5. External sector and natural disasters

Fijian exports have historically been dominated by sugar but, more recently, there has been a sharp increase in exports of garments, canned fish, timber and other non-traditional products. Reflecting this, garments accounted for 22%, fisheries for 8% and clothing for 6% of domestic merchandise exports in 1991–4. Sugar's share in exports stood at 39% over the same period compared with 63% in 1981–4. Other major exports include gold, molasses and, in the past, copra. The tourism industry is another important source of foreign-exchange earnings and has consistently been the country's single largest source of such earnings since 1989. Imports cover a wide range of items including machinery, manufactured goods, food and mineral fuels.

In a small economy such as Fiji's, performance of the external sector is fundamental to the economy's health. Stability of the export sector has therefore been continually viewed as crucial, both in the shorter term and as a necessary pre-condition for long-term economic growth. Meanwhile, imported goods and services form a substantial part of total consumption, implying that Fiji could face serious domestic shortages if it were unable to finance its import requirements.

In theory, major disaster shocks would be expected to create balance-of-payments difficulties to the extent that they result in a reduction in availability of goods for export and an increase in imports to meet domestic food deficits and repair damages. Depending on levels of foreign-exchange reserves, this could imply an increase in a country's external debt stock, with implications for future levels of debt servicing and, ultimately, economic growth. It could also exert pressure on the exchange rate and, thus, a country's international competitiveness, again with serious consequences. However, to the extent that natural disasters have a domestic recessionary effect, demand for non-essential imports could decline, alleviating some pressure.

In practice, Fiji normally has a deficit on its trade account which is at least partly met by tourism earnings and external assistance. Therefore trade deficits in themselves are not unusual. Furthermore, the impact of any fluctuation in the volume of imports and exports is partly dependent on movements in the terms of trade, for which Fiji is a price taker. Any attempt to isolate the impact of exogenous shocks is also complicated by the effects of "bulky" imports and exports and capital transfers in some years – for example, the import or export of aircraft or the drawdown or repayment of sizeable external loans.

These caveats notwithstanding, natural disasters appear to have had little net impact on Fiji's balance of payments and, thus, on external borrowing or the exchange rate. Inflows of reinsurance payments have played an important part in minimising any

adverse impacts (see Chapter 10) whilst the impact of disasters on tourism earnings has been modest (see Chapter 6). Sugar stocks have also been used to buffer any potential balance-of-payments impacts as well as to ensure the maintenance of supply to major export markets (Table 5.1). In fact, Fiji has attached great importance to the honouring of existing sugar contracts. In the wake of the 1983 disasters, for example, some F$8m worth of refined white sugar was imported for domestic consumption so that higher quality domestically-produced sugar could be exported to meet existing commitments, even though domestic consumption totals less than 1% of production in a normal year. There were further imports of sugar in 1988/9 and 1992 to ensure that the country could, again, fulfil its export commitments whilst also satisfying domestic demand. Meanwhile, at least since 1983, lower sugar production during years of severe cyclones have typically not implied lower sugar exports in post-disaster years despite reduced carry-over stocks. During the one notable exception of 1986, a 25% decline in the volume of sugar exports was fortuitously offset by a 44% increase in the average export price.

A more detailed qualitative discussion of the impact of the 1983, 1985 and 1993 disasters provides useful further evidence on the balance-of-payments implications of natural disasters as well as of the difficulties in measuring their impacts from very broad aggregates. Although the 1983 cyclones and drought resulted in a sharp decline in sugar production, exports were partly maintained through a rundown of sugar stocks, as already noted, and slightly higher world prices than originally anticipated. The country also benefited from an inflow of reinsurance payments to the value of F$34m and additional disaster-related external assistance (see Chapters 10 and 13). Without these latter two inflows, Fiji would have experienced a current account deficit in excess of F$100m (Fiji Government, 1983). Instead the current account declined marginally year on year, to F$64.1m. The overall balance of payments was also boosted by non-disaster-related increases in overseas borrowing; and by a fall in imports of machinery and other capital equipment, following the near completion of several large projects. The country also began to feel the benefits of reduced fuel imports as the new Monosavu hydro-electric power station came on-stream, resulting in a real 23% fall year on year in fuel imports to form 23% of merchandise imports, compared with 29% in 1982. These lower imports more than offset disaster-related imports. Net foreign reserves also increased, reversing declines over the previous two years.

In 1985, Fiji faced both several major disasters, damaging agricultural export crops, and substantial declines in world sugar and coconut oil prices. Coconut oil exports alone fell by 36% in volume terms and 62% in value terms. Tourist earnings also declined marginally as the numbers of visitors arrivals fell, largely in response to the cyclones. However, the country achieved a much smaller balance-of-payments deficit than forecast, of F$7.1m rather than F$21.7m. This was largely due to a substantial inflow of disaster-related reinsurance payments as well as several non-disaster-related

