SOCIOECONOMIC FLOOD IMPACT ASSESSMENT IN NADI AND BA, Fiji

Following the destructive floods of January 2009, the Government of Fiji requested the Pacific Islands Applied Geoscience Commission (SOPAC) to undertake an assessment of the economic costs to households and businesses in Nadi and Ba, with a view to reporting back in early April 2009. Given the short time frame, a rapid assessment was conducted in February 2009 based on a sample survey of families and private businesses (Maps 1 and 2). The work was conducted in partnership with the United Nations Development Programme (UNDP) and with the assistance of the Ministry of Provincial Development, Youth and Sport and the Fiji Red Cross Society.

A sample survey of households and businesses in Nadi and Ba was undertaken

Losses identified from the floods arose from structural damage, lost assets or possessions, medical impacts (eg., injuries), evacuation or relocation of people or goods and the loss of wages and or business. Losses from the sample were extrapolated to reveal that combined estimated losses for the survey areas in Nadi and Ba were F$330 million gross (table 1).

An estimated F$ 330 million was lost by families and businesses located in the survey area

The biggest single loss to families came from structural damage whereas the greatest single loss to businesses was from destruction of assets. In combination, the greatest single cost in the Nadi/Ba survey areas came from the loss or destruction of assets and possessions (tables 2 and 3), accounting for 39 per cent of total losses – or almost F$ 130 million. Lost earnings were also substantial, accounting for a third (30 per cent) of total losses at $100 million. This was mainly due to business losses as many businesses were unable to operate during or after the floods. It is possible that some businesses exaggerated loss estimates during the survey. However, outliers (unusually high values) were removed from calculations to redress this as far as practical.

The biggest cost was from the destruction of assets

The scale of figures appears high compared to infrastructure losses estimated by the government. However, household and business surveys following disasters are rarely conducted, so the magnitude of private losses is seldom estimated or learned. Further, few respondents had any insurance which means that private losses are rarely reported, even by the commercial sector.

The values provided are only provisional estimates as they had to be generated rapidly following the floods. It is likely that the values understate private losses since (i) lost business to hotels on Denarau was not estimated and this is likely to be substantial given disruption to businesses (clients and staff unable to reach hotels, cancellations etc.); (ii) the total loss figure does not include any values for trauma or the loss of irreplaceable items such as business records; and (iii) medical costs do not include the value of free health care made available during the emergency, nor any medical problems from the floods that arise in the longer term. Nevertheless, the figures do provide an order of magnitude for policy assessment.

The figures are large but likely to underestimate the value of losses

On average, less than 7 per cent of families interviewed stated that they had any form of insurance while only a quarter of businesses reported having any form of insurance. This impedes flood recovery especially since many businesses and families stated that they therefore had no means to recover

Lack of insurance will impede recovery from the floods…

from the damage – and might never do so.

Given the scale of business earnings lost because of the floods, the loss of taxes from continued inoperation of businesses in Nadi and Ba is a national economic concern. Options to assist businesses (and families) to resume operations following future floods would substantially benefit the Fiji tax base. One option might be for government to investigate options to increase businesses access to insurance since some businesses observed that insurance was not always available because of where they operated. Discussions with the Chamber of Commerce and other stakeholder groups might be helpful.

… Losses affects taxes and are therefore a national economic concern. The government should consider options to speed recovery such as improving access to insurance

Water quality was reported to deteriorate significantly during the floods and, according to the survey, the problems frequently persisted weeks later. The majority of families stated that the water in their taps or in the river was not safe to drink following the floods – or that it was extremely dirty. This may partly explain the level of diarrhoea, skin infections, typhoid and or fevers respondents reported following the floods. Not surprisingly, the need to identify short term solutions to water quality protection for families during floods is critical to minimise health problems on the future. Equally importantly, long term watershed management water quantity and quality improvement is critical to minimise future flood frequency and impacts around Nadi and Ba. Lessons from Nadi and Ba can be used in other river basins.

Water pollution following the floods was linked to health problems. Long term watershed management is needed to reduce flood frequency and impacts in the future.

There will be a need to manage perceptions by the public of the cause of the floods. The most common perceptions of the cause of the floods were poor drainage and lack of river dredging. Consequently there was a strong expectation from the community that the government should conduct dredging and improve drainage in the area. The causes and solutions perceived by the community need to be technically assessed to determine their appropriateness. If their causes and solutions are appropriate, the government will need to assess how and when to address them and communicate that to the community. However, if those causes and solutions are not appropriate, the government risks being viewed as ineffective or irresponsible when not pursuing them. It is therefore likely that some strategic awareness raising and communications work of flood causes and treatment will be valuable.

