

UNITED NATIONS DEVELOPMENT PROGRAMME

UNDAC Mission Report

Fiji Drought

United Nations Disaster Assessment and Coordination South Pacific Team

Atu Kaloumaira, DMP-SPO, Fiji
Joeli Rokovada, DMP-SPO, Fiji
Poasa Ravea, Government of Fiji
Steve Iddings, WHO, PNG
Dirk Schultz, NFNC, Fiji

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1. INTRODUCTION

On September 22nd the Fiji Cabinet

- declared a natural disaster for areas affected by the prolonged drought and
- requested United Nations Office for the Coordination of Humanitarian Assistance (UNOCHA) to undertake in consultation with Fiji government a comprehensive multi-sectoral survey and assessment to consider short, medium and long term mitigation strategies.

This request was forwarded to the UNDMP-SPO (United Nations Disaster Management Programme, South Pacific Office) who together with the United Nations Resident Coordinator put forward a two stage response to the request:

- mobilising an United Nations Disaster Assessment and Coordination (UNDAC) Team through Geneva to consider emergency needs and short term strategies
- commissioning a consultancy for in-depth assessment and consideration of medium and long term needs.

UNOCHA Geneva consequently assembled this UNDAC Team which got together on Sunday 4th October. The UNDAC Team focus was in assessing emergency needs, determining which of these were being met and identifying those still to be addressed, in all likelihood through donor assistance. The UNDAC Team completed its mission on Monday 26th October with a joint debriefing of both the UN Resident Coordinator and the Permanent Secretary for Regional Affairs and Multi-Ethnic Affairs who is the National Disaster Controller. Other key government departments most affected by the drought were invited to the meeting as well members of the UNDMT (United Nations Disaster Management Team) and SOPAC (South Pacific Applied Geoscience Commission).

Its been a challenging assessment, focussing on the micro level whilst conscious of the national direction set from macro level policies.

- The study has amassed a volume of data allowing it to quickly assess and even undertake quite in-depth assessment in the worst hit sub-sectors of water, health, food and agriculture. This is solely possible due to the co-operation received from everyone for which we are much indebted.
- The study also assessed the coordination of emergency relief efforts amongst and between government and non-government organisations.

The recommendations are drawn from findings and needs arising from the assessment undertaken on the sectors critically affected by the 1997/98 El Nino drought.

2. SUMMARY

The current drought (though severe) is far from unique. Future droughts of similar severity should be anticipated (there have been 5 severe events within the last 30 years). This should reinforce the need for the longer term measures mentioned in the report.

In the last six years Fiji has faced six major natural disasters; a drought of 1992, Tropical Cyclone (TC) Joni and TC Kina 1992/93, TC Gavin and TC June 1996 and 1997/98 drought. Cumulatively the socio-economic impacts have been worsening and

further magnified in this very severe (record) drought. The safety checks in the resilient informal sector particularly the extended family system support, has been stretched leaving it exposed and vulnerable; the informal sector is the worst hit in this drought. The impact on the formal sector has lagged behind with business registrations stagnant and investments stalled. Actually hours of works of employees in service industries were observed to have been reducing.

Western Viti Levu and Yasawa group suffer the longest and are the worst hit region with 90% of the population receiving food and water rations; agriculture has been devastated, water depleted and health problems rising. Impacts in Western Vanua Levu is relatively milder; an extensive system of wells and boreholes assist out in domestic and home gardening. Eastern Vanua Levu has food to eat but the main cash crops yaqona and dalo have had damages ranging from 60 –90 %. The Eastern Division is having water problems but enough food is on the ground, which is still cultivable; and people can still source income from the sea. Coconut trees grown on coastal swamps are dying. In summary about 75% of Fiji is now drought affected and it is still spreading.

These leeward regions are where all of Fiji's sugarcane is grown. Total loss in agriculture is about \$125 million. The Fiji Government, with the FSC (Fiji Sugar Corporation), has put together a \$43.7 million Crop Rehabilitation Programme (CPR) for sugarcane industry. Plantings have started in September.

Whilst the rainfall maybe returning to normal on some days, scientists of SOPAC and the Fiji Department of Meteorology are cautious that rain deficit period is likely to continue to May of 1999. Hence there will be a need to re-assess in February and in May, reviewing escalation in impacts and needs. Fiji government has to consider making budgetary provisions and reserve funds in its 1999 budget to prepare against extension and increase in drought severity.

Fiji government has to date provided food rations to 240,000 people (25% population) currently at a monthly cost of \$2.7 million. It is also supplying limited water for twice the number of household at a cost of \$0.5 million. This ration though is insufficient to address the requirements of special attention group as weaners, elderly people, and children in schools.

NGOs as Red Cross, Save the Children Fund, Church groups and social/charitable organisations are busy assisting out in the drought areas, providing food and cash to school children. A public appeal had been launched by Save the Children Fund. 3,000 school children had been assisted with bus fares and food. 7,000 school children similarly effected are not been reached. FSP (Foundation for the People of the South Pacific) is working with schools on upgrading water systems and establishing food garden. These are all very focussed and worthwhile efforts much appreciated by the recipients and will need to continue throughout 1999.

The impacts of the drought to date are so severe that there is need to continue to prioritise relief assistance for water and food into the first quarter of 1999. The budgetary requirements for relief and distribution are quite a huge burden financially at \$3.3 million a month. An indication of Government financial constraint is that release of ration fund is slow with actual purchases by Supplies Department averaging \$0.9 million per month. Relief should only go to those most vulnerable. A criteria or guideline for relief is proposed here to identify those who are really in need and to be assisted. It is tagged onto the poverty threshold of \$4000 - \$5000 equivalent annual income.

The acute economic hardship has quickly given rise to much broader poverty dimensions and social problems. Government administration has not anticipated these fast spread and growth in poverty related hardships amongst the increasing number of the less advantaged section of the community. Whilst Government is positively framing its measures to address the vulnerability of the informal sector routed in economic hardship, there is an immediate need to buffer indebtedness with direct cash assistance thereby also increasing national capacity to participate in rehabilitation programme.

- (a) For those affected because of no farm income for the last nine months and without ownership of other easily exploitable resources for income generation, until farm activities are back to normal;
- (b) To worst hit owners of resources without the capital to raise supplementary income from them;
- (c) To recipients of social welfare an increase in welfare amounts in light of reduction of support and supplementary assistance from extended family.

The UNDAC team commends the Fiji government for self-financing relief needs to date. As the impacts continue into 1999, the Fiji government is being severely taxed financially and needs to seek immediate international assistance in kind, technical expertise and funds to care for over half the population who are increasingly each month being affected by the drought. The Team has identified some possible areas for donor assistance.

Whilst priorities on recommendations are addressing emergencies due to water food shortages, nutrition issues and acute economic hardships, the study has also identified medium and long term needs across a much broader spectrum. These recommendations are for consideration in the follow up in-depth sectoral study, which UNDP is putting together with Fiji government.