Table 5.1: The Fiji sugar industry' actual and forecast performance

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Cane ('000 t)												
Actual	2,203	4,290	3,043	4,108	2,960	3,185	4,099	4,018	3,380	3,533	3,704	4,064
Projected	4,500	2,700	4,200	3,600	4,000	3,000	3,500	4,000	4,000	3,500	3500-3800	3,900
Actual as % proj.	*49.0*	*158 9*	*72.5*	*114 1*	*74.0*	*106.2*	*117 1*	*100 4*	*84.5*	*100.9*	*97-106*	*104.2*
Sugar ('000 t)												
Actual	276	480	341	502	401	363	461	408	389	426	442	517
Projected	540	300	490	420	480	350	350	500	470	420	400-430	430
Actual as % proj	*51.1*	*160.0*	*69.6*	*119 5*	*83 5*	*103 7*	*131.7*	*81 6*	*82 8*	*101.4*	*103-111*	*120 2*
Exports ('000 t)												
Actual	343	379	410	324	429	330	398	394	357	365	404	473
Projected	509	258	432	398	484	310	331	459	429	378	381-413	395
Actual as % proj.	*67 4*	*146 9*	*94.9*	*81 4*	*88 6*	*106.5*	*120.2*	*85.8*	*83.2*	*96.6*	*98-106*	*119.7*
Price (F$/t)												
Actual	534	461	405	582	569	685	697	663	678	646	576	560
Projected	495	552	370	440	442	647	626	624	614	591	573-575	572
Actual as % proj.	*107.9*	*83.6*	*109 6*	*132 4*	*128.8*	*105.9*	*111 3*	*106 2*	*110 2*	*109.2*	*100.2-100.5*	*97.9*
Sugar export earnings (F$'000)												
Actual	183	175	166	189	244	238	277	261	241	235	240	283
Projected	251	142	160	175	214	201	207	286	256	224	226-245	226
Actual as % proj	*72 9*	*122.8*	*103 8*	*107 9*	*114 2*	*117 2*	*133.6*	*91 3*	*94 4*	*105.2*	*98.0-106.2*	*125 2*
Molasses ('000 t)												
Actual	84	188	108	159	130	130	151	164	136	129	136	155
Projected	153	99	146	160	143	115	125	125	144	130	120-140	135
Actual as % proj.	*54.9*	*189 9*	*74 0*	*99.4*	*90 9*	*113.0*	*120.8*	*131.2*	*95.8*	*99.2*	*97-113*	*114 8*
Molasses export earnings (F$'000)												
Actual	5	11	10	11	14	14	12	7	14	14	11	15
Projected	10	10	8	9	11	7	10	13	11	13	*n.a.*	11
Actual as % proj.	*50 8*	*108.1*	*122.6*	*119.7*	*129 3*	*200.0*	*119 0*	*53 6*	*130 0*	*108.3*	*n a*	*136.4*

Source: Government of Fiji, 'Supplement to the Budget Address', various; FAO data for actual sugarcane production.

factors – namely, a restrictive import policy, a domestic wage freeze policy and the more general economic downturn, the latter two further dampening imports. As in 1983, the volume of sugar exports were also boosted by a rundown in stocks to a level marginally higher than in 1984 and overall sugar export earnings therefore fell by only 5.1% in real terms. Average foreign reserves in the first 9 months of 1985 were reported to be at a record high (Fiji Government, 1985b); and reserves in terms of months of retained imports showed a healthy improvement in 1985 on 1983 and 1984 levels.

Finally, in 1993 – the year of Cyclone Kina – the government had forecast a decline in the trade deficit as growth in exports was expected to outstrip imports. Particularly large increases were anticipated in exports of gold, timber, fish and, to a lesser extent, garments. The current account was also expected to improve, in part as continued promotional campaigns and the scheduled opening of several new resorts boosted tourism earnings. However, the capital account was expected to decline due to a drop in direct investment. In the event, the balance of payments moved from a surplus to a F$62m deficit while the trade deficit rose to F$264m (although these figures are distorted by the import of a F$82m aircraft). A 22.5% increase in food imports to F$167m, reportedly due to the cyclone as well as expansionary domestic demand, also contributed to the trade deficit. However, this was partly offset by a 10.8% increase in tourism receipts and a 17.6% increase in private services credit, in turn due to increased reinsurance receipts following the cyclone. In addition, sugar production was largely unaffected by the cyclone and so, although the sugar price declined by 10.8%, sugar export earnings rose by 2.1%.

On balance, therefore, natural disasters have had little discernible impact on overall balance-of-payments aggregates primarily due to a rundown of sugar reserves and to higher reinsurance inflows in the aftermath of a disaster, offsetting increased disaster-related imports. This has enabled the Fiji dollar to remain relatively stable against other currencies (with the notable exception of the 1987 coup-related devaluations). Similarly, there is no discernible pattern of increases in the external debt stock or declines in levels of gross foreign-exchange reserves during severe disaster years.

In the future, some diversification out of sugar production is likely as preferential prices are gradually eroded (see section 4.1). Indeed, sugar's share in overall export earnings is already declining as economic growth largely originates from the development of new industries. It is therefore important to consider the likely stability of future export earnings an important buffer – namely, the rundown of sugar reserves in more severe disaster years – is removed. The garment industry has so far been relatively immune to the effects of natural disasters although the implications of an earthquake could be far more serious (see section 2.7). Likewise, tourism earnings are projected to grow, offering another relatively disaster-insensitive source of foreign-exchange earnings (see Chapter 6). However, the forestry industry, which is also

hoped to enter a period of rapid export growth, could introduce a considerable element of instability into export earnings by implication of its high disaster vulnerability (see section 4.2). Similarly, diversification into certain agricultural exports could add an additional degree of vulnerability (see section 4.1). It is therefore important to maintain some element of reinsurance not only to help protect the domestic insurance industry but also to boost foreign-exchange earnings in the event of major disasters (see Chapter 10).

