



The People's Perception on the Vitogo River Flooding

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Abstract

This research looks at the implications of climate change on land development and the level of accommodation by the government's mission on climate change mitigation by communities.

Qualitative and quantitative data were collected via individual interviews, focus groups discussions and literature.

EXECUTIVE SUMMARY

- This research report, commissioned by the Foundation for Rural Integration, Enterprises and Development (FRIEND), and funded by the European Union questions regulations on mitigations against climate change as a consequence of poor industrial land management and monitoring;
- In 2012, heavy rain, an earthquake and a cracked ground in Natubaibua Hill where Fiji Pine Limited's pine plantation is, in Vakabuli Village caused a landslide as boulders, rocks, pine and indigenous trees were uprooted and thrown down the hill;
- Much of the rocks landed in Vakabuli River, which affected the normal flow of the water. Further down, the reservoir became full adding pressure to the dam part of which burst. River water filled with mud and silt overflowed into villages and settlements along the way and into the sea along the coastal villages;
- Similarly, debris that had rolled downhill from the Lololo pine station uphill from Matawalu village obstructed the Matawalu river and caused massive flooding and reduced the depth of the river;
- With changing weather patterns, cyclones and depressions, flooding has not stopped since. Flooding caused by Cyclone Josie in April 2018 was declared the worst to hit Vitoġo.
- The findings reveal that poor pine planting practices and lack of regulated monitoring contributed to the phenomenon in Vitoġo District;
- Economic opportunities were lost and food sources depleted as plantations were damaged and fish, seaweed, sea jelly and eel became scarce;
- Medicinal plants are lost and mangroves, nature's mitigation against tidal wave and tsunamis, are dying;
- Tertiary education for private students was put on hold as families returned to planting and to saving to ensure their children eventually graduate from universities. Education was also affected as families try to recover school materials lost or damaged by flood waters;
- Finding available tribal land that is not flood-prone is another challenge facing those who want to move yet remain close to the periphery of Lautoka City because much of the land is earmarked for development by the Government and/or statutory bodies;
- The United Nations Framework Convention on Climate Change (UNFCCC) appears to be silent on a specific facility to enable communities to seek direct support for mitigating climate change;
- This is evident in the experience of the Vitoġo villages which sought technical assistance through the centralised local government system under the Ministry of Rural Development to dredge their river in 2016;
- In this instance, there is no policy for preferential treatment of those seeking assistance to mitigate climate change;
- Climate change exacerbated the consequences of poor planting practice and lack of monitoring, which occurred in 2012 up at the Fiji Pine area in Vakabuli. Likewise, up the hill at Lololo Pine Station in Matawalu. The Vitoġo and Matawalu rivers became depressed with debris, which have since caused flooding whenever there was a cyclone or depression. Dredging the river and building sea walls where appropriate would be the best practical solution to enable some return to normalcy for almost 3,000 who have been regular victims since 2012.

1.0 INTRODUCTION

The impacts of climate change and severe weather events have been the focus of increasingly intense discussion globally over the past few years. Climate change has several characteristics including short intervals between cyclones and depression. At the international level, the small nation of Fiji is a pivotal voice in global action on climate change. Prime Minister Voreqe Bainimarama is the president of the 23rd United Nations (UN) Conference of the Parties to the UN Framework Convention on Climate Change (COP23).

In early 2012 and again in mid-2012, Fiji suffered the consequence of a tropical disturbance which caused heavy rain, massive flooding and millions of dollars in damage across much of the Western, Central and Eastern Divisions leading to 11 deaths and thousands in evacuations centres. A state of natural disaster was declared for parts of the Western Division. Across Fiji, as in other Pacific countries, adverse weather events often exacerbate the problems caused by poor land development and management practice. One such community to bear the brunt of poor land use practices is the district of Vitogo in the Ba Province¹ in the Western Division, which bore the brunt of the 2012 disaster. Consequently, up in two hillsides where pine is planted in Vakabuli's Natubaibua Hill and the Lololo Pine Station in Matawalu, landslides changed the course of their rivers. Since then, there have been regular flooding during heavy downpours, which affected about 600 families or almost 3,000 rural residents.

1.1 FRIEND's Contribution

Over the years, the Foundation for Rural Integrated Enterprises and Development (FRIEND) a development non-government organisation has fostered a healthy relationship with Vitogo District through innovative community projects. Much of which relates to the socio-economics of environment preservation and governance. This has been possible through the generosity of external donors with the support of the Fijian government. However, the sustainability of FRIEND's effort is now challenged by adverse weather conditions, which have implications on transformative projects, which contribute to socio-economic wealth.

1.2 Fiji's Position on Climate Change

Fiji's policy vision², 'A responsible and exemplary Fiji, leading the Pacific in combating climate change and achieving resilience, while attaining sustainable development'. The following table from the government policy outlines how mission statements can be achieved.