2.1 Recommendations for Relief or Immediate Actions.

There are critical recovery measures that need to be addressed in the short term. These are listed in SECTION NINE, RECOMMENDATIONS together with long term measures in preparedness and mitigation. Listed below are a number of recommended measures for immediate actions given the extended emergency period of the drought:

- Relief measures at a current monthly cost of \$3.3 million need to continue to the second quarter of 1999, subject to a review in February, for the 54,000 families receiving supplementary food ration and the roughly 400,000 people on emergency water deliveries;
- Both malnutrition and anaemia rates are showing increases in drought affected areas. Ration composition needs to be reviewed to include dhal (as weaning food) and iron rich food. 1.5 tonnes of dhal required for the next six months. This will add \$0.3 million monthly to the food bill;
- Over 70% damages to all food crop throughout drought affected areas; irrigation will be required to establish crops in current situation. An immediate minimum requirement for 3 tonnes assorted vegetable seeds and 100 small pumps (2 to 3 inch) with pipes and fittings for lifting irrigation water required by the 30,000 farmers affected (100gm/farmer); to be operated from locality group pools. Total estimated cost F\$ 100,000 equipment; \$30,000 seeds; \$170,000 agro-inputs;
- At least 15,000 farm families had zero total income in the last nine months through damages to agriculture sector and will not earn income for the next six months. Their most urgent pressing need is cash assistance to meet basic living needs for

family. They are on starvation diet as food ration equates to 17cents per meal per person or \$19 per week for a family of five, compared to a minimum low cost diet of \$68 per week for a family of five. It is recommended that Government makes welfare provisions of \$30 million for the next six months (\$2000 per family) for family support and school purchases in the new year;

- School children are missing schools due to economic hardships and lack of food. An estimated 10,000 school children are affected in the 90 schools present in Western and Northern Divisions, the worst affected regions. Assistance has reached 2,000, leaving 8,000 still in need. Funding to top up the activities of Save the Children Fund and the Fiji Red Cross in supplying food to schools and providing bus fares as needed is required. Government is recommended to launch public appeal with target of \$500,000 to support these two organisations finish off this year's activities and start new school year 1999;
- 137 schools not connected to the metered supply need water tanks installed (\$1.2 million), and school gardens established (\$0.3 million), to overcome severe impacts. A total cost of F\$1.5 million has been projected by FSP (Foundation for the Peoples of the South Pacific) working in consultation with Ministry of Education;
- Over 320,000 cattle and ruminants for drought work and meat supply and 22,000 single cow for home milk supply now starved of grass. Milk production dropped 50%. \$2.2 million required to set up molasses blocks feeding programme in an emergency programme drawn up by agriculture department to maintain current level of farm drought power animals essential for rehab work and for meat and milk production in drought affected areas;
- Government to provide \$260,000 this year to the Drainage Boards as the first of two year grants to clean up farm drains and creeks in sugar cane areas.

2.2 Possible areas for donor support

Table 1: Water and Sanitation

Areas of Need	Justification	Time Frame	Range of Support F\$	Remarks
School water tanks	Severe impact of water shortages on schools as closely monitored by FSP	12 months	1, 236,000	Refer to the Foundation for the Peoples of the South Pacific proposal (FSP, Fiji)
Ferro-cement water tanks for Viwa Island	Viwa islanders have ferro-cement skills, and a good record of community contribution. Unused roof catchments are plentiful.	24 months	25,000 to 50,000	Viwa is the worst hit of the Yasawa group with no alternative water source other rain water.
Solar trials distillation	Remote locations could save thousands in shipping with a sustainable method of desalination.	12 months	50,000 to 100,000	Solar distillation (as opposed to reverse osmosis) could prove cost effective and sustainable for emergency drinking water needs.
Water testing gear	Especially needed for monitoring of carted water and weak flowing pipes.	30 – 60 days	5,000 – 25,000	Chlorine "comparator type" testing gear required in each district (health Inspector and PWD water supply offices)

Table 2: Agriculture and The Community

Areas of Need	Justification	Time Frame	Budgetary Requirements	Remarks
Cash welfare assistance for 15,000 families totally reliant on devastated agriculture; to assist families meet basic daily needs and children's education.	Continuing acute economic hardship will total 15 months of zero income by May 1999. Impact of loss of revenue acute next year with reduced 1998 sugar returns.	To June 1999 when harvest season starts and when crop rehab programmes should be showing returns.	\$30 Million	Fiji to raise funds via public appeal; Loss to cane farmers \$73 million, total assistance to industry \$43 million; shortfall of \$30 million to farming community.
Clearing, re-shaping & general drainage maintenance. Prevent farm land flooding in coming wet/ cyclone season.	Farmers are not in position to pay annual drainage rates levied for drainage scheme maintenance.	24 months to October 2000.	\$260,000 for each of two year grant.	Figures provided by Agriculture, Secretariat to all Drainage Boards.
Urea molasses blocks to feed over 310,000 cattle.	Fodder has dried up. To maintain stock level for farm work and milk source	1999	\$2.4 Million	\$0.2 Million government share of costs. Refer Agriculture Rehabilitation Programme.
Establish quick crops under simple irrigation (cart & carry water) for food security	To dry to plant vegetables and staple root crops.	Nov. 1998 through whole of 1999.	Initial assistance \$200,000 .	Pumps, fittings & seeds required. Refer Agriculture Rehabilitation Programme.
Special crop production in Central Division.	Establish national food stock to feed west and north.	1999	Initial assistance \$200,000 on planting material and agro inputs.	Refer to agriculture department proposals to Cabinet.
Irrigate sugar cane	Cane needs > 100mm/month rainfall.	Immediate	\$20,000 for 2-month's technical assistance	water resources irrigation specialist to undertake feasibility and design.
Evaluate value of ENSO forecasts; identify support needed at Met. and in departments.	No preparedness measure was done by anyone. Most people did not know of drought forecasts.	November to December 1998		\$10,000 cost share to include Fiji in a similar project for PICs now been under-taken by University of Hawaii.
Vulnerability Assessment Studies	No mitigation measures planned despite six natural disasters in last six years	12 months 1999	\$250,000	Consultancy study to assess vulnerability and determine mitigation measures; co-ordinated through UNDMP-SPO.
School gardens	Schools needed special attention over next year when the rural economy is down.	1999	250,000	Refer FSP/Education Project Proposal.

Table 3: Food, Health and Nutrition

Areas of Need	Justification	Time Frame	Budgetary Requirement	Remarks
Continuation of ration distribution to affected households	No significant improvements in household food security are expected to occur within the next 4 months Determinants: Income, Food supply,	November 1998 - February 1999	Monthly expenditure to date - F\$ 999,989	Based on information provided by the Controller of Government supplies
Inclusion of a weaning food (dhal) in the rations	Infants of weaning age are showing increases in malnutrition rates	November 1998 - February 1999	Monthly costs for 54,528 Households =F\$ 359,405	Based on 7 kg dhal per household (F\$ 23,54 per 25 kg bag); costs can be reduced by targeting on most affected households
Initiation of Milk Feeding Programme at Health Center level under MOH	Increased rates of malnutrition amongst preschoolers	As of January 1999	to be determined by MOH	Based on resolutions of the 1998 National Health Conference
National Awareness Campaign on Anaemia (focusing on women of childbearing age)	Anaemia rates amongst pregnant women have reached 69% in drought affected areas	January - July 1999	≈ F\$ 30,000	see p. 6 for more details
Micronutrient specialist to assist the Ministry of Health / Government of Fiji in identifying a medium-long term solution to anaemia	Anaemia is a long standing deficiency amongst all women in Fiji (32% prevalence nationwide) - with detrimental effects on infant and maternal health, productivity	short term consultancy in 1999	?	Issues on Food fortification : - vehicle - standards - technology - legislation
Promotion of backyard gardening through provision of an appropriate seed package	Micronutrient deficiencies are on the rise; consumption of fresh vegetables is minimal due to reduced access of vulnerable Households	As of November 1998	see NCHP/ Eat better for less proposal	
School garden rehabilitation (root crops & vegetables)	School meals are of inferior quality relying on flour and rice as staple foods. There is a need for encouraging consumption of root crops and vegetables.	As of November 1998	see KANA/FSP proposal	

3. EMERGENCY MANAGEMENT AND COORDINATION

3.1 National Situation

The team conducted its assessment on the premise and clear understanding that the primary responsibility for all aspects of Emergency Management rests with the Fiji Government. – as provided for in the recently enacted ‘Natural Disaster Management Act 1998’. This includes planning and implementing long term risk reduction and preparedness measures, planning and administering relief and rehabilitation operation, requesting international assistance and the co-ordination of all emergency relief assistance programmes, both nationally and internationally.