6. Tourism and natural disasters

The tourism industry has grown rapidly over the past 35 years, with tourist arrivals increasing from 15,000 in 1960 to 110,000 in 1970, 190,000 in 1980 and 319,000 in 1994. Since 1989, the industry has been the largest single source of export earnings whilst it provides direct or indirect employment for some 40,000 people (Fiji Government, 1993). The tourist industry is also an important source of government revenue via tourist expenditure on value added tax (VAT) items and hotel taxes. Admittedly, there is high leakage, estimated in the order of two-thirds of total earnings in the mid-1980s, as tourists consume high levels of imported goods whilst foreign-owned tourist resort and airline profits are repatriated. For example, in the mid-1980s, the industry was estimated to have an income multiplier of only 0.94 compared with one of 1.47 for sugar (Fiji Government, 1985c). Nevertheless, the sector remains an important source of foreign-exchange earnings as well as a major attractor of foreign investment.

The tourism industry has been consistently viewed as a key area for further growth and a central component of the government's strategy to reduce dependence on the sugar industry, despite certain obstacles such as the high costs of international air travel and the still limited supply of tourist accommodation. The Ninth Development Plan (1986–90) went so far as to state that 'in the short-to-medium term, the tourism sector appears best placed to contribute most towards economic growth and employment generation' (Fiji Government, 1985c: 87). Tourist arrivals are projected to reach 454,000 by 2000, 42% higher than in 1994 (Fiji Visitors Bureau, 1995). The largest increases are expected in arrivals from Japan and other Asian countries.[31] Another major objective of the government both in its Ninth Development Plan and *Opportunities for Growth* document, is to strengthen the linkages between the tourism industry and the rest of the economy, thus reducing leakages. This would include greater consumption of domestically-produced food and other consumer goods, rather than imports, by foreign visitors.

However, relatively little attention appears to have been paid to the hazard vulnerability of the sector and thus the potential ramifications of heavy reliance on the tourist industry (Table 6.1). Many of Fiji's tourist resorts are located in coastal areas, often positioned at vantage points to ensure the best views. By their very nature, tourist resorts are therefore likely to be particularly vulnerable to cyclones, sea

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[31] The volume of Japanese tourists has already risen significantly, forming an important component of the upper end of the tourist market. Japanese tourists are also the highest spenders. For example, in 1994, Japanese visitors spent an average of F$322 per day although there is high leakage, as already noted (Fiji Visitors Bureau, 1995).

Table 6 1: The Fiji tourism industry actual and forecast performance

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
No. of visitors ('000)												
Actual	192 8	235	228	258	190	208 2	250 6	279	259 4	278.5	287.5	318.9
Projected	n a	212	240	259	278	230	220	250	290	290	280	295
Actual as % forecast	n.a.	110.8	95.0	99 6	68 3	90.5	113 9	111 6	89.4	96.0	102 7	108.1
No. of visitor days (m.)												
Actual	1.7	2	1.9	2	1.6	1 8	2 3	2.5	2.2	2.4	2.4	2.6
Projected	n.a	1.97	2	2.1	2 3	1.8	1.9	2.2	2 7	2 6	2 4	2.5
Actual as % forecast	n.a.	101 5	95.0	95 2	69 6	100 0	121 1	113.6	81 5	92 3	100.0	104 0
Expenditure (real 1994 $Fm)												
Actual	221.1	256.6	250.4	261 2	195 3	231.0	327.3	343.8	313.6	349 6	362 6	418.6
Projected	n.a	267.9	264.2	275 5	275 6	213.6	240.3	326.8	414.8	435 3	375.4	382.6
Actual as % forecast	n.a	95 8	94 8	94 8	70.9	108.1	136 2	105 2	75.7	80 3	96 6	109.7

Source, Government of Fiji, 'Supplement to the Budget Address', various

surges and, to the extent that they are built on reclaimed land, earthquakes. Most of the more severe cyclones experienced in recent years have caused heavy damage to some resorts although tourist establishments are scattered across much of the country, implying that any single cyclone or other disaster will not affect them all. For example, Cyclone Oscar (March 1984) resulted in some F$12m damage to the Regent of Fiji hotel in Nadi as well as damaging other hotels in the Nadi area and on the Coral Coast. Cyclone Sina (November 1990) caused little overall economic damage to the country but nevertheless damaged a substantial tourist establishment, the Warwick Hotel. Cyclone Joni (December 1992) also caused considerable damage to tourist resorts.[32]

The industry is also potentially indirectly vulnerable to natural disasters via their impact on air, sea and road transport as well as tourist consumer items. Food supplies for the tourism industry are largely secure to the extent that they are mostly imported. However, the situation could change in the future, as efforts to increase domestic sourcing of tourist food and other consumer goods are stepped up, as already noted, in turn implying that in the aftermath of a disaster increased imports to meet tourist requirements could place additional pressures on the external account.

Clearly, natural disasters are but one of a number of factors determining the performance of the tourism industry, as measured in terms of the number of arrivals and tourism earnings. Other factors include overall economic growth rates in major countries of origin; Fiji's international competitiveness (including the strength of the dollar); the relative attractiveness of holidays in Fiji; tourist promotion activities (both promoting Fiji and rival destinations); and the capacity of the industry, including air access.[33]

Meanwhile, there are certain variables which partly determine the impact of a particular disaster on the tourist industry irrespective of its scale. In particular, adverse publicity in the wake of a disaster and, more specifically, the death of a tourist can be very damaging, although no tourists have apparently been killed by natural disasters in Fiji in recent years. Adverse publicity appears to have occurred

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[32] Water constraints have limited tourism developments to some extent, particularly in the past. Tourist resorts are predominantly located in the drier, less humid parts of the country, particularly the Nadi area on the west of Viti Levu and some of the smaller islands where water shortages occur annually. An embargo was therefore placed, for example, on tourism development in the Nadi area prior to the construction of the Vatura Dam, which provided a consistent water supply for the Nadi-Lautoka area and permitted tourism development (Porter, 1994). Tourist opportunities in the west more generally improved in the early 1980s following the completion of a new regional water supply scheme.