Table 1: Translation of Climate Change Missions Statement

No	Climate Change Mission Statement	Target
1	To increase Fiji's capacity to cope with the impacts of climate change by strengthening institutional and legal frameworks, providing sound scientific information, and implementing effective awareness and education initiatives	Institutional strengthening. Legislation. Information. Awareness and Education.
2	To maximise access to and secure globally available financing for climate change mitigation and adaptation efforts	To finance mitigation and adaptation efforts. But there is a disconnect with the local government system centralised under the Ministry for Rural Development through which communities seek Government's assistance for development
3	To strengthen Fiji's support towards neighbouring Pacific Island countries that are highly vulnerable to the impacts of climate change	Supporting neighbouring Pacific island nations
4	To strengthen engagement in international climate change policy processes and fulfil obligations on climate change mitigation and adaptation	Engagement in international climate change policy process

¹ There are 14 provinces and Rotuma island in Fiji. The other 13 provinces in addition to Ba are; Bua, Cakaudrove, Kadavu, Lau, Lomaiviti, Macuata, Nadroga/Navosa, Naitasiri, Namosi, Ra, Rewa, Serua and Tailevu.

² See <https://www.sprep.org/> - Republic of Fiji, National Climate Change Policy. Accessed 9/8/18

The matrix above suggests that of the four mission statements on climate change by the Government, three are directed at external relationships while one concentrates on internal institutional strengthening, legislation, awareness and education. It is unclear whether there is a facility dedicated only to dealing with communities that are victims of the impacts of climate change.

Coincidentally in July 2018, Fiji told the Climate Action Pacific Partnership (CAPP) *talanoa* in the presence of civil society, including faith-based organisations and the private sector, national and sub-regional government representatives, that they were determined to bring to COP real stories from the people – from the front lines – and to ensure that they kept the pressure on all actors to get the job done³.

1.3 Central Objective

The central objective of the research was to listen to the voices of the people of Vitogo. In summary, the people attribute their situation to poor pine management system, exacerbated by climate change, characterised as short intervals between cyclones or depressions. An official report on the 2012 floods, noting that barren land left after pine was harvested contributed to the landslide and flooding⁴, appears to support the concern of the people with poor pine planting practice. However they are reluctant to go on the record with their criticisms because they are either employed and/or recipients of lease money from Fiji Pine Limited. This report therefore presents real stories from the people including their view of the government system. It is the outcome of the findings of a research commissioned by FRIEND and funded by the European Union.

³ Fiji Sun 27/7/18

⁴ http://www.ndmo.gov.fj/images/AllDisasterReports/2012_JANUARY_FLOOD-REPORT_Final.pdf

⁵ Gangaiya, P., Morrisson, R.J., Brodie, J.E. (1986), Initial report on the quality of the Vitogo River and associated environment before the construction of integrated sawmill/chipmill complex of Drasa, Western Viti Levu, Fiji; University of the South Pacific Institute of National Resources

2.0 BACKGROUND

For better understanding, this section provides some background including a map to illustrate the position of the rivers and the worst affected villages of Vakabuli, Naviyago, Vitogo and Matawalu and, Bila settlement.

2.1 About Vitogo

Vitogo which has a population of over 17,000 people is the administrative name for the district within the province of Ba (See Appendix 1 for map of Vitogo and districts in Ba Province). By tradition, it is a vanua called Sukanacagi. There are six villages (Vitogo, Naviyago, Namoli, Matawalu, Saru and Vakabuli) and seven settlements (Bila, Lovu, Naimasi, Tore, Vadraiawasewa, Vanuakula and Vatamia). Much of their most fertile and ideal residential land were either sold and/or leased to the Government for development, by landowners including those of Vitogo. The city of Lautoka where Vitogo is located was the prime area and remains so, for the sugar cane industry. By tradition, as one of Fiji's biggest revenue earner, development related to sugar and others like the pine industry are centred in Lautoka. Social amenities therefore, like schools and hospitals follow development centres.

2.2 The Quality of Vitogo River and its Associated Environment before the Construction of the Fiji Pine Processing Plant

The current frequent flooding however in communities located near the Vakabuli River is a far cry from findings of a baseline study in the 1980s carried out in the area before the construction of the processing plant in Drasa that declared the environment in the Vitogo area to relatively free from contamination⁵. The baseline study on the Vitogo River and its associated environment was carried out by the United Nations Environment Programme (UNEP) through the University of the South Pacific's (USP) Institute of the Natural Resources between 1984 and 1986.

"...The study was to provide data for the assessment of the impact of the construction and operation of the pine processing plant on the general water quality of the river and the associated estuary, the heavy metal status of sediments and shellfish from the area and the extent of bacterial contamination of the water and shellfish. The study found that the water quality of the Vitogo area was generally good and virtually free from pollution before the processing plant was built. The study also found low levels of heavy metals in both shellfish and sediments.

The geographical setting of the area under consideration, the watershed of the Vitogo River is variable in terrain from a coastal plain to gently rolling hill country a few kilometres in the interior to moderately steep dissected land along the foothills of the Mount Evans Range.

Elevation ranges from 40m above sea level to 5340 metres in the vicinity of the Lololo lookout. In terms of the vegetation, most of the steeper slope of the region are under pine plantations (*Pinus carbaea var hondurensis*) established on badly degraded *talasiga* grassland soil. The *talasiga* vegetation consisting of the introduced mission grass (*pennisetum polystachyon*), karuka fern (*Pteridium esculentum*), gato or bracken fern (*Dicranopteris linearis*) and nokonoko (*Casuarina equisetifolia*) can still be found in places.