Fiji has a well-established disaster management system which is serviced by the Ministry of Regional Development and Multi-Ethnic Affairs. The disaster management structure for the country extends as far as district level but it is the community level organisation that needs strengthening. On some major islands like Vanuabalavu, although several key agencies are present on the island, no emergency management structure has been put in place. This is a major cause for concern since emergency response and relief can only operate effectively and efficiently if the appropriate structure were established and functional. It would be helpful if the disaster management structure were to go as far as village level. The establishment of Village Disaster Plan would ensure that response to disaster is carried out in an organised and systematic manner. Ongoing education and awareness programme and training of the village community would ensure the sustainability of the disaster management system. This should be established on the premise that in order for such a programme to be successful, it has to be self- perpetuating and it is the villagers themselves who will have to be responsible for carrying out the required activities.

Inter and intra agency co-ordination and information exchange was generally lacking although there were common problems to address and resolve. Departments however continued to carry out routine operations and typically no monitoring mechanisms were put in place specifically to deal with the drought emergency. The absence of laid down policy and procedures to address issues such as quarantine requirements for food aid and other areas of concern is a major cause of concern that should be given immediate attention. It is evident that a national drought monitoring mechanism should be established which would be an integral part of a National Drought Contingency Plan for the country. Information exchange and collaboration amongst NGOs and between NGOs and government, particularly the latter was lacking at national level. This seemed to work to some extent at the field level. NGOs forming their own focus group would ensure close collaboration amongst NGOs and better co-ordination and networking between NGOs and Government.

The team noted that whilst the Government is considering implementing preparedness and mitigation programmes, its ability to administer and co-ordinate emergency relief assistance programme needs considerable strengthening. A reason put forward was because droughts are slow onset disasters their impact tend to be underestimated and community and agencies’ responses to them also tend to be delayed, time consuming and therefore add and contribute to considerable hardships. Emergency food and relief distributions in the field were conducted in an uncoordinated approach with NGOs strongly focussed on their own target areas to be assisted. Apart from the Fiji Government Emergency Water and Food Relief Assistance, other relief assistance – rations, water, and funds for bus fares and lunches for school children – were collected (by public appeals and donations etc.)

and distributed independently by the Fiji Red Cross, Save the Childrens Fund, Bayly Welfare, Church Groups, Trade Unions, the Rotary Clubs and private individuals. This is cause for concern as the Government, the Non-Government Organisations and the public are not co-ordinating their valued efforts, time and energy, some of which will not last for long as funds, aid and donation run dry. It is planned that NDMO programmes and workshops designed to increase public awareness of the new Natural Disaster Management Act would help strengthen coordination in future events.

3.2 International Assistance

Foreign Affairs expressed the need to strengthen co-ordination of donor assistance channelled through Government and NGOs.

International assistance received so far included:

The United States provided to Fiji Red Cross, 200,000 Humanitarian Daily Ration (HDR) packs worth US\$500,000.

Japan donated cash in the tune of F\$124,000 to Red Cross for food aid. Further assistance is awaited from Australia (A\$200,000) and the People's Republic of China (rice worth F\$500,000) Taiwan contributed US\$30,000. United Nations Office for the Co-ordination of Humanitarian Affairs (UNOCHA) has allocated an emergency grant of US\$30,000. UNOCHA through the deployment of the United nations Disaster Assessment and Co-ordination (UNDAC) Team also supported the assessment of the key sectors and NGOs, and the co-ordination and analysis of information to enable better planning for further relief needs as well as for medium and long term recovery/rehabilitation needs. The Norwegian Government contributed cash grant of US\$19,400. Food and Agriculture Organisation (FAO) sent an official to assess the drought situation and to identify needs for international disaster relief assistance, particularly in the area of agriculture.

There is indication that the World Food Program (WFP) might be able to assist, subject to availability of donors who can provide funds.

4. RURAL WATER SUPPLY SITUATION AND NEEDS

4.1 Situation

Water supply for human health and hygiene was repeatedly stated to be the key concern across sectors, especially including education where impacts of essential water are sharply evident (see 7.2). Areas of the country most affected are nearly all of the Western Division, Northern Vanua Levu in the Northern Division and many of the islands of the Yasawa, Mamanuca, Lau, Macuata and Lomaiviti Groups.

Country wide more than F\$1m dollars have been spent to deliver emergency supplies to rural individuals, schools and communities since January 1998. Hauling or 'carting' of water by truck or by sea continues to be requested at a cost of more than F\$188,000 per month. Still, needful communities still wait for the first

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emergency delivery. Buliya Island in Kadavu is an example. Rainwater is the only source of fresh water for Buliya's 135 residents - and it is prudently rationed - yet it could be much more effectively harvested through action, mostly by the residents themselves. Rains are providing some relief in most areas, but unfortunately the capacity to store rainwater harvest is small - tanks are very few given the expanse of metal rooftops available. The loss is especially obvious for schools across Fiji where even guttering often exists only to channel rainwater to waste.

Ground water has proven a valuable resource, especially in the Western Viti Levu and Northern Vanua Levu areas where the vast majority of all Fiji's boreholes are found. Some bores have failed, but more often boreholes provide the only resource in a rural community. Fresh water aquifers have much to offer for scattered rural households, farms and communities though drawing water to feed larger urban systems is more the threat to ground water. Master plans are in place which maximise surface water for Sigatoka, Nadi/Lautoka, Ba, Tavua and Rakiraki for example. The extensive collection of hydrogeological information available in the form of reports and studies by the Mineral Resources Division (MRD) is encouraging. MRD's own investigations are on file for more than 55 islands in Fiji, often investigations left protected test boreholes in place. The capacity of the Public Works Department and of the beneficiary community to pay its requirement to implement water supply schemes is clearly lagging. Funding to bolster PWD implementation capacity would be well spent.

In some urban areas, Nadi/Lautoka in particular, water is carted at great expense to PWD's metered customers, again due to under-development of the water supply delivery infrastructure. The lack of water at the source is not to blame. The resources used draw away from those called upon to serve rural non-metered communities. The observed trucking and shipping by PWD of emergency water - using Department of Regional Development funding and Marine Department support if by sea - while expensive is justified; meaning the Commissioner's who order those deliveries appear to have screened those requests against appropriate criteria. Rationing was observed to be practised effectively by recipients of emergency supplies. Islands in particular, eg Viwa, Vatulele, Dravuni and Lau Group islands ration according to circumstances from as little as 2 buckets (16 litres) per family per week

Water quality monitoring by the Ministry of Health (MOH) is in place. In Western Division where both the drought impact and monitoring are greatest, more than a third of drinking water samples collected proved bacteriologically unsafe for consumption. Thirty percent of those were in fact from PWD treated, piped water supplies. Follow-up on unsatisfactory results is generally lacking as observed. Coordination among the funding and authorising agency (MRD) the supplier (PWD) and the quality monitoring (MOH) is lacking. Guidelines are needed for respective sectors to follow. For example, chlorination is a key safeguard for piped water and has a special role in emergency carted water, yet chlorine monitoring is not widely practised.

Toilets of cistern or pour flush design decreased substantially in the Western Division where use of pit latrines almost doubled while shared use also increased []. Poor quality water was observed in homes to be enough for toilet flushing. In schools, however, observed new construction of pit latrines has been prudent. Schools are especially likely venues for disease transmission. Excreta disposal must be maintained to high standards as rains may encourage the transmission of disease while safe water for hygiene will still remain scarce.

Solid waste is a problem about to create health impacts almost everywhere, especially villages, settlements and schools. Increased use of plastic and tin

containers is one factor in areas where packaged foods were not previously relied upon. Mosquitoes will be an almost instant problem when first rains arrive.