[33] Nuclear testing in Mururoa atoll was also claimed to affect tourism numbers for a while.

mainly in the aftermath of major disasters, which obviously receive the greatest media attention. To counteract the effects of such publicity, the government responded by undertaking increased promotional campaigns. The impact of disasters on the tourist industry also depends on the extent to which holidays are pre-paid and whether such holidays can subsequently be postponed or the payment refunded in the event of cancellation. In 1994, for example, 80% of accommodation was booked on a pre-paid basis. Some 26% of car rentals were also pre-paid. However, the average booking period may have been relatively short.[14]

Nevertheless, there is certain circumstantial evidence to suggest that major natural disasters may have some impact on tourism arrivals and earnings, even if detailed analysis would be needed to confirm this. For example, in the wake of Cyclone Kina visitors from Australia declined by 2.1% year on year in the January and by 20.2% in February, whilst visitors from New Zealand and other Pacific islands fell by 9.1 and 5.8% respectively year on year in the same month. Earnings per head of tourist were also estimated to fall by about half in January 1993 as many tourist activities were cancelled Some tourists in the country at the time the cyclone struck were also reported to have left. However, the number of visitors from countries outside the Pacific region continued to increase, presumably reflecting less media coverage of events in the South Pacific.

Another question concerns the issue of the extent to which hazard risks are limiting the overall scale of tourism in Fiji. A spokesperson for the Fiji Visitors' Bureau indicated that natural disasters, particularly cyclones, were a constraint, pointing to a consistently lower monthly occupancy rate between October and April. This is confirmed by an examination of the monthly pattern of visitor arrivals from Australia, New Zealand and Japan as well as tourist arrivals overall, and despite the fact that September to December is one of the major holiday seasons in Australia and New Zealand. However, a detailed survey of potential visitors in their countries of residence would be required to confirm the factors underlying the pattern of distribution of arrivals through the year, including the role played by the risk of cyclones.

In summary, the tourism industry is vulnerable to natural disasters although less so than certain other sectors. Further development of the sector offers some opportunity to mitigate the overall impact of disasters on the country's foreign-exchange earnings but any upper limits imposed by natural disasters on a further expansion of the industry, from the perspective of both potential investors and visitors, should be investigated. Efforts should also be undertaken to prevent any loss of life of tourists during cyclones and other natural disasters as, unlike much of Fiji's own population,

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[14] For example, in 1994 only 26% of Australian visitors made their accommodation bookings more than 3 months before visiting whilst 32% booked under 5 weeks prior to their arrival.

tourists may be entirely unaware of the risk of disasters or of appropriate actions to take during them. This requires disaster awareness training for those involved in the industry, as has recently been begun with respect to cyclones, and the implementation of appropriate building standards (see Box 10.1).

7. Inflation and natural disasters

Domestic rates of inflation are particularly important in Fiji because of their implications for the real exchange rate and, therefore, the country's international competitiveness. In theory, natural disasters can have two opposing effects on the price of domestic goods. However, their net effect is likely to be inflationary, possibly requiring a tightening of monetary instruments. Certain items could be in short supply as a consequence of the disaster, either because supplies (or the means of production) have been destroyed or because of increased demand (e.g., for building materials in the aftermath of sudden-onset disasters), resulting in a rise in price. Such increases may be partly offset by a decline in the price of certain other goods as demand falls, in turn reflecting the generally recessionary nature of major disasters.

Localised temporary price hikes have undoubtedly occurred in the aftermath of natural disasters in Fiji, particularly in the remoter islands. For example, a price survey of rootcrops, vegetables and fruits in Suva in the aftermath of Cyclone Kina, which occurred in early January 1993 and badly affected all major crop-producing areas on the island of Viti Levu, indicated that all produce with the exception of dalo displayed significant price increases in the first two months following the cyclone By the end of April, vegetable prices had fallen to their pre-cyclone level following a notable increase in imported vegetables. However, performance of rootcrop prices was mixed as shortages of some items continued beyond the end of May. Fruit prices also remained high, again due to shortages (Fiji Ministry of Agriculture, 1993). More worryingly, a comparison of average year on year food price increases for the 3 months preceding each cyclone, the month of the cyclone and the 2 succeeding ones and then the following 3 months for major cyclones dating back to 1979 suggests that cyclones may contribute to a permanent rather than temporary increase in food prices (Table 7.1). This is confirmed by evidence from 1993 when Cyclone Kina, which, as already noted, occurred at the very beginning of the year, was said to be attributable for an annual 6.8% increase in food prices (Fiji Government, 1994a). Such price increases are of particular concern in the context of poverty alleviation because poorer households spend a disproportionately larger share of their income on foodstuffs.

