered the hills around Dravuwalu. This may obviously be partly due to natural differences in soil and hydrology, but respondents indicated that it may at least partly also be explained by past recurrent bush fires caused by people burning garbage. However, the main reason is the growing population in Solevu—traditionally using wood for everything and still largely using firewood for cooking—in combination with it being a smaller island; two factors that have taken their toll on the forests that covered the island in the past. In Dravuwalu, the combination of a more stable population and vast enough forests even for a commercial wood industry has not had the same impact on the surrounding environment.

#### 4.1.4. Natural Beauty and Wildlife

Both Solevu and Dravuwalu are located in areas of breath-taking natural beauty with green hills, white beaches and turquoise water. While the sea is teeming with life around both Solevu and Dravuwalu, the surroundings of the latter are also full of wildlife, especially birds. Some birds are even unique to Kadavu and are valuable not only for biodiversity, but also for attracting researchers, birdwatchers and tourists. However, the island of Malolo attracts many more tourists than Kadavu due to more developed infrastructure.

#### 4.1.5. Natural Protection

The differences in vegetation cover affect the risk of landslides, and the more grassy and bushy hills around Solevu showed signs of smaller landslides. However, no respondents or focus groups in Solevu indicated landslides as a problem. This is probably because not many households farm on the hillsides there in comparison with Dravuwalu, where landslides are considered a problem. Although both Dravuwalu and Solevu are relatively protected against tsunami and cyclone waves by reefs, Dravuwalu is more sheltered, being located at the end of a shallow bay surrounded by hills. The prevalence of mangroves also acts as a buffer for wave energy there. There are no mangroves to do the same around Solevu. Finally, the topography of Solevu and Dravuwalu differs in the sense of natural protection against floods, which next to cyclones is described as the worst disaster by almost everybody in both Solevu and Dravuwalu. The original village of Solevu was located on dry land, but more and more houses have been built on flood-prone land as the population has grown. The entire western side of Solevu is flat and lower than the side closer to the shore (Figure 3), which makes it very prone to flash floods as rainwater is directed there from the surrounding hills. Around 20–25 houses are located in these areas. One larger creek comes from the hills and flows consistently, and at least two small temporary creeks drain the west side of the village if flooded. However, these creeks are not maintained and are overgrown and full of leaves and rubbish in many places. The insufficient drainage of the west side and areas north of the bigger creek results in muddy patches and ponds of stagnant water even in moderate rainfall. Dravuwalu is built along two creeks, one bigger going east/north-east and one smaller, going north along a valley with steep sides (Figure 2). The creeks overflow when it rains a lot, particularly the bigger one, and it floods the first row of houses, including around 5–10 houses depending on the magnitude of the flood. The most flood-prone are flooded around four times per year, and there are remnants of an old bridge that collapsed in a past flood. The floods increase in severity and duration in both villages if met by a high tide.

## 4.2. Physical Capital

### 4.2.1. Quality of Housing

As this study was limited to a qualitative assessment of the housing in the two villages, the sub-indicators are house size and building material, as well as a subjective assessment of the overall state of the housing. This latter sub-indicator ranges from “good”, “regular”, to “poor”, in which “good” connotes a structure without visible flaws and “poor” signifies clear visible flaws, e.g., holes in the walls, loose wall sections, visibly rotten construction parts, or unattached roof material. Although it was difficult to note any substantial difference in the average number of rooms, with around 2 to 2.5 rooms per house in both villages, it was clear that there is a larger variation in the house sizes in Solevu than in Dravuwalu. The choice of construction material also differed between Solevu and Dravuwalu, with 27% vs. 43% concrete houses, 41% vs. 22% wood houses and 19% vs. 29% tin or iron houses. There was also a 13% vs. 3% mixed material in Solevu and Dravuwalu, either wood/concrete or wood/tin or iron. It is interesting to note that the only house of traditional bure material (wood and straw) in Solevu was the Chief’s ceremonial *Bure* (traditional house), while two regular houses in Dravuwalu had bure walls and tin roofs. However, the overall state of houses was approximately the same for Solevu and Dravuwalu, with 40% vs. 35% good houses, 45% vs. 51% regular houses and 15% vs. 14% poor houses.