Although very expensive, continued financing should be provided by Government (with donor support as required) for hauling or shipping of emergency water to clients meeting established criteria of need. Examples are Viwa Island in the Yasawas and Vanuavatu in Lau where drought leaves no alternative to delivered water. Also examples of deserving under existing criteria are individual farmers and rural households in Western Division in particular which have no alternative source.

Wherever possible - as determined by the responsible local Public Works Department official - requirements for trucked or shipped water supply should be reduced by provision of rain water catchment systems. Use of the emergency water delivery funds for this purpose should be considered.

Improved procedures for **bacteriological monitoring** by Health Authorities **to ensure follow up** to identify and rectify the source of the contamination - **not to just report** the contamination. Guidance via sample sanitary inspection forms (Annex 2, Vol III, WHO Drinking Water Guidelines [3]) should be provided to all water supply health inspectors in the country.

Public advisories to boil emergency deliveries of water are prudent and should be maintained as part of each water delivery (unless a residual chlorine level of 0.2mg/l or higher is confirmed for the delivered water.)

Provision by PWD of standardised **detailed records of delivery of emergency water** supplies to Divisional Commissioners and then from Commissioners on to Ministry of Regional Development, without subtraction of detail, to reassure and encourage re-financing (including from donor sources) as needed.

Chlorine residual monitoring equipment (e.g. 'Lovibond' or 'Palintest' comparitors using standard DPD-1 tablets) is an absolute requirement for all districts, both Health monitors and PWD suppliers. Essential chlorine residuals (WHO minimum of 0.2 at the point of consumption [4]) cannot be managed by dosing without monitoring.

Chlorination of carted water should be maintained at 2.0 mg/l residual chlorine if the water is drawn from a non-treated source. Even chlorinated urban sources should have chlorine 'topped-up' to 1.0 mg/l to ensure a minimum chlorine residual of 0.2 by the time the water is consumed.

Water quality monitoring of the chlorine residual in small and large urban systems by health authorities (in addition self checks by the PWD water supply section) is inadequate. 'Nil' or 'trace' readings for free chlorine residual were common at various points in Tavua, Rakiraki, Vunisea, Lakeba, Dreketi, Seqaqa and other systems country-wide. This is especially undesirable when the 'off and on' pressure on the piped supplies increases contamination risks.

Country-wide promotion and support for rainwater catchments schemes, especially for schools, and especially in those areas proving most in need of carting via urgent government or donor support and within the one-third/two-third" scheme.

Serious financial support for an expanded '**Bore Hole Subsidy Scheme**' including as may be deemed appropriate, an increase of the \$1,000.00 maximum subsidy (while maintaining the 50% maximum of the commissioned bore including the pump

but excluding surface delivery piping) to \$2,000.00 to reflect the increased cost of developing a bore.

Only a half-dozen private well-drilling concerns are in operation country-wide. The expansion of the borehole subsidy scheme and the similar “one-third /two-thirds rural water supply support scheme should be done with a view to encourage private sector drilling capacity to grow. A government budgetary commitment over 3 to 5 years should be established.

Promotion of the PWD rural water supply “one-third/two-thirds” scheme already in place by clarification of the policies and steps in the process and with particular emphasis on the **village ownership and obligation to maintain**

systems under the scheme; repair of guttering of roof-catchments by beneficiaries is the most obvious example of village obligations not being clear.

While severe water shortages in urban areas are not all directly drought-related (eg the Nadi/Lautoka scheme shortfall is not due to drought) Government should nevertheless urgently seek to fast-track the implementation of its urban water supply master plans, particularly the number of recently developed master plans for the Western Division (referenced).

Good hydrogeological studies are already on file. District level officials have little confidence in interpreting actions to take. **MRD should conduct training or seminars** to help decision-makers interpret MRD hydrogeological studies at the district level to know how to apply the various maps and data to the selection of the best water supply system.

Desalination of the high-energy, high maintenance variety like reverse-osmosis should not be expected to provide fresh water needs, except in very special cases like up-scale resorts or on ships where engineers are available full time and high costs are bearable. Ship-board desalination as found on Navy vessels may have application for remote, emergency deliveries and should be considered.

Solar distillation (evaporation and condensation of seawater) should be considered for trials on remote islands where minimal quantities of drinking water (e.g. 150 litres per day for a community) could save costly fresh water deliveries. Donor or NGO support should be sought in such trials with solar distillation.

Pit latrines, specifically ventilated improved pit latrines or ‘VIP Latrines’ should be promoted where drought has made flush or water-seal toilets impractical.

Solid waste pits and improved drainage should be provided for urgently, especially while dry weather persists. The rainy season will create mosquito breeding if widely observed rubbish and unclean drains are not connected at schools, villages and settlements across Fiji.

Government
assisted
borehole
project,
Tavua.



4.2 Specific Findings by Division

4.2.1 Eastern Division

- Numerous MRD hydrogeological reports are on file. Examples are listed as references. For most Lau and Lomaiviti islands hydrogeological investigations have been undertaken, and bores established; PWD lags due to limited capacity, to implement water supply projects on the islands. The Roko Tui, Lau, is generally aware and in possession of MRD investigation reports for Lau Group Islands.
- Lakeba Island is self sufficient for water with adequate borehole back-up of the diminished surface source (1 litre/sec on 18 October 1998).
- Lakeba Islands bores in Sosoicake and Yadrana may have reserve to supply outer island of Lau, though MRD expertise should establish safe pumping rates. Monitoring boreholes (sale "guard" holes eg observation borehole no, 86/3, Wainiyabia) are already in place for this purpose.
- In Vanua Balavu, the source of water for shipping to other Lau Group islands, the water supply at the chlorination shed is possibly affected by diesel fuel and motor operations.

4.2.2 Northern Division

- The groundwater study completed in November 1997 under French-Fiji cooperation established at least 13 bores as part of investigations in the areas around Labasa. Only some of these bores were put in service. Interaction with the local PWD water section with members of the French-Fiji team was not established until field work was completed.
- Average cost to develop a borehole (drilling, testing and casing with no pump provided) in Northern Division is F\$3500. Only one private drilling company is known by PWD (Northern) to be operating in Northern Division. The company rig is currently (Oct 98) broken down.
- Trucking of emergency water relief began in Northern Division in August 1998 with 3 or 4 PWD trucks.
- Labasa Town's metered water supply is coping through management of the diminishing catchment. Supplementary water from adjacent catchment has been pumped with positive results.
- Carting of emergency supplies of water to non-metered rural schools and communities is necessary and justified. The amount of the expenditure is relatively small at \$30,000.00(?).
- In some cases the funds managed by the Commissioner Northern, were used to provide tanks and guttering (eg. Dreketi Secondary School) in lieu of carted water with very positive results.
- Emergency supplies of carted water are filled from the Labasa Town supply which due to chlorine is safer. Chlorine levels are not however maintained at the higher concentrations (90.5-1.0 mg/l) advisable for emergency supplies.
- Schools, villages and settlements in the Bua and Macuata Districts which were visited, make scant use of rainwater collection even through metal roofing and often guttering is found everywhere. Roof catchment systems would alleviate much of the requirements for trucking of water - currently from Labasa more than one hour's drive.

- Water quality monitoring for chlorine residual (in treated supplies) and for E-coli bacteria (in untreated supplies) could be expanded to include carted water monitoring as well.