However, the overall rate of inflation is not determined by domestic factors alone. Some 75% of consumer goods are imported and the rate of inflation is therefore heavily dependent on shifts in the effective exchange rate and price increases in the main countries of supply, Australia and New Zealand. In consequence, natural disasters appear to have had little impact on fluctuations in the rate of inflation. For example, despite the occurrence of Cyclone Oscar and widespread drought in 1983, the rate of inflation fell due to both depressed domestic demand and lower rates of inflation amongst Fiji's principal trading partners who themselves were experiencing

Table 7.1: Fiji consumer price index: year-on-year average growth rates for the three month panod preceeding a cyclone (t = -3, -2 and -1), the month of the cyclone and two suceeding months (t= 0, 1 and 2) and the third, fourth and fifth months after the cyclone (t= 3, 4 and 5)

	Year-on-year growth rates			
	All items	Food	Housing	Non-food
Cyclone Meli (26-28/3/79)				
t = -3, -2 and -1	5 7	1.5	9.8	8.5
t = 0, 1 and 2	7.7	7.2	8.8	8.1
t = 3, 4 and 5	7 7	6.8	5.0	8.3
Cyclone Wally (5-6/4/80)				
t = -3, -2 and -1	11 7	13.0	2.3	10.4
t = 0, 1 and 2	15 2	15.7	5.3	14.3
t = 3, 4 and 5	15.9	15.6	5.8	15.3
Cyclone Arthur (13-15/1/81)				
t = -3, -2 and -1	15 0	16.9	4.3	13.2
t = 0, 1 and 2	14 0	13 7	11.4	14.2
t = 3, 4 and 5	10.4	11.0	11.3	10.2
Cyclone Oscar (28/2 - 2/3/83)				
t = -3, -2 and -1	6 4	4.8	11.0	7 1
t = 0, 1 and 2	7.2	6 0	13 5	7.8
t = 3, 4 and 5	7 0	6 2	13.9	7.4
Cyclones Eric and Nigel (17-20/1/85)				
t = -3, -2 and -1	4 0	2.2	2.1	5.0
t = 0, 1 and 2	4 4	7.5	1 8	2.8
t = 3, 4 and 5	4 5	8.7	1.4	2.4
Cyclone Martin(11-13/4/87)				
t = -3, -2 and -1	3 8	3.0	4.0	3.9
t = 0, 1 and 2	3.3	0.5	3.0	4.7
t = 3, 4 and 5	6.5	7.4	1 8	6.0
Cyclone Raja (24-30/12/87)				
t = -3, -2 and -1	9.2	13.5	-1.8	7.0
t = 0, 1 and 2	12 2	20.1	-2.5	8.3
t = 3, 4 and 5	13.5	22.5	-2 6	9.2
Cyclone Sina (26-9/11/90)				
t = -3, -2 and -1	8.6	7 0	8.2	9.6
t = 0, 1 and 2	8.6	6 1	8.5	10 0
t = 3, 4 and 5	7.1	2 8	10.1	9.6
Cyclone Kina (26/12/92-3/1/93)				
t = -3, -2 and -1	6.3	1 1	15.4	8 1
t = 0, 1 and 2	7.7	7.5	15.6	7.8
t = 3, 4 and 5	7.5	7.1	14.8	7.6

a period of recession. Again, in 1985, the rate of inflation declined marginally, despite temporary increases in domestic food prices in the first half of the year as a consequence of 2 major cyclones. The building materials price index was also reported to be largely unaffected by the cyclones. In 1987, other factors again dominated changes in the rate of inflation as two successive devaluations of the Fiji dollar, totalling 33%, were largely responsible for a 5.7% increase in the consumer price index (CPI) although domestic food prices also increased 6.1%, in part reflecting the disruptions to agricultural production caused by a severe drought as well as the two coups [35]

The fact that there is little apparent relationship between the occurrence of natural disasters and the rate of inflation may also be partly attributable to various government efforts to prevent price increases, both in the wake of disasters and more generally. In the immediate aftermath of some disasters, such as Cyclone Kina, the government has imposed a temporary ban on the export of all food crops except those grown under contract.[36] Annual stockpiling of food and other items prior to the onset of the cyclone season, by both the government and individual households, must also play some role in minimising the inflationary impact of natural disasters. Meanwhile, an Anti-Inflationary Act is permanently in force, controlling the price of certain commodities including some foodstuffs, building materials, washing soap and medicines. This Act plays some role in preventing price rises as a consequence of natural disasters although most items covered by the Act are largely unaffected by disasters whilst some more severely affected items are not included. The Act may also be re-endorsed following a disaster For example, in the aftermath of Cyclone Kina, the Prices and Incomes Board issued a statement informing traders that 'prices of commodities (were) not to be distorted in any way by the recent cyclone Kina' (Prices and Incomes Board Press Release, 5 January 1993). Price control items were to be sold 'at the prices as stipulated under the respective Orders' whilst uncontrolled items were 'to be maintained at those rates prevalent prior to the cyclone' although a 5% increase in the price of soap was permitted due to damage suffered by the copra industry. The statement also indicated that if prices of uncontrolled items rose 'the Board (would) be left with no alternative but to bring those items under price control'.

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[35] It was beyond the scope of this study to undertake a more detailed analysis of the main factors determining rates of inflation in Fiji. This would have involved analysis of a number of factors including inflation in the main countries sourcing Fiji's imports and movements in the exchange rate as well as various domestic factors including the introduction of VAT in mid-1992 Regressions were nevertheless run of monthly and annual year on year growth rates in the overall CPI and the food and housing components of the index against simply a series of lagged cyclone dummy variables over the period 1978–95. However, unsurprisingly, no significant correlations were revealed.

[36] In the case of Cyclone Kina, the ban was lifted again in May for all crops except cassava (Fiji Ministry of Agriculture, 1993).

Retailers largely appear to have abided by this legislation, as demonstrated, for example, by the fact that the number of complaints under the Act were not unduly high in 1993, after taking account of the rise in complaints due to the introduction of VAT in mid-1992.