### 4.2.2. Access to Boats and Transport Infrastructure

There were seven boats in Dravuwalu, of which one was co-owned by four households, and 14 boats in Solevu, not including the boats rented out to resorts. This means that 26% of the households in Dravuwalu and 14% of the households in Solevu had direct access to a boat. This difference may be explained by the fact that fewer people fish regularly in Solevu and everybody has far better access to other transport infrastructure than in Dravuwalu. Solevu had more market-driven boat transfers that some households in Solevu were offering to other community members for \$24–25 per person return, and more regular and speedy ferries and airplanes shuttling to and from the mainland and the surrounding islands. However, both villages are dependent on hiring a barge from the mainland for bigger transports, but the cost of this is much higher for Dravuwalu because of their greater remoteness. For instance, at the time of data gathering, it cost around \$50,000–100,000 to build a concrete house in Dravuwalu, which requires all material to be transported from the mainland, compared to \$5000 for a wooden house.

### 4.2.3. Access to Shops and Markets

It takes around 45 min from Solevu to Nadi on a boat transfer, while the ferry between Vunisea on Kadavu and Suva takes around seven hours (Figure 1). This means that the two villages have different levels of access to shops and markets. Although better access to transport infrastructure in Solevu facilitates regular shopping trips to Nadi—described as weekly or biweekly by four respondents and less frequently by another respondent from a poorer household—there were five shops in Solevu. However, only small things are bought at these shops and everybody goes to Nadi for shopping if they can afford it. In addition to the shops, several people were selling specific things out of their homes, e.g., candy, snacks, cigarettes, *yaqona*, etc. In Dravuwalu, on the other hand, there was one shop selling food and supplies there, and a merchant boat that came every month. However, people in Dravuwalu go to Vunisea, the main settlement on Kadavu, to shop in the store there, e.g., for food, gas and petrol.

### 4.2.4. Access to Water, Sanitation and Waste Management

All houses in both villages have access to piped water in or around the house. The water in Solevu comes from two boreholes and a separate borehole for the school, and many households harvest rainwater to store in private tanks (Figure 3). One respondent even stated that they have two tanks, one for borehole water and one for rainwater. The water in Dravuwalu comes from a spring

up in the hills where they have built a dam. Water then runs through an underground PVC pipe to a reservoir/tank next to the school (Figure 2), from where it is distributed to the households. The village constructed the system almost 40 years ago and they have a backup spring for drinking water close by. While a combination of two boreholes and rainwater tanks caters for more robust water supply, it is also more expensive. People in Solevu were paying \$8/month for water (borehole) at the time of research, while water was free in Dravuwalu and the system there is maintained mainly with collective *yaqona* money.

It is interesting to note that although most houses in Solevu had either flush toilets or water seal latrines, there were still some houses with open pit latrines. In Dravuwalu, no houses had open pit latrines anymore. This is the result of a conscious effort by the Chief and an earlier *Turaga ni koro* (village headman, appointed administrator) to advocate for and support the construction of better toilets, and hardly any flies were seen around in the village. Regarding waste management, the situation is somewhat opposite, with no organised waste management in Dravuwalu and the households burning their garbage on their own. This practice is also widely done in Solevu, but there the garbage is supposed to be divided into three categories—depot, burn and animal food—the former being collected in specific places.

#### 4.2.5. Access to Electricity

Both Solevu and Dravuwalu had electricity for their households through a village generator that would be on for 3–4 h in the evenings. However, many houses have their own private generators, but respondents mentioned that it costs around \$200/week for diesel to run all the time to get electricity for a refrigerator. A respondent in Solevu explained that they pay \$20/month for the village generator, but it is not on every night.

#### 4.2.6. Access to Telephone, Radio and TV

In Solevu, most people had landline telephones and everybody had a mobile phone. There is a Digicel mast overlooking the village and a Vodaphone mast on the other side of the island. The health clinic had a VHF radio that reaches the mainland and other health clinics. Dravuwalu, on the other hand, had a phone station before, but that closed and some houses had their own landlines at the time of data collection. The majority of the people in Dravuwalu had mobile phones (Digicell and Vodaphone), and there were mobile phone stations in Vunisea, Muani and Vabea that cover the area around Dravuwalu rather well. More or less everybody in both villages had a radio, while it is more common to own a TV in Solevu than in Dravuwalu.

#### 4.2.7. Physical Protection

Finally, aside from increasing numbers of households constructing sturdy houses in both villages, not much has been done for physical protection against natural hazards in either Solevu or Dravuwalu. One respondent in Solevu stated that they do put sandbags on the roofs when a cyclone is closing in, but the transect walk indicated a lack of maintenance of the temporary creeks draining the flood-prone western side of Solevu. The respondent stated also that the *Bure*, the traditional house, is safer than modern houses. In Dravuwalu, significant efforts have been made to construct a stone seawall to protecting the shore and the houses on it from erosion and residue storm surge as the waves break over the reefs and further out in the shallow bay (Figure 2).