4.2.3 *Western Division*

- The Western Division (more than Northern or Eastern) has the burden of carting emergency water to both metered (urban and peri-urban) and non-metered (rural villages or settlements or individual households) clients. The cost was F\$511,041 (or F\$47 per 1000 gallons) to mid -September 1998 for metered clients, those most accessible.
- The supply of emergency water to metered customers in Nadi/Lautoka is not related to the drought. The Vaturu Reservoir supply is more than adequate. Twice the water demand for Nadi and Lautoka is available. The over-extension of the piped water grid without the required engineering in the late 80's and early 90's is to blame. The new parallel trunk main from the reservoir, and other engineered upgrades in keeping with more recently commissioned water supply master plans will improve supply from early '99.
- The borehole subsidy scheme provided 30 boreholes serving 675 households in the Tavua/Rakiraki area from 1993 to May 1998 at an average cost of F\$937 per household.
- Roof catchment are few. This is especially obvious at schools where large areas of metal roof tops, often guttered, channel rainwater to waste. Considerable relief on the over burdened Nadi/Lautoka water supply grid, the most obvious example, could be realised. Important to note is that this grid will remain under stress **after the drought** eases because of the capacity of the water mains (not the short supply of water) to metered customers.
- Water quality monitoring of the chlorine residual in small and large urban systems by health authorities (in addition self checks by the PWD water supply section) is inadequate. 'Nil' or 'trace' readings for free chlorine residual were common at various points in Nadi, Lautoka, Ba, Tavua and Rakiraki. This is especially undesirable when the 'off and on' pressure on the piped supplies increases contamination risks.
- Carted emergency water supplies to both metered and non-metered clients were, in some instances, taken from non-chlorinated sources, even from rivers. Health impacts were documented in at least one case by the Divisional Medical Officer. Health Inspectors who do report contaminated village supplies have not always taken action to identify the source of the contamination and correct the problem.
- No health facilities have closed in the Western Division due to lack of water.

4.3 Needs and Recommendations

4.3.1 *Western Division*

- Rainwater catchment systems should be designed for the worst affected island in the Yasawa Group, Viwa Island. The islanders' interest for ferro-cement tanks should be addressed with a project design based on local contribution in cash and kind towards at least 100,000 litres in household water storage.

- While much less severe with shallow wells to resort to, Vatulele Island has equal enthusiasm for ferro-cement rainwater tanks plus a skilled force from a previous project. Vatulele Island should also be considered for donor funding of a ferro-cement water tank project.
- Vatukola Gold Mine should properly treat, including chlorination, any and all water supplied that may be used for human consumption by its staff and others.

4.3.2 *Eastern/Central*

- Lakeba Island's pumped water from boreholes should be considered for emergency supply to Southern Lau Group. An MRD analysis of the impacts of the extra demand considering risks (especially saline intrusion to the Lakeba island aquifer) and providing guidelines for pumping and management should be completed as soon as possible.
- Lakeba Island's chlorination system should be re-operationalised with PWD support to treat the surface source water in particular. Even though levels of flow are said to be too low to chlorinate, the requirement is more serious than ever, given the low flows, the off and on'pressure and the possibility of carting or shipping off-island.
- Buliya Island (North of Kadavu) should receive emergency water and guttering for repairs under the 1/3 –7/3 scheme in lieu of further deliveries. Dravuni Island has a functioning borehole. Dravuni should also take initiative to repair their guttering.

Drought -stricken areas need not include Tailevu, Naitasiri, Rewa, Serua and other eastern Viti Levu areas where rain is less scarce but water carting remains an annual exercise. Beneficiaries of water deliveries to Central Division (non-metered rural household or community supplies) should be provided appropriate incentives and encouragement to take advantage of existing rural development programmes to establish reliable household or community water supplies.

5. AGRICULTURE

5.1 Situation

The El Nino induced drought of 1997/98 is the latest in a series of six natural disasters that hit Fiji in the last six years.

Sadly in none of these events was any post-disaster mitigation initiatives planned, except perhaps possibly river dredging, to reduce the sector and farmers' vulnerability to these natural disasters. Re-planting and crop extension were undertaken under rehabilitation programme. Without incorporating mitigation planning, vulnerability has increased as development is still pushed through from central government.

There were three main sub-sectors assessed in the Agriculture Sector:

- (1) Sugar-cane
- (2) Agricultural crops and Natural Forests
- (3) Commercial Forests.

Damage to Fisheries was not assessed being considered negligible but this sub sector is important as a major source of resources for supplementing food and income. It requires that Government develop appropriate policies and development framework so that exploitation of this sub-sector has greater chance to be sustainable.

The four sub-sectors are seen to be working in tandem and implementing agencies must interact more in development planning.

5.1.1 Sugarcane Sub sector

The sugarcane sub sector is long industrialised and has good reports and analysed data. Most of the stakeholders were consulted; FSC headquarters, mill management, field advisers, farmer representative organisations.

Over the disasters of the past four years, area under cane has varied between 73,300 to 74,300 Ha with cane production varying between 3.3 Million tonnes to 4.4 Million tonnes.

In 1998 the industry has estimated a national average yield of 45.7 Tonne/hectare (T/Ha) and an annual production of 4 million tonnes from the total area planted of about 70,400 Ha. Estimated harvestable area is 53,100 Ha with 17, 300 Ha areas lost.

In terms of 1998 production, May forecast is for 2.5 Million tonne with a loss of 1.5 Million tonne representing a loss in revenue to the industry of F\$104 Million. The lost in production is actually spread between the 17,300 area lost and yield losses from within harvested areas affected by drought.

5.1.1.1 Area Affected

Sugarcane areas are well defined in Fiji, grown on the leeward Western halves of the two main islands of Viti Levu and Vanua Levu. There are four sugar mills supplied with cane from (10) districts divided into (40) sectors.

Table 1 represents sectors in each district having area losses of greater than 30%.

5.1.1.2 Impacts

- **Marginal Lands**

Within the sugarcane belt the area worst affected (Table 4) are the marginal lands closest to the sea and those planted on slopes twelve degrees and greater, not suitable for cultivation and where sugarcane cropping is most vulnerable to the weather. Average yields from these marginal lands are much less than the national average. Fiji must ask itself whether to accept these losses year in and out. These farmers face chronic indebtedness, which has been made worse by the drought.

- **Economic Hardships**

The loss in production is also felt on good soil that in normal years have actually yields above twice the national average. Each grower including his own family has farm-dependent families totally reliant on the success of the grower. In Viti Levu generally more growers sons and daughters move on to non-farm occupation. As a result there is a relatively larger number of farm dependent families replacing family labour. For the 12,000 growers surveyed by Government, there are 16, 800 farm dependent families. In Vanua Levu family labour is strong on the farm. From the 5,500 growers surveyed there are only 3,000 farm dependent families. Each farm dependent family has about 3 to 5 people.

These farm dependent families and cane cutters average \$3000 annual income but have access to house and small land for home garden. Even with access to these other qualities, they border on the poverty threshold for Fiji pegged at an equivalent

\$5000 annual income. During the drought, income was drastically reduced to \$1,500 and below.

For small growers, the cut-off threshold for FSC food advance is yields greater than 30 tonnes - \$2,100 for 1998 crop. The Northern Division has a criterion to supply food ration to cane farmers only if production is < 30 tonnes. Poverty threshold in Fiji is pegged at \$4000 - \$5000 equivalent annual incomes. How do we define the appropriate criteria for food assistance? This drought has increased acute poverty with more people going into poverty bracket. Poor people, not only are they more exposed, they are also less able to cope. Based on pre-drought farm labour average cash earning of \$3,500 /annum it is suggested that all growers yielding < 50 tonnes (\$3,500 for 1998 crop – and with no other sources of income) receive rations. In addition the families to be supplied with seeds and vegetable planting material to supplement the ration.

Similar standard criteria should be set for the non-cane farmers. In the West there are currently 20,600 non-cane households (40%) to receive rations. The agriculture report notes only half this number of affected subsistence root crop growers and vegetable suppliers.