Remnants of indigenous hardwoods occur within the pine plantation. The native reed (*miscanthus floridulus*) and guava (*psidium guajava*) are common in such areas. The flat coastal and rolling countryside have been utilised for intensive sugar cane cultivation. The lower reaches of the Vitogo river and Vitogo Bay have rich stands of mangroves. The major rivers draining the catchment of the study area are Vitogo and Teidamu. The catchment of the two rivers are marked on map 2. The Vitogo river is of particular interest in this study because water requirement for the processing plant is to be met from drawing at a rate of 0.015cum/sec from this source. The catchment area of the Vitogo river extends well into the foothills of the Mt Evans Range. The major tributaries are Vilakalewasautoko creek, Savubasağa creek and the headwaters of the river itself. The Teidamu river is also of interest because it drains the area around the mill. The two rivers constitute a major proportion of the freshwater water input into Vitogo Bay...”

2.3 What Happened in 2012?

In 2012, in the midst of heavy rain, a loud noise signalled an eruption from underneath the Natubaibua hill in Vakabuli village where the Fiji pine plantation is.



Figure 1 above reveals an aerial view of the affected parts of Vitogo District:

The heavy rain led to earth fissures which ran across and down Natubaibua Hill causing boulders, rocks as well as uprooted pine and indigenous trees to roll downhill. Some of the rocks landed in the Vakabuli River, adversely affecting its flow. The force of the water broke part of the Buabua dam causing water to overflow into villages and settlements along the way causing immediate and long-term social consequences for the people. Immediate impacts included the death of a villager, damaged properties and lost livestock. Long-term impacts included loss of land fertility, loss of and damaged houses, loss of food supply and possible resettlement/relocation among others.



Figure 2 above shows a narrowed Vakabuli River, filled with gravel and stones from Natubaibua hill.

Simultaneously, the Matawalu River was also flooded with debris from uphill at Lololo where Fiji Pine's plantation is, causing severe flooding. The District Officer noted⁶ that the geographical position of low lying villages like Matawalu and Vitogo in addition to soil erosion at Matawalu worsened the crisis.

2.3.1 Change in river course

The narrowed width of the river at Vakabuli and the transfer of accumulating debris following its course put pressure on the river. The water level rose and spilled onto the river bank and extended further inland. From Vakabuli, the debris continued onto Paipai, then Buabua which co-joined with Naviyago River. Later ending at the mouth of Vitogo River where accumulated debris spewed onto the sea of the coast of Vitogo village. Plantations were damaged including sugar-cane. This was a big loss to the villagers (in Vakabuli for example) who were contracted as farmers for regular supply to the Fiji Sugar Cooperation (FSC)⁷.

⁶ Oral interview on 16 April 2018 in Nadi

⁷ Oral interview with TNK (Turaga ni Koro) Vakabuli at Vakabuli Village on 18 April 2018

3.0 METHODOLOGY and METHOD OF DATA COLLECTION

3.1 Research Aim

To gather the voices of the people of Vitogo affected by heavy flooding since 2012.

3.2 Research Objectives

The following matrix Table 2 reveals that the objectives of this research were met.

No	Objective	As a Result
1	To collect voices from the Tikina of Vitogo on livelihood from the river and the impact changing river has had on the lives over the years	<ul style="list-style-type: none"> - All the villages and settlement experienced heavy flooding arising from the Vakabuli/ Naviyago/Vitogo River; - Ecosystems are re-structured with mangrove dying and islets found in mangrove swamp; Plantations were damaged and economic opportunities lost; Re-planting has started but finding non-flood-prone area is a challenge; Food source like land, river and sea is now unreliable as a consequence of changing weather patterns which exacerbate flooding;
2	The perceptions within the Tikina of Vitogo on the causes for change in the course of the river and their livelihood	There is some confusion. But overall, they perceive that the heavy flooding is related to the landslide at Vakabuli which caused the dam to burst in the reservoir.
3	Assess the forestation practices upstream and the land lease agreements to develop upstream	Poor pine planting practice with poor Government monitoring is the cause for the unusual ground breaking up in the hill in Vakabuli where the pine plantation is
4	To collect secondary data of various floods in the villages and settlements of Vitogo District from the Vitogo and Matawalu river-flood and landslides through literature review and questionnaire survey	
5	To present preliminary findings of the study at the governance symposium on 20th April 2018	Completed
6	To produce a final paper for publication by May 2018 based on the final findings of the study	Draft report emailed to FRIEND on 15/5/18

3.3 Approach

The research adopted an 'appreciative inquiry'⁸ methodology for its harmony with FRIEND's integrated approach to community development focussed on the people's voices.