### 4.3. Financial Capital

#### 4.3.1. Paid Labour

There were substantial differences between the two villages in terms of financial capital and there was a larger gap between the wealthy and the poor in Solevu. Paid labour was much more common in Solevu than in Dravuwalu, apart from the Methodist minister and the teachers of the school.

The obvious reason for this is the many resorts around Solevu, with 59% of the households in Solevu having had at least one member working for a resort, compared to only 3% in Dravuwalu. Most people working for resorts were involved in housekeeping, gardening, and other less qualified positions, while the rest of the staff come from elsewhere. In addition to this, there were also more residents of Solevu who had other jobs or who worked for each other. Having paid jobs in Dravuwalu typically entails leaving the village, with the exception of one villager who worked for a resort at the time of data collection. There were also a number of people in Solevu who had paid jobs other than working in resorts, for instance carpenters, bakers, occasional timber yard workers, garbage collectors, etc. There were also at least five households in Solevu who were receiving pensions from past employment. However, there were a number of households who did not have any such income there.

#### 4.3.2. Trade Income

Although all households in Dravuwalu had trade income from selling *yaqona* and some households from occasional selling of *beach-de-mer* to Chinese merchants or fish, shellfish or vegetables in Vunisea, Solevu boasted even more diverse sources of trade income. Twenty-two per cent of the households were selling handicraft to tourists, while 15% were selling *beach-de-mer* to Chinese merchants and 17% were selling fish or shellfish to the resorts or on the market in Nadi, all in a more regular manner. In addition to the five shops in Solevu, five households were selling cigarettes, one was selling phone cards, one gas, one snacks, one pigs and two were selling *yaqona* out of their homes. Again, it is important to note that there were a number of households in Solevu who did not have any income from trade either.

#### 4.3.3. Capital Income

Another major difference between Solevu and Dravuwalu is access to capital income, where the former gets lease money from a number of resorts and have possibilities to rent out boats to resorts and arrange accommodation for tourists, while the latter has no such possibilities. However, the access to capital income is not evenly distributed within Solevu, but generally following *mataqali* (clan) lines. At the time of the research, four of the seven *mataqali* of Solevu were receiving lease money, as they had the land rights for the locations of the resorts. Two households were renting out boats to resorts and two households had or were starting up tourist accommodation around Solevu, all of these households belonging to the four *mataqali* getting lease money. However, most of the households who did not generate any income from labour or trade belonged to the three *mataqali* who did not receive any such capital income.

#### 4.3.4. Remittances or Redistribution

Access to remittances or redistribution of financial capital is more common in Solevu than in Dravuwalu, with 49% of the households in Solevu and 29% in Dravuwalu being supported by at least one person from outside the immediate household at the time of the research. These remittances and redistribution follow by and large *mataqali* (clan), *tokatoka* (extended family) and direct bloodlines in both villages, with the notable exception of the Chief in Solevu, who was supporting a number of individuals outside his kin. Although the larger share of households benefitting from remittances or redistribution in Solevu were connected to the greater access to wealth in general, it is interesting to note that many of these households were being supported by husbands or patrilineal relatives living elsewhere in Fiji, often in their traditional home villages.

#### 4.3.5. Access to Credit

Access to credit seemed to be following the same rules in both villages, generally with the possibility of borrowing money to start a business, but not to build a house. However, the greater access to formal income and capital in Solevu, in combination with the tourist market, makes credit a more viable option for starting a business there compared to Dravuwalu. While one respondent

in Solevu described considering credit for starting up a backpacker hostel, another respondent in Dravuwalu stated with a smile that the villagers there are not very good in business.

#### 4.4. Human Capital

##### 4.4.1. Access to Healthcare

Access to healthcare is an important indicator for human capital and there is currently not much difference between the two villages. Solevu has a district health clinic that is located in the middle of the village with a trained nurse at the time of the research and access to hospitals in Nadi, which 45 min by boat or by air from the landing strip on the adjacent island. The health clinic used to have a doctor and is likely to get a new one again when or if there are enough doctors in Fiji in the future. This is not likely to be the case for Dravuwalu, though Dravuwalu had a village nurse who had completed a short course from the provincial government station in Vunisea. There was also a district nurse in the neighbouring village, Soso, five minutes away by boat. The district nurse serves the whole *tikina* (district) of Naceva and the nurse who was there at the time of data collection had qualified at the nursing school in Suva, the capital. There is also a hospital in Vunisea, which is around 15–20 min away by boat, but operations are done in the hospitals in Suva, which is 40 min away by air (airport to airport) or 7 h from Vunisea by ferry. The hospital in Vunisea government station had two doctors, one dentist and more than 10 qualified nurses at the time of the research.