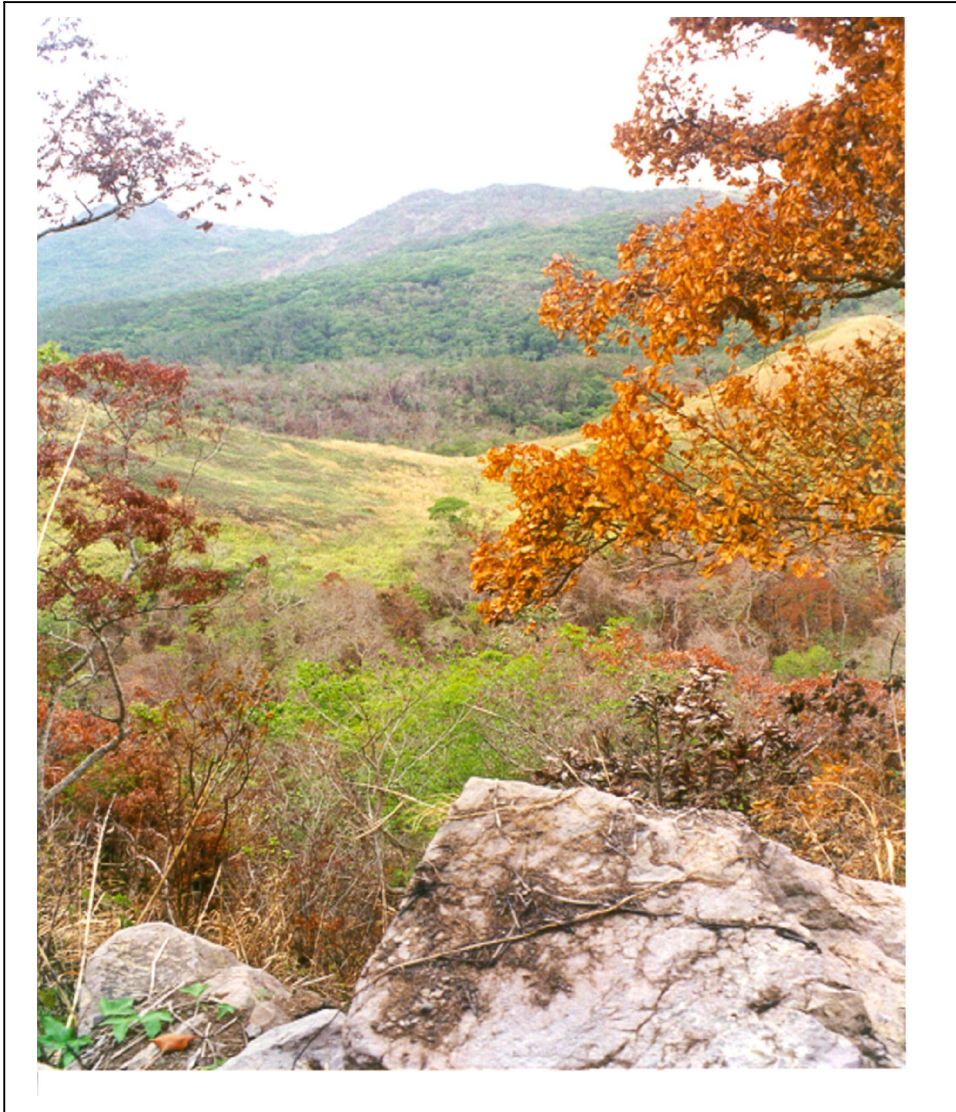
Total of farm dependent families is 19,800 (16,800 on Viti Levu and 3,000 Vanua Levu) and total of growers with below 50 Tonne production is 12,500 (10,548 Viti Levu and 1941 Vanua Levu). The specified farm dependent families are to continue receiving food assistance until farm activities pick up to re-employ them again.

The Crop Rehabilitation Programme (CRP) is well structured and has started from late September. However the spread of benefit is not reaching the vulnerable groups, the farm labourers. FSC estimates the cost to establish one hectare as \$1228 and actual labour cost is \$75/hectare or 6%. The rest goes to inputs: - land preparation 26% (\$315/ha); seed cane 37% (\$450/ha); fertilisers 27% (\$333) and weedicide 4% (\$55). The good growers can take advantage of it better than the badly affected growers. This is linked to their capacity to access funds and resources to participate in the CRP. Demand for farm labour will start early in Viti Levu, from about November and in Vanua Levu about February in the later stages of cultivation. This during weeding and hoeing where often demand is beyond capacity of family labour pool. There has to be some fiscal and economic intervention until farm incomes are back to normal. This to keep the large number of 19,800 farm dependent families away from sliding into the worse situation of absolute poverty.

The current policy of FSC to encourage backyard gardening is applauded as this not only translates to savings on expenditure but also gives a window for promoting good health and nutritional balanced diet.

- Fire Risk

Most fires lit in this drought went out of control due to ignorance of higher fire risk in weather as this. There is no fire "risk indexing" system. Higher risks are with the slope farmers as it's coupled with close planting into proximity with Pine plantations. In quest to maximise production, cane fields border onto residential houses. Stipulating non-cane border strips say 30 to 50 meter wide around the house is a good idea to reduce fire risks. This will also allow more room for vegetable gardening and fruit tress.



Steep hill and cultivation, burning and bush fires increase vulnerability to drought and chronic indebtedness.

Table 4: Sugarcane District / Sectors > 30% Area Losses

Lautoka Mill District	Sector Area Loss	Area Loss Ha	% of Total Sector Area
Lautoka (total six sectors)	Drasa	850	35
	Saweni	320	30
Nadi (total 7 sectors)	Yako	702	44
	Malolo	1122	56
	Nawaicoba	1168	58
Sigatoka (total three sectors)	Lomawai	690	35
	Cuvu	1000	58
	Olosara	715	66
Rarawai Mill District (Ba)			
Rarawai (total eight sectors)	Veisaru	800	37
	Varavu	1380	69
Tavua (total 3 sectors)	Tagitagi	1220	63
	Drumasi	1455	61
	Yalodro	630	39
Penang Mill (Rakiraki)			
Penang (total 4 sectors)	Nanuku	896	62
Labasa Mill			
Labasa (eight sectors)	FSC		

Source: FSC

Though FSC did not forecast any Labasa sector with area loss greater than 30%, updated review of both FSC and SGCC revealed affected sectors at Bucaisau, Wainikoro, and Seqqaq with production losses about 30%.

5.1.1.3 Needs in Sugarcane Areas

- Food and water relief to continue at least for the next three months to those in need. Food relief criteria to be reviewed. In the shortfall from supplementary farm income and food sources good criteria for assistance are:
 - a) to growers with less than 50 tonnes and without other source of income
 - b) to all farm dependent families and be closely monitored as farm work demands increase.
- To discontinue sugar-cane planting on steep land in line with good land use recommendation and practices.
- To introduce irrigation, intensify production on flat land and diversify other uses on sloping land as perennial fruit orchards and or pastures. With irrigation, yield can be increased at least 30 - 40 % meaning just 62,500 to 66,700 Ha of irrigated cane. Irrigation may not reach all the 66,700 Ha. In reality the flat land average yield of 60 - 70 Tonnes/ha is much more than the national average and under

irrigation increases to 80-90 T/Ha. Hence only 40-45,000 Hectare under irrigation will produce the 4 million national requirements. The added benefit is that irrigation frees the usage of sloping land to more sustainable, land friendly use.

- Drainage maintenance in sugar cane areas are funded from levies to farmers. Farmers will not be pay rates for this year and perhaps the next two years. Some means of relief can be provided to farmers through waiving of drainage rates. But drains need clearing. The Director, Lands & Water Resources Management Division as Secretariat to the Drainage Boards has costed F\$180,000 to maintain and administer the 39 Drainage Schemes in Western Division and F\$80,000 for the 12 Drainage Schemes under the Labasa Drainage Board.
- Agriculture crop rehabilitation strategies to prioritise supply of seeds to these more vulnerable sector and link it with supply of rations on a food for labour basis.
- Access to credit. It is fortuitous that government is putting together at the time of this study a communique on microfinancing and strategies for implementation. This deserves operational support for immediate implementation.