⁸ See Reason, P (1994) In N.K. Denzin & Y.S. Lincoln (Eds.). 'Handbook of Qualitative Research (p324-339), Thousand Oaks: Sage Centre for the Study of Organisational Change in Development, University of Bath

3.4 Method of Data Collection

The background to this research was accessed from documents available at FRIEND. Individual interviews and focus group discussions were methods used to collect data. Secondly, qualitative and quantitative data were collected from five areas within the *vanua* of Vitogo that were affected by the massive flooding. Cultural appropriate tools of engagement were adopted out of sensitivity to the nature of kinship relationships in a village settling. For example, in Bila settlement, an exercise using clothes pegs to help women (young and old) better articulate and identify their loss was helpful. Thirdly, qualitative data was also collected from the District Officer responsible for the area. Fourthly, through a panel discussion which included the Fiji Pine Limited and the Government's Department of Environment, additional data were collected via the Symposium that was facilitated by FRIEND and the University of the South Pacific Lautoka Campus on 20 April 2018.

3.5 Respondents

The respondents (listed in Appendix 2) included the Turaga ni Koro (TNK) or village-headman for four villages; Vakabuli, Naviyago, Matawalu and Vitogo. And, the head of Bila settlement. Furthermore, four focus group discussions were held at; Naviyago for women, Matawalu for young people and third and fourth at Bila for the women (young and older) and a mix of men and women at Bila settlement respectively. In addition, there were two Government officials; a representative each from the Office of the Commissioner Western and the Department of Environment. The Fiji Pine Limited was represented through Tropic Woods Fiji Limited.

4.0 FINDINGS

“Pressure burst Buabua Dam near Tropic Wood and the sudden flush of water resulted in heavy flooding from Naviyago River. For 27 years since Bebe, the 2012 flood was the biggest”. TNK (Turaga ni Koro) Naviyago, 18/4/18)

The findings are presented in two parts as follows:

- Demographic details of the five communities (4.1);
- Voices from each of the respondents (4.2);

Demography	Vakabuli	Bila	Naviyago	Matawalu	Vitogo
Population	535	300	414	1,020	522
H/Holds	104	67	185	131	116
Income Source	Farming, Employment	Fishing, Employment including casual labour	Sugar cane farmers Employment-stevedore/ dockworkers	Fishing, Sugar cane farmers, Employment (private sector)	Land rental Sugar cane farming Fishing Employment
Other			Called 'Eden of Vitogo'		Chiefly village
First church - Methodist					

- About 563 households continue to be affected by massive flooding since 2012 up to April 2018;
- On average, about 3,000 people of Vitogo district continue to be affected by massive flooding since 2012;
- A majority earn their income from their land; if not as farmers; as recipient of land rental income;
- Fishing and employment including casual labour are other sources of income.

4.2.1 Voices from Vakabuli

“We cannot access the main road with our harvest via the farm road. It is damaged”.
TNK (Turaga ni Koro),
18/4

“We lost our plantations & livestock. Land for planting is now water-logged. I lost the opportunity to earn regular income from the land, for example, pineapples, which I sold and sugar cane for which I was contracted to FSC. The money earned contributed to the cost of my 2 children’s study @USP. However, since 2012, it has been a struggle. My children’s studies were delayed. Thankfully, one graduated in 2017. The other is still studying. Now I cannot plant as much as I used to, to generate money. There is limited dry land for planting”. TNK (Turaga ni Koro), 18/4

9 TNK (Turaga ni Koro) Matawalu interview on 18/4/18

10 As above

4.2.1.1 Damage and Consequences – Table 3

No	What happened?	As a Result
1	Heavy downpour of rain. An earthquake struck in an area of pine plantation up in the Natubaibua Hill near Yaukawa their original ancestral village.	Animals (goats, cows and sheep) swept away by flood water and died Damaged ancestral site
2	Ground in Natubaibua cracked and formed a long crevice, which ran across and down the hill and through the house of one of the villagers living nearby.	Landslide. Yaqona, bananas, dalo, pineapples uprooted and swept away – loss of economic opportunity
3	Boulders and rocks rolled down the hill and ended up in the Vakabuli river	Landslide. Block flow in river. Ecosystem is affected
4	Flooding	Damaged plantations. Damaged and dirtied houses, household items, clothing and school materials. Loss of prawn, fish, eel. Inability to bath in water
5	Damaged sugar cane plantation	Lost contract with FSC. Tertiary level studies (USP) held back for up to two years and parents try to recover income loss.
6	Farm Road is damaged (from flooding)	Limited access to and from plantation.
7	House site is damaged	Loss of residential land.
8	The TNK (Turaga ni Koro) worked for Fiji Pine and recalled that pine was planted up to the edge of the river. When Logging Practice was adopted in 1990, he recalls Fiji Pine planting did not adhere to this regulation. Pine should have been planted at least 20 metres away from the edge of a river.	Poor planting practice likely to have contributed to ground damage in Natubaibua Hill where Fiji Pine Limited's pine plantation is.

- An earthquake exacerbated by climate change in heavy downpour of rain caused a landslide. Boulders and rocks rolled down hill and landed in the river and at the riverbank. Pine and indigenous trees were damaged. Loss of plantations – a source of livelihood for subsistence farmers;

Figure 3: Boulder on river bank



Figure 4: Waterlogged land



- Goats, cows and sheep, lost in flood as they were swept away;
- Houses dirtied and damaged. Household good, food, clothing and school items lost;
- Damaged sugar cane plantation resulted in loss of contract with FSC as supplier. Children studying at tertiary level were held back for two years, studies delayed till some money was recovered after two years and returned to study. Although one graduated in 2017 upon completion of study at USP;
- Plantation land is water-logged making it impossible to plant on.
- Loss of food source – river and land (plantations).