##### 4.4.2. Nutritional Status

Differences in the nutritional status of the two villages would be difficult to determine without a more technical nutritional survey. However, although the more qualitative observation of adults and children does not indicate any differences in visible nutritional status, several respondents in Solevu clearly voiced concerns that most people eat almost exclusively unhealthy food they buy in Nadi, e.g., fried fast food, potato chips, instant noodles, tinned food, etc. People used to eat healthier when their staple diet was cassava, fish, etc., which they usually boiled. Today, they are described as frying everything. In Dravuwalu, on the other hand, people still eat more traditional Fijian food.

##### 4.4.3. Access to Education

The last indicator for human capital is access to education, which is again similar between the two villages, but with a couple of interesting differences. The school in Solevu serves the entire *tikina* (district) and the focus groups indicated that many children from Solevu are sent for secondary education on the mainland. They often go to relatives or with one of their parents to stay closer to the schools for the duration of their education. The family of a foreign billionaire, who lives on Malolo Lailai, has adopted the school in Solevu and the school has also received EU funds. The school has been thoroughly renovated and has a computer room with modern computers. Dravuwalu has a village school for the first classes and their district school is located close to Vunisea, only a few minutes by boat and a short walk away. These schools are not as well maintained and equipped as the school in Solevu, but are largely supported by local committees of parents and other villagers. It is also less common in Dravuwalu to send children away to the mainland for education.

#### 4.5. Social Capital

##### 4.5.1. Household Composition

The average family size and percentages of children of the households in Solevu and Dravuwalu are rather similar, with 4.1 vs. 3.9 people and 26% vs. 31% children, respectively. However, other aspects of household composition differ substantially. First, only 10% of the houses in Solevu are empty, in contrast to the 25% empty houses in Dravuwalu, and there are 13% women-headed households in Solevu and only 5% in Dravuwalu. Moreover, while the households in Dravuwalu are structured

around direct bloodline over one, two or three generations, it is common in Solevu for households to include other relatives, such as sisters, nephews, brothers-in-laws, etc., and there are examples of households that include individuals from outside the family.

#### 4.5.2. Community Decision-Making and Projects

The mechanism for community decision-making in both villages is the village meeting. At the time of the research, this meeting was held once a week in Solevu and once a month in Dravuwalu. The meeting in Solevu took place every Monday and was normally chaired by *Sau turaga* (Spokesman of the Chief). All are invited, but only the men are logged in the protocol. Two female respondents indicated that they normally do not attend the meeting, except when specifically asked by the men. Before the meeting, the villagers clean the beach and village, and after the meeting they do other communal work if needed. Tuesday to Saturday they work on their own, and Sunday they go to church. They used to work in groups decided by the meeting, but not anymore. The village meeting can decide on communal work on other days as well, but that is only done on rare occasions, e.g., after cyclones and floods when many people are needed. Villagers work for free, but get food, tea, etc. However, the people working outside the village do not normally participate, only on their days off. Solevu also has a general meeting in January to plan for the entire year, e.g., fund raising, church functions, electricity, water, drainage, etc. One respondent in Solevu was critical of the communal work, explaining that it has been eroded by the influx of foreign funds. There is no communal work in the school any longer, as donated money from a foreign benefactor, international donors and tourists have pacified people. The respondent is worried about what will happen if this money stops coming and what will happen to the sense of community if it continues coming. In Dravuwalu, on the other hand, the Chief normally chairs the village meeting and the decisions made at the meeting determine everything that happens in the village for that month, i.e., when to farm, who to farm with, what maintenance work should be carried out, when to fish, etc. The whole village is invited to the meeting and everybody attends if possible. The first (or last) week they do communal work, such as cleaning the village, maintaining water pipes, building a house, painting the school, etc. During the two middle weeks, they farm together in groups, and during the last (or first) week they engage in money earning activities.