In summary, the inflationary impact of natural disasters is probably not a major cause for concern in Fiji at the present time since the rate of inflation is relatively low. However, should the country enter a period of higher inflation then the potential additional inflationary pressures exerted by cyclones could contribute to more serious economic difficulties. The price of foodstuffs should also be carefully monitored to ensure that disasters do not generate permanent price increases, particularly in view of the fact that lower income groups spend a disproportionately high share of their income on foodstuffs.

8. Monetary aspects of natural disasters

Throughout the 1980s and 1990s, monetary policy has emphasised external financial stability as a pre-condition for long-term economic development. Growth in the money supply has been kept in close check with that of GDP, whilst efforts have also focused on ensuring that the country maintains an adequate level of foreign reserves in order to protect its exchange rate and so maintain the country's international competitiveness. In addition, there have been some efforts to contain private demand for credit and to mobilise savings for investment purposes. The government has been broadly successful in these policies although low demand for domestic credit has, on occasion, exacerbated problems of excess liquidity (Fiji Government, 1993).

Natural disasters can imply both increased monetary tightness, to the extent that households and businesses seek increased credit to finance their rehabilitation efforts, but also a reduction in credit demand from other quarters as the generally recessionary nature of a severe natural disaster feeds through to domestic demand and investment confidence. At the same time, foreign-exchange reserves may come under greater pressure as a consequence of any adverse balance-of-trade impacts but this may be partly offset by higher reinsurance inflows (see Chapter 5). The impact of a natural disaster on the monetary sector also ultimately depends on monetary policy itself. However, this is less relevant in the context of Fiji, where the openness of the economy effectively limits the scope of monetary policy by implying that movements in the money supply are heavily influenced by domestic fiscal and world market performance instead

Fiji has apparently managed the monetary implications of natural disasters relatively easily relaxing policies as necessary without any major adverse consequences. For example, increased liquidity in excess of the rate of economic growth was permitted in 1983 to ensure sufficient availability of financial resources to meet the costs of rehabilitation. This represented a reversal of previously tighter policies aimed at maintaining the country's international competitiveness and containing the balance-of-payments deficit. However, the shift in policy created no real problems of excess monetary growth until the end of the year, when monetary policy was tightened marginally. In the year ending 1985, increased foreign reserves, primarily the result of reinsurance flows, were largely offset by lower domestic borrowing from the Reserve Bank, effectively avoiding a large monetary expansion and thus any destabilising effects. Meanwhile, in 1993 monetary policy continued its efforts to moderate high domestic liquidity, in turn reflecting high foreign reserves, through an appropriate low interest rate structure whilst monitoring aggregate demand to maintain a viable balance of payments. Excess liquidity declined towards the end of 1993 as foreign reserves decreased.

9. Government budgetary aspects of natural disasters

Natural disasters may have several important impacts on public finance. Government-financed relief and rehabilitation operations imply either an increase in public expenditure or the partial redeployment of planned spending. In the context of Fiji, budgetary resources to the tune of F$2m are annually earmarked for emergency relief activities but this may prove grossly inadequate in the event of a major disaster. An annual budget allocation of F$0.1m is also made for the 'emergency' transport of water but, again, this is far from sufficient during periods of drought. Public enterprises may also face losses, which the government may have to meet, if their operations are hampered by natural disaster. Meanwhile, government revenue could be adversely affected as lower levels of economic activity, including possible net falls in imports and exports, reduce direct and indirect tax revenues. Flows of external grant aid may increase but this is unlikely to offset increased levels of expenditure. In consequence, the government may face increasing budgetary pressures which it will be obliged to meet by increasing the money supply, running down foreign-exchange reserves or increasing levels of domestic and/or external borrowing.

These financing options have potentially significant knock-on effects. The creation of base money is inflationary. Domestic borrowing exerts upward pressure on interest rates and can result in a credit squeeze. Foreign borrowing can result in an appreciation of the exchange rate, reducing the price of imports and increasing that of exports, as well as involving future drains on the economy via higher debt-servicing costs. Another option, the run-down of foreign-exchange reserves, is limited by the very size of those reserves and entails an appreciation in the exchange rate, with possible associated risks of capital flight and a balance-of-payments crisis (Fischer and Easterley, 1990).

Disasters can also impose more permanent pressures on government finance to the extent that governments implement disaster prevention, mitigation and preparedness measures on a more regular basis – i.e., costs which governments of less disaster-prone countries do not have to bear.

In practice, it is difficult to ascertain any short-term impact of individual natural disasters on the budget deficit from aggregate annual data on planned and actual expenditure and revenue (see Appendix Table 4) Expenditure data for the period 1983–94 suggest that capital expenditure was consistently under-budget until 1988 whilst operating expenditure was approximately on budget except in 1984. Revenues also reveal little pattern of correlation with natural disasters, staying near budgeted levels except in 1987, the year of the coups. Meanwhile, it is extremely difficult to isolate the budgetary impacts of disaster mitigation and preparedness activities, which

are contained in overall allocations to relevant ministries with a few notable exceptions (such as drainage operations).