5.1.2 Agriculture And Natural Forests - (to be read together with the attached assessment of Angus Graham, FAO)

Agricultural pursuit by Fiji is two pronged. One pursues food security programmes and the other commercial development of a selected number of high value commodities. Both these address the rural subsistence farmers and their needs. Subsistence agriculture is recognised under the national strategy/programme for sustainable growth as the second biggest component in agriculture behind sugar contributing 29% of the sector's 19% contribution to national GDP. This vibrant sub-sector supporting 85% of Fiji's people is now in dire financial difficulties and needs fiscal and economic intervention as is done to sugar industry (\$42.3 million) and other agriculture sub-component as Viti Corps (latest intervention \$8 million).

The special Commodity Development Framework (CDF) project was initiated by government two years back to reduce vulnerability of the subsistence, rural community by increasing their economic robustness. The drought has stricken areas under yaqona, dalo, coconut and pineapple.

The agriculture department started monitoring the drought impacts on food security from March of 1998. The October locality damage survey reports are now making demarcation on commodity differences between crops for home consumption, domestic market and export market. It consequently has a lot of data desegregated down to village and settlement level. From these damage survey reports it is now apparent in hindsight that not the same awareness on preparedness was put on CDF crops as was put in monitoring food security impacts. New planting was still being pushed through the second and third quarters. A recent estimate by the Director for Agriculture Extension has put a preliminary revenue loss of \$15.0 Million. Most of the crop area/revenue losses in Vanua Levu were from new planting. The absence of drought rating classification and indicator monitoring systems has to be a lesson learnt from this drought.

The only operational irrigated agriculture are the pumped borehole sprinkler irrigation schemes in Sigatoka, the pumped micro-jet systems for citrus in Batiri (Vanua Levu) and the gravity fed rice irrigation schemes of Navua in Viti levu and those adjoining the Bua- Macuata borders in Vanua Levu. All other agriculture is rain fed.

5.1.2.1 Area Affected

The drought extended outside the sugarcane areas and generally progressed north southwards along a north west route. The whole of Cakaudrove and wetter zones of Bua were experiencing the beginnings of agricultural drought when rain started again in late September. Lomaiviti and Lau groups to the east of Fiji were lately experiencing the drought too but not to the same severity as the longer affected west and north regions. Central Viti Levu and its southern coastal belt in the rain shadowed, windward side of Viti Levu remained relatively unaffected and were supplying local food to drought stricken areas.

5.1.2.2 Impacts.

Assorted vegetables and pulses, some kumala and rain fed rice are normally the only crops grown for food within the sugarcane belt. These were completely devastated where affected by the long drought on both islands. Export vegetables fared better under irrigation in Sigatoka but irrigated area was reduced due to salinity of sourced water. The outer islands swinging from west of Lautoka, to west and north of Labasa and around to the east of Savusavu had subsistence root crop damage from over 50% to complete loss. With the exception of Taveuni all these outer islands predominantly grow for home consumption with surplus to domestic market. (see Annex: Area Crop Damage).

As the season for maturity passed in June/July and no new plantings were possible, food self sufficiency and capacity to propagate planting material within the affected sector is now negligible.

Fire was also a secondary hazard contributing to 40% of cultivated crop damages in badly affected areas of Tunuloa, Navatu and Natewa. On both sides of Natewa bay it was observed that close to 10% of the natural forests were damaged from fires set by people. As a source of traditional root crops, vegetables and fruit nuts these events will only exacerbate the difficulties from drought damages and will affect the income, food supply and capacity of rural people to fully participate in crop rehabilitation programme. It is imperative that recovery and rehabilitation be well strategised. Formulation should go down to village/community level to address their needs and provide amenities to improve capacities.

Stock drought animals need special attention for supply of stockfeed. In sugarcane sector many were low on green feed and a large number surviving on brown sugar cane leaves.

5.1.2.3 National Response

The agriculture department has since May approved a rehabilitation programme starting with establishing food security in the earlier impacted Western Division. This rehabilitation programme is now being reviewed and expanded under new information from the October survey to address the CDF crops. At present some planting materials and seed are stocked on farms in Central Division of Viti Levu and in selected safe localities in Vanua Levu.

However these now established farm nurseries are vulnerable to cyclone and flood damage so other fall back options have to be explored. This aspect of response was initiated more as fire fighting measure. It can only now be wholly strategised properly that the drought impacts seem to be levelling off. Not much can be done as agriculture waits for rain. Observation coupled with damage reports coming in indicate that planting material will be in short supply due to the large areas affected.

FSP Fiji has been working with boarding schools and schools for food production -137 schools were found to be unable to face severe difficulties. FSP needs support in its project to provide the schools with food production for the children to feed them for at least six months while their families are assisted by the government rehabilitation programme to re-establish their commercial crops and some household food production.

The Fiji Development Bank is currently reviewing all its clients in response to the drought and at the time of writing this report the results were not available. This involved review of individual client account and undertaking field assessments. This would provide the basis for determining the clients' achievement and ability to meet repayments or otherwise and the kind of assistance that the Bank could provide. Sugarcane clients totalling 3250 (as at May 1998) are presently being assisted through Government and Sugar Cane Growers Council financial and rehabilitation assistance. Further assistance by FDB would be done on a case by case merit.

Cash crop farmers in the northern, western and eastern divisions especially in the outer islands would feel the impact of the drought. Copra producers in Taveuni and Vanua Levu would suffer due to defoliated coconut trees. Yaqona in the northern division was not affected as it was planted in the normal yaqona growing areas. For the Central division so far there has not been any drought related complaint from clients although some Nausori and Naitasiri vegetable farmers have been affected by the drought. Generally livestock farmers would have depleted stock due to fodder and water problem. Fishermen would have a change in priority as they would be affected through loss of home garden whereby income would be directed at buying food for the family.

5.1.3 Commercial Forests

There are two separate commercial forests. Pine forests run by Fiji Pine Commission on commercial basis. Hardwood forests run by Department of Forestry. Both run in partnership with landowners as part of community development projects. They are not public companies.

Pine forests plantations are concentrated mostly in drought affected areas. The fire hazards are greatest when bordering sugarcane fields. Over the years these fires have caused big losses to both cane and pine. This year the instances and extent of fire was much more than before triggered by increased drought induced fuel material and dryness (absence of moisture) in the air. Young pine forests of eight years old in Rakiraki, being on thin topsoil above rocks, have died in this period. The Fiji Pine Commission has undertaken it's own inventory of damages but could not release information.

A survey of hardwood mahogany forests found mortality in plantations in this draught period of plants still weakened and stressed from the past cyclone and droughts. Re-establishment of dead plants requires \$80,000. (Annex)

5.1.3.1 Needs

- Link the food security programme planning and implementation in closer with National Food and Nutrition Committee,

Eight-yr old pine trees dying in the drought, Ra.

Middle ground, all newly planted <2yr old pine trees, heated from rock substrata, perished.



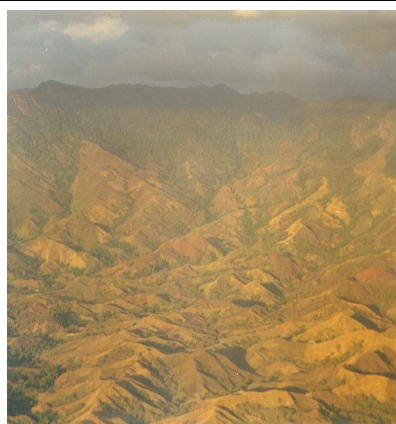
Ministry of Health to address the long term preventive measures for malnutrition and anaemia.