#### 4.5.3. Community Groups

In addition to the two *yavusa* (tribes), seven *mataqali* (clans) and 11 *tokatoka* (extended families) of Solevu and the five *mataqali* and 13 *tokatoka* of Dravuwalu (Figures 2 and 3), there are also other community groups that play important roles in village life. However, kinship is very important and determines not only access to mutual assistance and redistributed resources, but also the possibilities to get a job or other contracts with the resorts. Two administrative staff working at the resorts verify that all their staff who come from beyond the island have tertiary diplomas, with a few exceptions of people who have worked for a long time and have very good references. They also verify that staff who come from the island can get a job without a tertiary education, but then mostly if they are related to the owners of the land on which the resort is built or to important people, such as the Chief or *Turaga ni koro*. It is interesting to note that the households earning money from renting out boats to resorts are also from this privileged group.

The village meetings have sectoral committees responsible for the development and maintenance of different aspects of each village, e.g., electricity, water supply, health, fishing, etc., which cut across bloodlines. In Dravuwalu they also used to have a *yaqona* cooperative and still had a women's club at the time of the research, which was not the case in Solevu. Moreover, all farming in Dravuwalu is done in groups of seven to eight men decided by the village meeting. Before, they tried to have these groups within a *tokotoka*, now they divide into *mataqali* or other groups, and include the minister. They move from farm to farm, working together one day per farm, which is the traditional way in Fiji. After they are done with one day of work on each farm, they can farm on their own. The women in Dravuwalu



organise into groups for weaving mats, fishing, etc. In Solevu, this system is not used anymore and people work on their own or mainly within their immediate family.

Another substantial difference between Solevu and Dravuwalu concerning community groups is the much greater diversity of Christian denominations in the former compared to the latter. While the vast majority of people in Dravuwalu are Methodists, with a small Assemblies of God congregation in a church made of corrugated iron on a hill nearby, Solevu is divided into a whole range of denominations. One respondent in Solevu explicitly stated that this division of the village is a main factor that undermines community cohesion.

Both villages are also divided into community members and “outsiders”, but with a much larger number of this latter group in Solevu than in Dravuwalu. This division comes from the traditional patrilocal system of Fiji, in which a married couple settles in the husband’s village. Only one house in Dravuwalu was referred to as being rented out to “outsiders.” They were referred to as outsiders despite the fact that the woman in the household came from the same *tokatoka* owning the house, as the man came from another village. This is much more common in Solevu, with four households in the village and an entire settlement around the Pentecostal church outside the village being described as “outsiders.” Outside Solevu there is also an entire settlement, mainly of people from other islands of Fiji, who are described as “visitors”, regardless for how long they have lived there.

#### 4.5.4. Reciprocal Behaviour and Community Cohesion

Reciprocal behaviour and community cohesion is more visible in Dravuwalu than in Solevu. There is no doubt that people in Solevu take care of each other when it really matters, such as sharing their house or assisting others in disasters. There also seemed to be a communal sense of funding the churches in Solevu, with examples of fundraising or even selling a boat and engine to give money to the church. However, it is clear that most dealings between people from different households follow market principles in Solevu. In other words, they pay cash in exchange for the goods or services they get. Another interesting difference is the appearance of vegetation or even fences seemingly demarcating the border between two properties in a number of places in Solevu, something that could not be found anywhere in Dravuwalu. There are still exceptions to the use of cash in Solevu, e.g., a man giving a *yaqona* ceremony and presenting a pig to the man who built the extension of his house, but the situation is different in Dravuwalu where people help each other without money or goods changing hands. For instance, if a person with a boat goes fishing or to Vunisea for shopping, anyone who wants to come along can do so without paying. Other examples include a member of the *tokatoka* farming the land while a woman’s husband is in Suva, or the trained mechanic fixing generators or motors for the village without payment. There are obviously exceptions here too, and it is interesting to note that the one person in Dravuwalu earning money from working at a resort was also the one person who spoke about hiring others to work on his farm. However, the people of Dravuwalu are not only helping each other when it really matters, like when a family loses their house or loses their harvest, but in everyday life. This is also the way the woman whose husband was in Suva would survive, according to her, if he passes away.

Dravuwalu has also kept a more elaborate reciprocal tradition in the form of communal fishing expeditions, which are decided by the village meeting and which involve all young men under the leadership of the *Tui ni dau*, the head of the fishermen *mataqali* (clan). Depending on the nutritional needs of the village, these expeditions happen once a month, sometimes twice, and even three or four times per month on rare occasions. When they have plenty of fish in the boats, they come back to the village, meet in the village hall with the Chief and all five *mataqali* and present the fish to them to be shared among all households. The women also share the catch of their everyday fishing among themselves. Similar of these traditions are not kept alive in Solevu anymore.