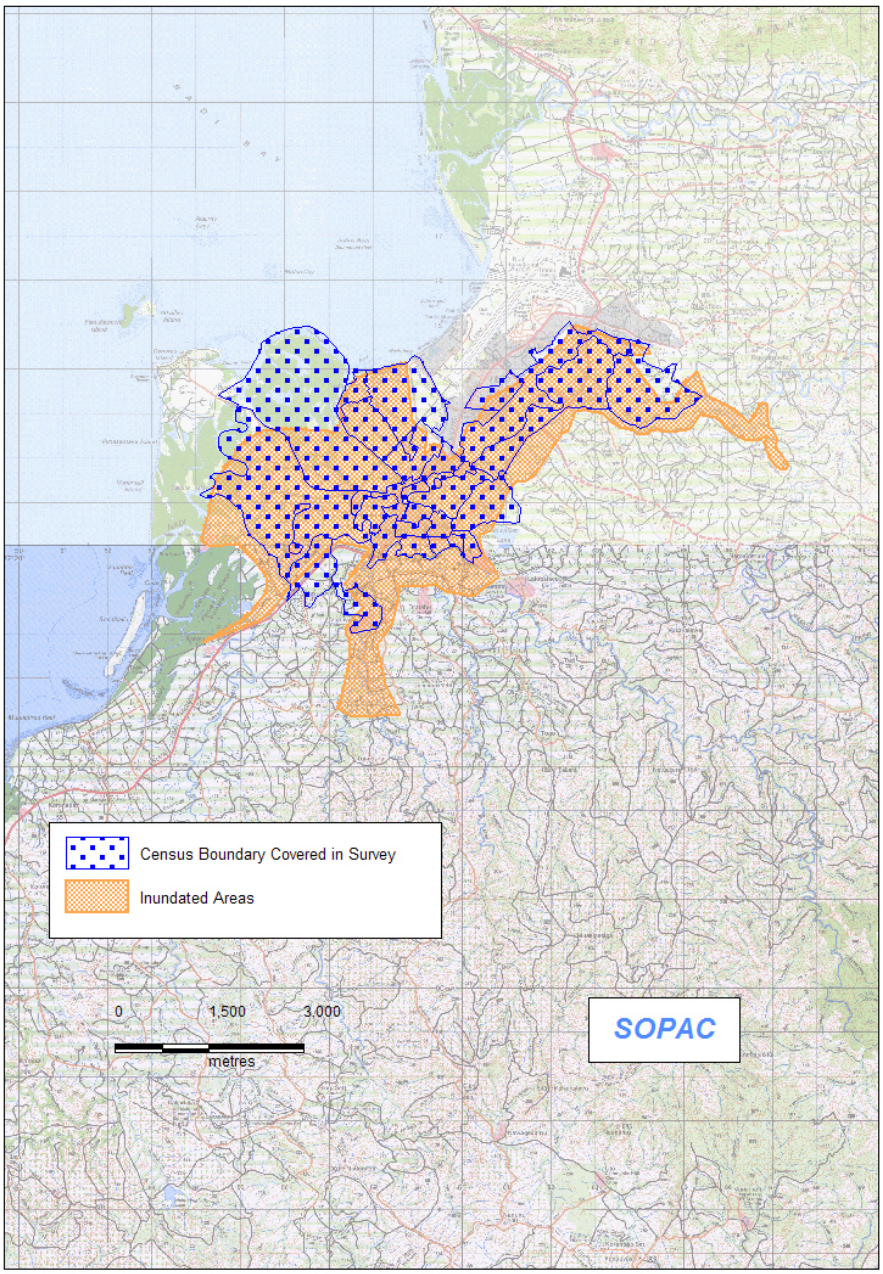
Community perceptions will need to be managed as the community has expectations of what the government ought to do

More generally, awareness of flood risks in Nadi and Ba will need to be increased along with how to respond during a flood alert or warning. Very few people recognised that floods were a natural occurrence in the Nadi or Ba areas and, in any event, only half of those interviewed were even aware that they lived in a flood risk area. Raising community awareness about the inherent risks of Nadi and Ba is likely to enhance flood preparedness. Additionally, many stakeholders stated that they did not receive warnings or that the warnings came too late, while in Ba specifically, some stakeholders perceived the language used in warnings as too technical to follow. There was a call among many community representatives for improved flood warning systems generally. In light of these findings, community awareness exercises, including materials on disaster preparedness, as well as the effective dissemination of disaster warnings, will be important in managing flood risks in Nadi and Ba in the future.