Figure 5: Narrowed river with gravel in Vakabuli



- Accessibility to farms is limited by a now narrowed farm road that was built years ago with the help of the villagers – Figure 6 below:



- Ancestral site is damaged and there is loss of residential land;
- Fiji Pine Limited did not adhere to Logging Practice 1990 – pine should have been planted at least 20 meters away from the river edge.

4.2.2 Voices from Bila (Individual Interview with TNK (Turaga ni Koro) on 18/4 & two Focus Group Discussions (FGD))

“I am tired of starting over every time there is a flood. Thank goodness my lecturers at FNU are understanding. But I've had enough!” (21-year-old young woman studying tourism, 18/4)

“The river must be saved. That is our source of food, bathing, washing and also for cooking. It is also a source of income for us. We fish and sell”. (Women, FGD 18/4)

“The river must be dredged. If not, we lose our food source & main source of income – fish for we are by nature, fisher-folk”. (Men, FGD 18/4)

Table 4 refers:

No	What happened?	As a Result
1	Landslide in Vakabuli	Blocked Vitogo river
2	People arrived from Naviyago and settled in Bila in 1952	<p>There is a preferred site that belongs to the clan but the DO said it is earmarked for the construction of a hospital.</p> <p>Other areas where there is tribal land to which they prefer to move because they are not in flood-prone areas elevated are committed to government and statutory body development (eg Drasa by FSC).</p> <p>Not aware of value of indigenous trees until the Government hired carpenter pointed it out as Damanu and Dakua were uprooted and taken away by the flood water</p>
3	Pressure burst a part of Buabua Dam near Tropic Wood. The sudden flush of water resulted in heavy flooding from Vitogo River.	Bila is now flood-prone area
4	Water movement was unpredictable. Retreated then rushed forward again	Soldiers cleaned up Bila with the help of a Digger/ Bulldozer for one month.
5	Water entered the houses. Vehicles were submerged.	Habitat for Humanity built eight houses and three other units



Figure 7: FGD with men of Bila Settlement

- People in Bila had relocated from Naviyago in 1952. Landslide in Vakabuli village blocked the Naviyago River which runs alongside Bila settlement;
- Now regretful and want to move elsewhere. However, the preferred site, which is not flood-prone is earmarked by Government for the construction of a hospital;
- Houses and goods plus school materials and vehicles were submerged and damaged;
- Not aware of value of indigenous trees – not able to identify them on site;
- Government via the Military helped with cleaning and clearing of debris and also produced timber out of trees/pine that were swept downstream;
- NGO Habitat helped by building eight houses and three units;
- April 2018 flooding (TC Josie 3) was worse than 2012;
- River must be dredged.

In addition, the women in Bila reported in a FGD on that their biggest loss was the lack or no supply of water in the immediate aftermath of the flood because of their dependency on it for cooking, bathing and washing. Damaged plantations caused much anxiety for them as well because they lost a main food source. Their houses and household items were damaged and covered with mud. Electrical items were also damaged. As a result of the landslide uphill and soil washed downstream, what used to be the rivermouth accessible from Bila settlement has dried up. Now, the villagers have to walk about 400metres to the new river mouth where their boats/punts are berthed. However, even this river mouth is inaccessible from the sea during low tides which means villagers have to get off their boats about 2km from the settlement and walk the rest of the way or pay an extra \$30 to transport their catch from the sea to their respective homes and the markets to be sold. Another difficulty the villagers faced was the inaccessible roads so the villagers were cut off from the main road because of the floodwaters and the mud that caked the roads in the aftermath of the flood. One young female respondent who is studying at a local university said, “I am tired of starting over every time there is a flood. Thank goodness, my lecturers are very understanding. But I have had enough!” (21-year-old young woman studying tourism).

Figure 8: FGD with four of the six women of Bila Settlement.



4.2.3 Voices from Naviyago with TNK (Turaga ni Koro) on 18/4 & FGD with women

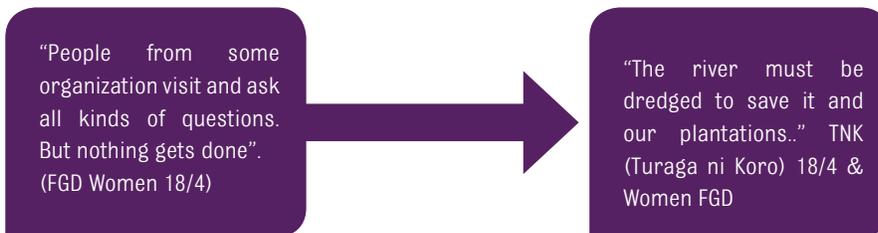


Table 5 refers:

No	What happened?	As a Result
1	Heavy flooding. Area where sugarcane is planted is submerged in water whenever the area floods.	Damaged 300 sugar-cane plantations.
2	Loss of land	Loss of food source in river and mangrove area – kuka (mud crabs) etc
3	Mangroves dying. 4 islets in mangrove	Depleted food source from sea – fish, clam But, in 2018 return of seaweed and sea jelly (nama). No sign of crab yet. Mangrove replanting began in 2018.
4	Houses damaged and some lost	Lost and damaged household effects. Education is disrupted. Loss of shelter and items

- Heavy flooding damaged houses, household items, school materials, plantations including 300 sugar cane farms;
- Loss of suitable land for planting. Some of the usable land becomes water-logged during floods;
- Food source in sea, river and land is scarce. Some promise in 2018 with return of seaweed (lumi) and sea jelly (nama).
- School materials had to be re-purchased;
- Mangroves are dying and mangrove replanting has begun (2018);
- Four islets now formed in mangroves causing a re-construction of the ecosystem.

4.2.4 Voices from Matawalu Village with TNK (Turaga ni Koro) and Youth

“People have stopped buying electrical items because they get damaged in the floods now that it is more regular.” TNK (Turaga ni Koro) 18/4)

“Everything that has been said about the flooding and damages affects us too”. (Youth FGD 18/4)

“The river must be dredged. And a seawall built to save us”. TNK (Turaga ni Koro) 18/4)

Table 6 refers

No	What happened?	As a Result
1	Heavy flooding	Caused confusion (psychological)
2	Water receded and returned muddy with silt	Clothes and education materials dirtied & damaged
3	All plantations damaged	Loss of income (subsistence farming). Loss of food source. Education is affected. Recovery is slow
4	Government recommends shift to a safe area	Decision by the people yet to be made (10% LOU + 90% via maternal kinship ties or marriage).

- Heavy flooding damaged plantations, houses and household effects;
- Education is affected. Loss and damage caused by flood water to school items;
- Government recommends a shift to a safe area to a people where only 10% is Land Owning Unit (LOUs) while the rest live in Matawalu via maternal kinship ties and/or marriage.

4.2.5 Voices from Vitogo Village with TNK (Turaga ni Koro) on 18/4 – Table 7 refers

No	What happened?	As a Result
1	Heavy flooding. Water receded and returned muddy with silt. Physical paradigm is shifted	Vitogo River is buried in silt, debris collected from Vakabuli. Caused confusion. Loss of food source – river and sea
2	Houses and household effects damaged or lost	Education is affected. Slow recovery
3	All plantations damaged	Loss of economic opportunity. Loss of food source
4	We've requested dredging of the river	Every time they ask for an update, they always get the same response, that their concerns have been taken up with the proper authorities. ("Sa kau cake, sa kau cake, sa kau cake!")

- Heavy flooding damaged houses and effects;
- Consequently, education is affected with slow recovery;
- Plantations are damaged and there is loss of economic opportunity as well as a reliable food source;
- River and sea food source is also reduced but slowly returning;
- April 2018 heavy flooding is the worst. Repeated flooding causing confusion.

Figure 9: With TNK (Turaga ni Koro) Vitogo Village



The gentleman with the researcher is Ratu Josua Sovasova the TNK (Turaga ni Koro) for the chiefly village of Vitogo.

4.2.6 Fiji Pine Limited (20/4 FRIEND-USP Symposium & F/T 24/4 Shayal Devi)

Table 8 refers:

Physical	Staff	Rehabilitation	Regulation	Other Activities
River water level increased but now decreased	Traumatised	Fiji Pine is trying to rehabilitate to recover its loss	Forestry officials surveyed and approved areas for logging	Replanting 1990-2010, 2011
Mud is pumping into system		Replanting pine since last 5 years at 2,500 hectare per annum	Forestry failed its fiduciary duty	Pine was planted at edge of river
		Indigenous plants not disturbed anymore	Certification (5yrs) but to confirm with USA audit	
Three gravel extractions in the river		Re-planting indigenous plants	Two of three were not license holders.	
			In 2017, two of three gravel extractions were stopped	

- River water level has now decreased;
- Staff are traumatised;
- Fiji Pine is rehabilitating to recover its losses. For example, since 2013, pine is replanted on 2,500 hectare per annum;
- In addition, indigenous plants are not disturbed anymore;
- Indigenous plants are being re-planted;
- Monitoring is weak;
- Forestry officials appeared to have overlooked Fiji Pine's planting of pine up to the edge of the river despite the Government's adoption of 1990 Logging Practices;
- Gravel extraction in the river is a concern for Fiji Pine because some extractors are not license holders. For example, in 2017, two out of three gravel extractions were stopped for non-adherence to Government regulation.