There are different reasons for this change in social structures, according to one respondent in Solevu. First of all, Solevu is close to the mainland, which facilitates interaction with outside cultures and the arrival of new ideas. A respondent in Dravuwalu—who is worried that the new generation is

not listening to the elders and are not working together—echoed this when stating that people go to Suva and bring back new thinking to the village. A respondent in Solevu added that foreign money takes responsibility away from the villagers, and by accepting favours from outsiders, they become indebted for the future. The respondent claimed that the people of Solevu are becoming materialists. They want to look good, they put themselves up, they are no longer proud of what they are as Fijians. The respondent worried that people are losing the support of social networks by forgetting respect while focusing on money. A result of this, according to the respondent, there is widespread jealousy of success between people, which further undermines social cohesion. Jealousy was never mentioned in Dravuwalu, but by a third of the respondents in Solevu. For instance, one respondent explained that it is better to lease land commercially than to use the land he is entitled to through his *mataqali* (clan) because other members of the *mataqali* may get jealous and want money. Another respondent got rid of his business for the same reason.

Closely linked to the narratives of jealousy is respondents who mentioned witchcraft. This was once again not mentioned in Dravuwalu, while a fifth of the respondents in Solevu talked openly about it. For instance, the respondent who had sold his business did so out of fear of being crippled or killed through witchcraft, and the Methodist minister spoke openly in church about fighting witchcraft with prayers. Two respondents explained that many people suspect that a woman who died of cancer had been a victim of witchcraft, and that they suspected a specific community member of being the perpetrator due to visions that the sick women had before passing away. They explained that witchcraft is practised by meditating while drinking *yaqona*, sending spirits into a person's house and making that person sick or killing the person. They had a *yaqona* party for the dead woman and the day after, another man died. *Yaqona* is of great social importance in both Solevu and Dravuwalu, and respondents in Dravuwalu stated that they sit with friends at least two or three times per week to drink *yaqona* and talk about things. The women in Dravuwalu meet among themselves, drinking tea, weaving mats or doing other social things. However, the only reference to magic by the respondents of Dravuwalu came from four respondents who stated that they blow in cone shells to make floods go away.

#### 4.5.5. Social Protection

In addition to the social protection within the *tokatoka* (extended family), *mataqali* (clan) and *yavusa* (tribe), both villages are equally supported by the government. However, this support is purely reactive and limited to warnings over the radio and TV broadcasts and sending out teams to assess the disaster damage and to provide some food days after the disaster is over and building material later. *Turaga ni koro* is the link with the villages, and both *Turaga ni koro* indicate that although there are no formal plans for what to do in a disaster, each family decides on their own and know what to do. A few respondents voiced a concern that life is becoming increasingly difficult on the outer islands due to diminishing governmental support.

## 5. Discussion

### 5.1. Natural Capital: Equal Access, Different Use

Modernity has not yet undermined traditional communal ownership of natural resources in the two villages, regardless of influential voices arguing for property privatisation [77]. However, even if access to land and marine resources are similar in the villages, the study indicates substantial differences in how these rights are exercised in practice. These differences seem to be linked to other types of capital that are in turn affected by modernity and further discussed below. The greater access to financial capital in Solevu makes farming and fishing less important as livelihood activities for most households there, while greater economic inequality in Solevu is eroding social capital in the sense of spurring jealousy in the village, which in turn undermines how customary rights are exercised. In Dravuwalu, on the other hand, all but very few households are dependent on farming and

fishing for both their subsistence and for generating income. This greater dependence on subsistence livelihood activities also maintains a range of traditional risk reduction mechanisms, such as multiple plantations and communal fishing expeditions, which are not happening in Solevu anymore.

Another difference that might be related to differences in the penetration of modernity is the grassy hills around Solevu and the lush forests around Dravuwalu. Natural differences in soil and hydrology aside, the lack of vegetation around Solevu is largely attributable to human behaviour associated with modernity. In addition to burning garbage, the abject irreducible excess of modernity [78], the deforestation around Solevu is caused by local overuse of natural resources. This can only partly be explained by a growing population, which in itself often is linked to modernity [79], but must arguably have been accompanied by a change in perception of acceptable human–environment interactions indicated by the absence of concern in the village. While traditional Fijian culture is rife with environmental conservation practices [80], modernity is known to transform peoples' notion of nature from something they are an intrinsic part of to something that is there to supply them with resources [5]. This material estrangement of human beings from the natural conditions of their existence is what Marx refers to as “metabolic rift” [81], and might provide a vital part of the explanation of the deforestation around Solevu. In other words, it is not only the wetter and less fire-prone environment around Dravuwalu that makes the difference, but more fundamental changes linked to modernity.