More detailed examination of the impact of natural disasters, isolating them from other factors affecting budgetary performance, indicates a somewhat different picture revealing that natural disasters can have considerable shorter-term impacts on budgetary resources. Such impacts are not entirely quantifiable. For example, relief efforts may involve the temporary redeployment of some public sector workers – such as those in social services, public works, the armed forces and the navy – which normally goes unrecorded. Nevertheless, experiences in 1983, 1985 and 1993 provide some useful evidence in this regard. In the wake of the 1983 natural disasters, for example, some F$30m in government relief assistance was provided, equivalent to 8.3% of total expenditure for the year.[37] Certain other non-relief items were under-budgeted, placing additional strains on budgetary resources. These included established staff costs, for which actual costs were $F5m more than budgeted. Yet overall government expenditure for the year was only F$23.2m in excess of initial allocations, implying that the impacts of the cyclone were greater than overall data suggest and that there must have been a significant redeployment of allocated funds. Inland revenue was also lower than expected, reflecting the impact of the disasters on the domestic economy However, customs revenue was boosted by increased imports of some high import duty items, more than offsetting both these and other declines in revenue and the increase in expenditure as well as hiding the overall revenue impacts of the cyclone. In consequence, the overall budget deficit was smaller than initially forecast.

In 1985, expenditure on cyclone rehabilitation amounted to F$16m, or 4.0% of total government expenditure. Again, part of this was met by the redeployment of allocated resources as well as cash grants to the value of F$4.4m from overseas. However, a public sector wage freeze removed potentially additional pressure on government budgetary resources and total government expenditure for the year was 7.8% below budget. Government revenue fell, largely because of income tax reforms, a wage freeze (in turn impacting on income tax earnings) and depressed economic conditions, in turn partly attributable to the cyclones. However, despite the impacts of the cyclone, the country achieved an overall improvement in the budgetary deficit, declining 18.3% in real terms to only $F36.5m or 2.8% of GDP and to only 72.4% of the forecast deficit. The impact of the cyclones continued to be felt through 1986, with a wider budgetary deficit than originally forecast as imports, and thus import duties, declined marginally reflecting the lagged effect of the economic downturn as

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[37] The rehabilitation costs included F$4m 'seed money' towards a F$16m interest-free loan scheme offered to cane farmers by the Fiji Development Bank as part of a broader sugar cane rehabilitation scheme. The National Bank of Fiji, a public enterprise, also waived 1983/84 repayments on Cane Farmer Loans in the affected areas (Fiji Government, 1984).

well as tax reforms. Revenues were further reduced as tax payable on reinsurance premiums remitted overseas was waived to assist recovery in the insurance industry. In addition, an existing tax exemption on farming income was extended for a further 5 years, until 1990, in part in recognition of the particular difficulties faced by cane farmers. Current expenditure was also higher, partly due to cyclone-related grants and transfers. In addition, the FSC was awarded a F$1 5m capital grant to upgrade its transport infrastructure as difficulties faced by the sugar industry during the early 1980s, including the cumulative effects of a series of natural disasters, implied that it was unable to meet such costs itself. Government domestic borrowing was increased to help finance the budget deficit.

Cyclone Kina probably provides the best-documented case to date of the implications of a natural disaster for overall government expenditure. Under the 1993 Budget, attempts to contain government expenditure had been stepped up following a widening of the budgetary deficit the previous year to 3.3% of GDP, the highest level since 1987, in part due to a government expenditure growth rate almost double that of GDP in 1991 and 1992.[38] A target budget deficit of 2.5% GDP was therefore set for 1993; and quarterly rather than annual warrants for public expenditure introduced to help control expenditure. At the beginning of 1993, Fiji then experienced a severe cyclone, Kina, necessitating a government rehabilitation programme to the tune of F$40.2m, equivalent to almost a third of the capital budget and 5.3% of total allocated expenditure (Table 9 1). Nevertheless, the government remained intent on achieving its revenue objectives and instead redeployed resources to meet the cost of the programme, holding a special meeting to determine reallocations.

In the event, a budget deficit of 3.9% of GDP was incurred for the year overall. Total expenditure increased by 5.9% in real terms (and 13.2% in nominal terms) to F$818.9m, only marginally higher than the forecast level of F$815.2m. Indeed, the 1994 Budget Supplement noted that 'expenditure was closer to original approval in 1993 than at any other stage since 1987', largely reflecting the way in which the cyclone rehabilitation programme was financed as well as a Public Service Settlement (Fiji Government, 1994a). However, this apparent success was not without some casualties: operating expenditure alone increased by 7.1% year on year whilst capital expenditure fell by 3.4%, to around only 75% of the original allocation. The reallocations also had severe consequences for certain individual projects and schemes. For example, the Department of Regional Development's Self Help Programme, which caters for small rural projects and aims to stimulate social and economic development, was suspended as was a Rural Roading Programme (Rokovada and Vrolijks, 1993). A Poverty Alleviation Fund which had been

[38] Efforts to contain the budgetary deficit were originally stepped up in 1989, when the government announced a new medium-term goal of a zero net deficit. The government now aims to achieve this goal by the year 2000

Table 9 1 Impact of Cyclone Kina on Government Expenditure (F$'000)