4.2.7 Government – Challenges with District Officer on 16/4 in Nadi – Table 9

Physical	People	Regulation
Vitogo River, Matawalu and Vitogo villages are below sea-level	Settlements are informal and unplanned	
Short intervals between cyclones or depressions, hence flooding	Dependent syndrome is prevalent – waiting for the Government to solve all the problems	Dependent on political commitment
Soil erosion in Matawalu village		Other government agencies should work laterally – Agriculture, Environment, Forestry, Fisheries, Waterways & Fiji Pine

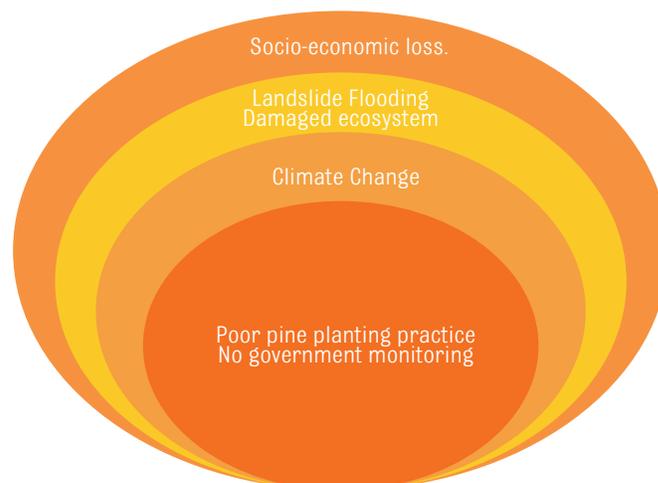
- Vitogo and Matawalu villages are below sea-level and therefore easily prone to flooding;
- There is soil erosion in Matawalu;
- Short intervals between cyclones and depressions cause widespread damage.
- Settlements are informal and unplanned;
- People are too dependent and expect those in authority to solve all their problems;
- Relevant government agencies should work laterally together. For example, Agriculture, Environment, Forestry, Fisheries, Waterways and Fiji Pine;
- Political commitment and will is needed to improve the situation.

4.2.8 Department of Environment (20/4 FRIEND-USP Symposium & F/T 24/4 Shayal Devi) – Table 10 refers:

Monitoring	Challenging Activities	Regulation
Dependent on the public because of limited resource.	Gravel extraction. People apply and granted licenses. But they sub-contract.	Operate under the Environment Management Act (EMA) and responsible for the protection of natural resources and control of waste management
Consults communities	Logging	Environment Impact Assessment (EIA) is undertaken for the environmental, economic and social impact of development – eg Vitogo
		DoE will be upgraded to Ministerial level – Ministry of Environment and NOT Department of Environment.

- Department will be upgraded to Ministerial level soon;
- Currently the Department is under-resourced;
- Consults with communities dependent on availability of resources;
- Dependent on the public for monitoring. For example, DoE depends on the astuteness of the public to report activities suspected as illegal;
- Activities such as gravel extraction and logging challenge DOE which is responsible for the protection of natural resources and control of waste management under EMA.

4.2.9 Summary of the Findings



5.0 NATIONAL CLIMATE CHANGE POLICY

Up at Natubaibua Hill in Vakabuli Village where the ground erupted into a landslide in 2012 is pine plantation belonging to Fiji Pine Limited. The TNK (Turaga ni Koro) at Vakabuli who was involved with pine planting observed that regulations were not adhered to for pine planting. For example, the 1990 Logging Practice stipulates that pine must be planted at least 20 meters away from the river edge. However, this was not followed, even when pine was re-planted after each harvest¹¹. The TNK (Turaga ni Koro) believes that climate change, characterised by short spaces of cyclones and depression which ignite flooding do not help but only worsen the situation.¹² This is compounded by a lack of monitoring by the Ministry of Forestry to ensure the proper regulation of 1990 Logging Practice. Furthermore, there is also the lack of monitoring by the Department of Environment (DOE) to ensure the regulation of the Environment Management Act (EMA). Under the EMA, DOE is responsible for the protection of natural resources and control of waste management. But to date, despite the repeated attempts by the people of Vitogo District for a response from DOE with regards to saving their river, there has been no response. The DOE however revealed at the joint FRIENDS-USP Symposium in Lautoka on 20 April 2018, that it was under-resourced. Thus, the DOE is limited to consulting only with communities and relies upon the public's astuteness to report illegal activities such as gravel extraction and logging. The DOE is expected to be upgraded to Ministerial level soon.¹³ In essence while the EMA exists, there is no fund committed to actualising and regularising the law.

6.0 VITOGO'S RESPONSE TO DISASTER

The villages of Vitogo registered their concerns with the Government through the local government provincial and district systems under the Office of the Commissioner Western after the first flooding in 2012. By 2016, with little action, they began approaching the Department of Environment with letters from the district of Vitogo. In the meantime, while the people have begun re-planting, flooding in the district however has deterred them from continuing with the same vigour as before. Furthermore, Matawalu Village and Bila settlement are still considering government's offer for relocation. Their preferred choice of land however is not available because it is already committed for development. Furthermore, where land is available in Matawalu for example, only a small number have relocated to another site near the village. The rest however are not keen to move away because of emotional attachment to the village where their elders have lived. They also consider the alternative site too far from the village and available services.¹⁴