## 5.2. Financial and Social Capital: Antipodes of Modernity

It is clear that access to financial capital is substantially greater in Solevu than in Dravuwalu. Not only through lease money, salaries, and wages from the many resorts around Solevu trumping the income from *yaqona* cultivation in Dravuwalu, but more generally through a much finer division of labour, catering for a number of other paid jobs, and a much more diverse and intense trade economy. This financial capital is then used to procure goods and services from each other or on external markets, which the people of Solevu have more access to than in Dravuwalu. This focus in Solevu on market exchange and redistribution within one's kin is in sharp contrast to the reciprocity and open redistribution of resources across bloodlines in Dravuwalu, with only few examples of market exchange within the village itself. This clearly demonstrates the much deeper penetration of modernity in Solevu than in Dravuwalu along the lines of Polanyi [53], in addition to the division of labour [82] and the overall dominance of capitalism [5], which are also hallmarks of modernity.

Market exchange has been suggested as the most versatile risk reduction strategy given sufficient access to markets [64]. However, the greater financial capital in Solevu is not at all evenly distributed, resulting in higher socioeconomic inequality within the village. It is important to note that this inequality is not only the result of affluent households increasing their wealth in relation to others remaining the same. Modernity has been shown to have a very different logic [25]. Although the more affluent households in Solevu are much wealthier than the most affluent in Dravuwalu, the inequality is also exacerbated by the poorer households in Solevu being poorer than the poorest in Dravuwalu. Modernity is thus bestowing some households in Solevu with financial capital to significantly reduce disaster risk through, for instance, robust buildings, alternative water sources, sufficient buffers for contingencies, temporary relocation, or whatever can be arranged through market exchange, while others are left with very little at the same time that traditional communal coping strategies are disappearing. It is important to note that the study cannot find any effects of the minor cultural differences between the two villages in this regard, i.e., the organisation of fishing rights (*qoliqoli*).

The better financial opportunities in Solevu are making people stay and are attracting people from outside. There are therefore not only fewer empty houses than in Dravuwalu, but also much more common exceptions from traditional Fijian patrilocal dwelling patterns that explain much of the population growth discussed above. Although greater access to financial capital is directly reducing the need for communal efforts to address common issues, it can only partly explain the eroding influence of community decision-making and importance of community groups. In addition, sectarianism between the increasing number of Christian denominations in Solevu, and contact with other cultures

though tourism and expatriates, are likely to play important parts. Regardless, this reduction in social capital in Solevu is disproportionately affecting the poor, as mounting individualism is allowing the more affluent to focus on themselves and their closest kin. This individualism is an intrinsic part of modernity [82,83] and allows the “secession of the successful” as they see more costs than benefits in engaging in community [84]. This rapid social change that modernity has brought to Solevu results in tensions in the village, clearly visible in the narratives of jealousy and witchcraft allegations.

In Dravuwalu, on the other hand, the importance of community decision-making and groups are maintained, and community cohesion is strong. The village addresses more or less all issues together, not leaving anybody behind. Although that hampers individual entrepreneurship, which could increase financial capital in the village, the social capital in Dravuwalu is much greater than in Solevu, practically indicating that financial and social capital are antipodes in this context. The more of one, the less of the other, fully in line with Marx’s analysis of capitalism, a core pillar of modernity that plays a fundamental part in steering modern social life away from traditional institutions [5]. However, it is not only traditional institutions on village level that are more vibrant in Dravuwalu, but also relationships on interpersonal level concerning the dominant form of exchange. The reciprocal relationships of people helping and sharing resources with each other without any money changing hands, binds the village together and constitute an effective risk reduction strategy that benefits all in the village, not only the fortunate households with enough financial capital to reduce risk through market exchange. Reciprocity is here similar to storage of vital resources, as “present abundance is converted, this time via social transactions, into a future obligation in time of need” [85]. It is then particularly interesting to note that the narratives of the supernatural in Dravuwalu have the opposite effect on community cohesion than in Solevu, as neighbours ask each other to blow in cone shells to reduce ongoing floods, strengthening social relations instead of damaging them.

### 5.3. *Physical and Human Capital: Leveraging Money with Social Capital*

While there are stark contrasts between Solevu and Dravuwalu with respect to access to financial and social capital, as well as in the use of natural capital, access to human capital and the parts of physical capital that are managed by the villages are relatively similar. The closer access to externally provided transport infrastructure in Solevu is superseded by greater access to boats in Dravuwalu. Both villages have similar quality houses, and similar access to electricity and water. Solevu is experimenting with organised waste management while simultaneously featuring households without improved sanitation. Dravuwalu has slightly less access to telephones and TVs, but hosts the only example of organised physical protection in the form of the sea wall. There are no notable differences in access to healthcare, nor to education. Although the greater consumption of unhealthy food in Solevu may be a growing health problem, there are no visible differences in nutritional status between the two villages.