	Original allocation			Amount redeployed	Actual expenditure			Of which redeployed resources (%)	Initially allocated for	Reason for redployment
	Operating	Capital	Total		Operating	Capital	Total			
Ministry/ Department										
Home Affairs	514		514	710	2,054	3	2,066	34 4	Repair & upgrading of police buildings & construction of new buildings	Repair to office & building & institutional quarters for the police
Fijian Affairs	11,458		11,458	600	10,824	651	11,475	5 2	Purchase of equipment and "dollar to dollar" grant	Food rations & housing assistance
Miscellaneous Services	22,481	381,770	404,251	10,730	19,468	24,821	44,288	24.2	Poverty Target Projects and interest free loan to Fijian Affairs Board	Food rations & housing assistance
Regional Development	3,401		3,401	2,049	22 456	1,708	24,167	8.5	Self help projects & upgrading of non-PWD roads	Government housing assistance
Indian Affairs				500					Community Development	Government housing assistance
Education & Women & Culture	131,220	4,321	135 541	2,261	140,530	2,242	142 771	1 6	Construction of schools, purchase of equipment & building grants. Women & culture Development Opportunity programme	Rehabilitation works to schools & government housing assistance
Youth & Sport	6,331	1,015	7,346	1,770	4,066	415	4,481	84 1	Training, building construction upgrading of sporting grounds & facilities	Rehabilitation work of schools
Health	50,471	3,046	53,517	2 000	57,069	1,333	58,702	3 4	Upgrading of township roads	Repair damaged facilities & replace equipment & drugs
Housing & Urban Development	3,072	1,173	4,245	200	2 890	740	3,630	5.5	Drainage/flood protection, agriculture/aquaculture development projects, facilities equipment etc	Repair damaged facilities & replace equipment
Ministry of Agriculture & Fisheries	16,770	10,047	26,817	5,200	22,474	3,016	25,490	20 4	Construction of roads & bridges, jetties upgrading of roads, urban & regional water supply schemes & sewerage schemes	Rehabilitation to crops livestock, fisheries, drainage & irrigation & research
Infrastructure, Public Works & Maritime	46,160	45,816	91,976	10,600	56,780	45,819	102 599	10 3	Extension of outfitting jetty and dredging	Repair to roads, bridges, jetties, water & sewerage & buildings
Marine	10,317	1,119	11,436	300	9,302	596	9,898	3 0	Construction of building complex & purchase of vehicle testing equipment	Repair to damaged jetties
Road Transport	1,985	1,290	3,275	1,290	1,579	0	1,579	81 7		Repair to damaged roads & buildings
TOTAL	648,800	109,000	758,800	40,210	688,700	82,000	770,700	5.2		

Source: Department of Regional Development (1994), Fiji Government Supplement to Budget Address, 1983 and 1985

established under the 1992 Budget with an allocation of F$7m had its budget reduced to F$2.8m in 1993. Meanwhile, the largest single redeployment involved budgetary allocations for the Ministry of Infrastructure, Public Works and Maritime, including some funds which had been earmarked for dredging works – ie, entailing a reallocation of resources from disaster mitigation to rehabilitation The Ministry of Agriculture also faced a substantial 20% redeployment of resources.

Despite the government's success in avoiding a considerable rise in expenditure in 1993, Cyclone Kina also had some adverse impact on government revenues, in turn contributing to a widening of the budget deficit. Revenues were F$26.1m lower than originally forecast due to shortfalls in VAT receipts (in part reflecting reduced purchasing power in the aftermath of Cyclone Kina (Fiji Government, 1994a)), other general revenues and grants. Government savings also fell, basically due to increased operational expenses to meet cyclone related expenditure. The budget deficit was financed by domestic borrowing, which rose to a level 70% higher than originally planned.

Natural disasters also have longer-term impacts on both government expenditure and revenue. Annual expenditure incurred on various disaster prevention, mitigation and preparedness activities. For example, annual commitments are made for flood protection measures, including dredging activities and river embankment construction, as well as for the construction of cyclone resistant housing, the latter coming under the rural housing programme. These costs are semi-transparent but are not identified under a specific disaster preparedness and mitigation budget line. There are further hidden costs such as those entailed in fortifying government buildings and infrastructure more generally to better withstand the impact of hazards. Meanwhile, the expenditure implications of specific natural disasters can also extend over several years. For example, the 1984 budget included a new agricultural development programme to help rehabilitate the areas affected by Cyclone Wally which had occurred 3 years earlier in 1981.

On the revenue side, natural disasters also imply a continual longer-term direct loss in revenue via the Cyclone Reserve. This Reserve, which was introduced under the 1986 budget, provides a special deduction to taxpayers carrying their own cyclone cover or bearing excess losses on cyclone damage under their insurance policies. At the point the scheme was first introduced, deductions up to a maximum of F$500 per annum were allowed on residential properties and of up to 1.5% the replacement value of business properties (Fiji Government, 1985b).

In conclusion, disasters have implications for both government revenue and expenditure although these impacts are not necessarily reflected in overall figures The government has made various efforts to limit the net impacts on total spending, particularly through the redeployment of resources. This reflects its longer-term

objective of containing the budget deficit to free resources for the private sector, which finances much of the government deficit, whilst containing debt servicing costs. However, such redeployments have not been without consequences. In particular, disaster rehabilitation programmes have contributed to an imbalance between government capital and recurrent expenditure as resources have been switched from the former to latter, partly thwarting government efforts to increase the ratio of capital to operating expenditure.

Finally, the vulnerability of particular sources of government revenue to natural disasters also needs to be considered within the context of various tax changes since 1989. These have placed increased emphasis on revenue raised within the domestic economy, involving a widening but reduction of the direct tax base; a gradual reduction in import tariffs and a switch to non-tariff barriers; and the introduction of VAT in mid-1992. The reforms have been viewed very positively in terms of reducing effective rates of protection However, that they may have also increased the vulnerability of the tax base to natural disasters to the extent that imports are relatively immune to natural disasters as compared with domestic economic activities, which translate into earnings, profits and domestic sales. Farming activities have also been liable to taxation since 1990, further potentially increasing the vulnerability of the tax base to natural disasters