11 Oral interview with TNK (Turaga ni Koro) Vakabuli at Vakabuli Village on 18/4/18

12 Oral interview with DO Lautoka on 16 April 2018 in Nadi

13 DOE official on 24/4/18 at the FRIENDS-USP Symposium in Lautoka

14 Oral interview with TNK (Turaga ni Koro) Matawalu (Josai Rakoto 18/4/18)

7.0 RESPONSE FROM THE GOVERNMENT and AGENCIES

“..What we found is, what happened with Fiji Pine Ltd over the years was also a contributing factor as we started logging, re-planting which later stopped in the early 90s to the late 2010s and it started in 2011....” Fiji Pine, F/T, pg 20, 24/4/18

“Last year, we had an issue of mud being pumped into our water system. We did our own research and found three gravel extraction companies along that river. Logging is there but along the same river, gravel extraction was also happening and for two of the companies, the license was with someone else but this company was borrowing the license to extract the gravel..” Fiji Pine, F/T, pg 20, 24/4/18

“..One of the main roles of the Environment Department is to identify matters of national importance and seek the sustainable use of natural ecosystems... the main developments along the Vitogo area are gravel extraction and logging. ..with a limited number of resources, the department is also reliant on members of the public to help provide information regarding environment degradation...” DoE, F/T, pg 20, 24/4/18

- Alternative land has been offered with Government’s assistance for relocation but the people of Matawalu and Bila are reluctant to move;
- Government assisted the affected villages by clearing debris in the aftermath of the floods;
- Habitat for Humanity helped build houses in Bila settlement;
- Fiji Pine is aware of the problems caused by poor planting practice and is currently actualising a rehabilitation plan which includes replacing pine and indigenous plants lost in the flooding since 2012;
- Fiji Pine also reported on un-regularised removal of gravel from the Vitogo River by two companies and have since reported them to the relevant government agencies. The companies were stopped from doing further work;
- Settlements are informal and unplanned;
- People are too dependent and expect the Government to solve all their problems;
- The Government officials agree there is no synergy between relevant government agencies and statutory bodies to address the plight of the people who are victims of climate change and a lack of political will.¹⁵
- Advice from Government¹⁶ suggests that communities affected by climate change register their concerns through the local government system. In this instance however, two ministries will be involved; the Ministry of Rural Development and the Ministry for Waterways. A recommendation is suggested for development funding to be centralised at the respective Provincial Board (Ba Provincial Board for Vitogo), which then recommends projects to the Divisional Development Board (Western Division Development Board for Vitogo) for prioritisation of project funding. There is no policy on a criteria for selection to help the members of the Board (both provincial and divisional) who belong to civil society prioritise their choices.

¹⁵ Oral interview in Nadi, 16 April 2018

¹⁶ Email, Name withheld.

8.0 CONCLUSION

Fiji Pine accepted that they bore some responsibility for what happened in 2012 . The Department of Environment admitted that it was under-resourced . It is apparent that despite Fiji's national policy on climate change contextualised in its mission statement , there is no immediate facility for mitigation. Neither is there an affective regulatory system to monitor activities that threaten the environment. As a result, climate change exacerbates poor land management including unlawful gravel extraction, which in turn cause socio-economic loss to the people affected and the nation as a whole.

9.0 RECOMMENDATION

The Vitogo River likewise the Matawalu River, age-old sources of sustenance for the villagers have become depressed with debris and a cause for flooding whenever there is a cyclone or depression. Dredging the river and building seawalls in the coastal villages would be the best practical solution to enable some return to normalcy for almost 3,000 who have been regular victims since 2012.

17 Fiji Times, 24/4/18

18 Fiji Times, 24/4/18

19 See <https://www.sprep.org/>- Republic of Fiji, National Climate Change Policy. Accessed 19/4/18

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FRIEND document - *Baseline Study by UNEP on the Vitogo River*

Email, Name with-held

Anecdotal

Fiji Times Ltd, 24/4/18, Shayal Devi, Pages 3 and 20

Appendix 1

Map of Vitogo Area



Appendix 2

Respondents

No	Date	Name	Type	Gender	Organisation	Other
1	16/4	Ruth Atu	II	F	Government of Fiji	District Officer
2	18/4	Josefa Sigavolavola	II	M	Vakabuli Village	TNK (Turaga ni Koro)
3	18/4	JS's Father	II	M	Vakabuli Village	TNK's father
3	18/4	Savenaca Sanoko	II	M	Bila Settlement	TNK (Turaga ni Koro)
4	18/4	Rusiate Deitu	II	M	Naviyago Village	TNK (Turaga ni Koro)
5	18/4	Laisa Maranavuki	II	F	Naviyago Village	TNK's (Turaga ni Koro) wife
6	18/4	Josaia Rakoto	II	M	Matawalu Village	TNK (Turaga ni Koro)
7	18/4	Josua Sovasova	II	M	Vitogo Village	TNK (Turaga ni Koro)
8	18/4	4 women	FGD	F	Naviyago	54, 57, 65, & 77
9	18/4	4 youth (1F&4M)	FGD	N/A	Matawalu	F(18), M(18,22&25)
10	18/4	12	FGD	Both	Bila	Families
11	18/4	6 women	FGD	F	Bila	Young student & old
12	20/4	Ashiana Hassan	II	F	Tropic Wood	HRD Mngr
13	20/4	Kelera Tokalau	II	F	GOVT - Environment	Officer