While access to human and physical capital is fairly similar, the two villages differ in how they access these two capitals. In Solevu, individualism and market principles dominate, while communalism and reciprocity dominate in Dravuwalu. Aside of the aspects of physical capital that are most easily accessed individually without cooperation with others, such as telephones, radios, and TVs that are located inside the houses, money can be leveraged with social capital. This is obvious from the shared access to boats for households in Dravuwalu, and in the collectively constructed water seal latrines or flush toilets that every household there has. It is also obvious in the financing of the water supply, where the households in Solevu pay a fee, regardless of income level, while the community in Dravuwalu fund it using collective money. The only exception where Solevu was more socially organised at the time of data collection is in waste management, which is easily understood considering the growing population and changing consumptions patterns there. Thus, even if modernity has not resulted in significant differences in access to physical and human capital on village level, it has redistributed access to certain vital aspects of physical capital that depend on access to financial capital within Solevu; resulting in some impact on disaster risk.

#### 5.4. Modernity, Development, and Disaster Risk

There is no doubt that modernity has penetrated far deeper into the community of Solevu than in Dravuwalu, and that it has affected access to the different types of capitals just discussed. It has as such transformed disaster risk by redistributing and exacerbating the vulnerability of the most vulnerable. Despite the much greater overall access to financial capital in Solevu, it is there we find the households with the least income, without access to improved sanitation, and having to pay individually for all services and transportation. Modernity is also undermining institutions, strategies, and knowledge that have developed over millennia to reduce disaster risk. Examples of these strategies are still visible in Dravuwalu and not in Solevu, such as having several plantations, diversity of food crops, communal farming and fishing practices, kinship-based support mechanisms, and reciprocal exchange structures. The combination of marginalizing certain households at the same time as dismantling traditional social support systems clearly exacerbates the vulnerability of these households and thus also disaster risk. The connection between development and disaster risk is well established in literature [14,27], but applying a sustainable livelihoods perspective further illuminates how the dominant contemporary notion of development towards modernity is transforming disaster risk by altering access to capitals that are central for vulnerability [56]. It is apparent in the discussion above that social capital is the main bulwark against household vulnerability among the less affluent in the studied villages. Much in line with established theory [86,87]. The insight that this social capital is largely embedded in traditional institutions points towards the importance of maintaining them, or at least of not dismantling them before viable alternatives are on their way.

The development patterns behind this wholesale shift towards modernity comprise a dark side of development in the South Pacific. It is a region exposed to an unprecedented range of natural hazards and is among the most vulnerable to climate change [88]. Thousands of years of social learning to reduce disaster risk is being lost in one or two generations [89–92] as modernity sweeps in under the guise of development. It is therefore of utmost importance to transform these development patterns that exacerbate and unfairly distribute disaster risk. There is a range of ways to facilitate this transformation, several of which are included in this special edition. However, in the context of the South Pacific, the key is to safeguard and integrate traditional institutions, strategies, and knowledge that reduce disaster risk, as has been suggested earlier [91–94], without falling prey to romanticism that may blind us to the downsides of traditional South Pacific societies, such as high levels of gender inequality [95] and domestic violence [96].

## 6. Conclusions

How is modernity transforming disaster risk in rural communities in South Pacific small island developing states from a sustainable livelihoods perspective? Most fundamentally, modernity is transforming the relationships human beings have with nature and among themselves, reducing the significance of natural and social capital while financial capital gains salience. Although financial capital can be exchanged on markets for whatever goods and services needed to reduce disaster risk, it is increasingly unequally distributed with the coming of modernity and benefits only the fortunate while leaving others behind. At the same time, modernity is undermining the social capital necessary for a whole range of communal risk reduction strategies that benefit all and for leveraging limitations in financial capital to access essential services. Modernity is as such transforming disaster risk by increasing and individualizing the vulnerability of the most vulnerable. This has implications on both community level and household level that must be taken into account for development to result in a safer and more sustainable world. The way forward is fundamental transformation of contemporary development patterns, which for the South Pacific must further integrate traditional institutions, strategies, and knowledge that reduce disaster risk instead of the present indiscriminate introduction of modernity.



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