Awareness of flood risks around Nadi and Ba must be improved

There is a need for flood response plans to be in place and regular drills conducted

Map 1 Sample survey and inundation areas for Nadi



Map 2 Sample survey and inundation areas for Ba

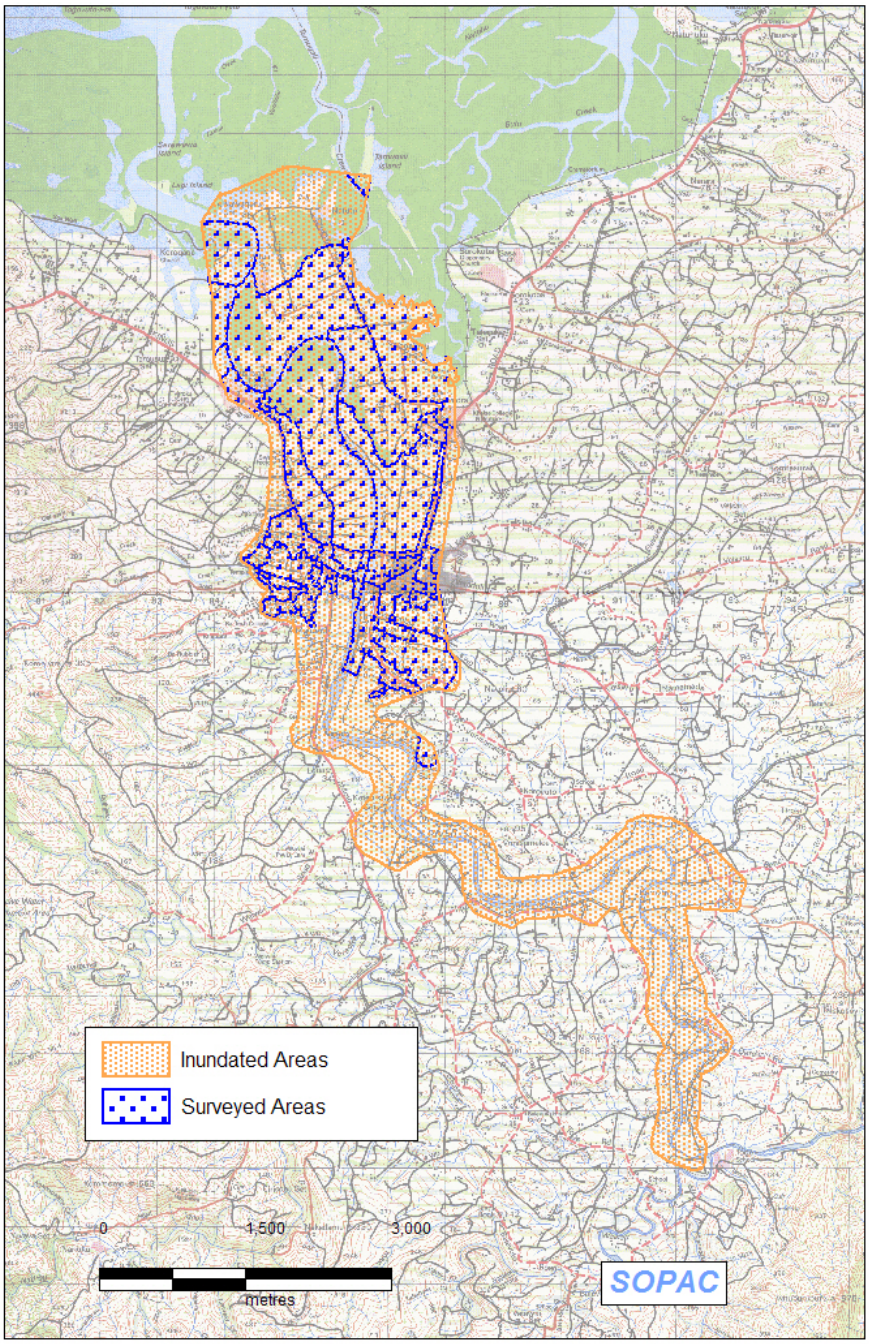


Table 1 Total losses extrapolated to Nadi and Ba survey areas F$000s

Total losses	Total	%
Household	45,061	14
Business	285,323	86
Total	330,384	100

Table 2 Total extrapolated losses by type F$000s by type

	Total	%
Possessions/assets	129,776	39
Structural damage	62,365	19
Lost income/business	99,719	30
Clean-up	32,092	10
Medical costs *	285	0
Evacuation/ relocation costs	1,537	0
Extra salaries **	2,755	1
Other **	1,856	1
Total	330,384	100

* Households only

** Businesses only

Table 3 Total losses extrapolated to Nadi and Ba survey areas F$000s by household or business

Cost type	Household losses	Business	Total
Possessions/assets	19,931	109,845	129,776
Structural damage	21,036	41,329	62,365
Lost income/business	2,064	97,655	99,719
Clean-up	1,500	30,591	32,092
Medical costs	285		285
Evacuation costs	244	202	447
Relocation/storage		1,091	1,091
Extra salaries		2,755	2,755
Other		1,856	1,856
Total	45,061	285,323	330,384