- Use CDF funds to support re-establish CDF crops.
- Funding to support food security rehabilitation.
- Source of planting materials to be properly assessed including site vulnerability and pest and disease issues as taro beetle and white fly. Tissue culture has to be seriously considered.
- Departmental disaster management plans to be prepared and mitigation planning incorporated. Establishment of databases to better monitor and plan preventive measures.
- CDF has huge future that it requires its own institutional infrastructure as is set up with the FSC and was set up with the Rice Programme. It needs focused research, marketing and corporate management institutions.
- Irrigation feasibility study to be extended and accelerated.
- Evaluate support needed to improve value of rainfall forecasting received at Met and disseminated to the country.
- Develop public education awareness programme to educate the community on fire hazards.
- Re-establish mahogany within plantations that eventually had plants dying in the drought following stress from recent disasters.
- Undertake vulnerability assessment to natural disasters of both Pine and Hardwood plantations.

5.1.3.2 Recommendation for Relief Assistance Agriculture Sector

- Ration to be continued and reviewed in February for the 12,000 growers producing less than 50 tonnes and all farm dependent families totalling - household.
- Vegetable seeds, pulse and root crop planting material to be secured for direct assistance to people issued with rations.

Cash assistance of F\$260,000 dollars be given to Drainage Boards to clear, clean and maintain the 51 sugar cane drainage schemes. This is imperative in light of the coming wet season to undertake planned maintenance work.



Nausori Highlands



Oct. 23, UN World Food Day in Savusavu

Salt farm, Drauni-ivi, Ra.
Urgent need to develop alternate ventures as Mariculture.



6. HEALTH AND NUTRITION

6.1 Situation

There appears to be no mortality directly related to the effects of drought, although several people have lost their lives in indirectly related events (carbon monoxide poisoning while digging wells). Judging by discussions held with divisional officials, analysis of existing data and own observations, the most affected area in Fiji appears to be the western division, followed by parts of the northern division and some outer islands like Viwa which are very limited in their own resources to cope with the effects of the drought.

Generally speaking, the current drought seems to have an exacerbating effect on previously existing malnutrition and micronutrient deficiencies. While there is no widespread severe malnutrition, data from affected areas suggests that nutritional deficiencies are on the rise in the western division.

A detailed assessment of the health and nutrition status in the Western division has been undertaken by the Divisional Medical Office Western under Dr. Narayan. Although the incidence of diarrhoeal diseases has generally been low, a steady increase in both adult and infantile diarrhoea has been observed over the first 3 quarters in 1998. This could be related to poor quality of water, which was found to be unsatisfactory in 37% of samples analysed by the DMO this year. One third of all

diarrhoeal cases were reported in the Tavua subdivision, in particular among persons of Indian ethnicity.

Surveys of a total of 1800 children under 5 years of age (U5) showed a shift towards the lower limits of the recommended weights for age. This means children, especially those under 18 months, were becoming lighter as the year progressed. U5 malnutrition was often associated with severe acute respiratory infections and diarrhoeal diseases. The possible role of Vitamin A deficiency is not known. The trend towards lower weights may also be related to a generally reduced dietary intake, and in particular a reduced availability and utilisation of appropriate weaning foods (examples: Fijian: mashed dalo, sweet potatoes, cassava; Indian: cereals & legume mixtures).

Assessments of weights and heights carried out amongst a total of 47 493 primary school students in the western division showed micronutrient deficiencies to be more frequent than in the previous two years. While 1998 rates of moderate (27%) and severe underweight (14 %) children are comparable to those of 1997, iron deficiency (as measured by clinical paleness) has risen more than tenfold in comparison to the past two years. This steep increase in iron deficiency could be related to effects of the drought at household level (failure of usual food production and income mechanisms) coupled with general economic difficulties in purchasing nutritionally valuable foods. Another possible contributing factor may be the changing excreta disposal methods leading to a rise in intestinal parasites, although current extent of helminth infection in children is not known. Field visits have however confirmed that lack of water has led to non-utilisation of water flushed toilets in some schools and villages.

Data from antenatal clinics in the western division suggests that pregnant women have also been increasingly affected by nutritional deficiencies this year. The rate of pregnancy related weight problems (underweight & static weight) jumped from 10% in the first quarter to 25 % in the second and third quarters. Similarly, the incidence of anaemia (<11 g/dl) has also risen from 61% in the first to 65% in the second, to 69% in the third quarter. For comparison, the 1993 National Nutrition Survey found a prevalence of 56 % amongst pregnant women. Among the possible causes, intestinal parasites have been found to be of low prevalence in pregnant women (MOH/DMO-Northern 1998; MOH/Chand 1996), inferring that findings are likely to be related to dietary intake. Anaemia may be the result of meals generally low in iron, as well as other micronutrients such as Vitamin C and Folic Acid promoting iron absorption. This may be compounded by a lowered intake of animal protein (a good source and promoter of iron absorption), as well as the widespread habit of consuming tea with meals (tea contains tannins which inhibits the absorption of iron). Surveys in 5 supermarkets in Lautoka in October 1998 found 4 out of 5 households purchasing nutritionally unbalanced food baskets and support the hypothesis that diets are a causal factor.

Anaemia is known to be directly related to risk of pre-term delivery and inadequate gestational weight gain and the severity of anaemia determines the risk of low birth weight (UNICEF/Gillespie, s. 1997, p.6). This association is also found in the Western division, where rates of low birth weights have significantly increased to 12.8% for the first three quarters in 1998. The most dramatic increase took place amongst the Indian population, where rates almost doubled from 12.4% (1997) to 22.9%, while Fijians only showed a slight increase from 4.3% to 5%.

Breastfeeding rates in the Western division are satisfactory, with about 3 out of 4 mothers breastfeeding exclusively up to the age of 6 months.

6.2 Recommendations and Potential Interventions

- Anaemia is a manifestation of a micronutrient deficiency, the magnitude of which has been exacerbated by effects of the current drought. Rates amongst pregnant women (55-69 %) suggest this a an issue of public health relevance. It is also becoming increasingly prevalent amongst school children. Therefore it is recommended that :
 - a) assistance in form of international micronutrient specialists be provided by UNICEF and/or WHO to assist the Government of Fiji in identifying and putting into place a medium to long term solution. This consultancy would need to carry out an in depth assessment of potential food fortification, i.e. based on a situation analysis decide what is the best vehicle for fortification, provide guidance on standards, technology and legislative issues. Preliminary steps (identification of potential consultants, resolutions made at the national health conference 1998) have taken place and these need to be advanced to a practical stage in 1999.
 - b) an iron deficiency / anaemia awareness campaign targeted at women of childbearing age be launched at national level. While awaiting food fortification, this campaign will aim to improve nutritional quality of diets by guiding consumers through well designed communications. Key messages will raise awareness on the negative consequences of anaemia in various everyday settings (from childbearing to work productivity), give pragmatic advice on inhibitors and promoters of iron absorption (which have a very important role in Fiji) and promote access to iron rich foods that are affordable and acceptable. In order to be effective, consumers will be reached through a variety of channels including the mass media, sports-events, workplaces, posters, stickers and well known spokespeople. This campaign falls under the objective "prevention and control of micronutrient deficiencies" of the Fiji Plan of Action for Nutrition (see below), and would be implemented under the joint auspices of the National Food and Nutrition Committee and the National Center for Health Promotion in 1999 should funding constraints be overcome.
- Availability of vegetables, green leaves and root crops is an important factor in addressing existing nutritional problems in the medium to long term. Households and schools should be encouraged to establish gardens when rains set in. Three approaches exist and should be supported: (1) rehabilitation of School Gardens (FSP Drought Rehabilitation Project); (2) provision of low income households with an appropriate seed package as proposed by the Eat Better for Less Campaign / NCHP; (3) Special Replanting Programme (MAFF, FAO). Furthermore the utilisation of existing food sources, such as fruit trees, needs to be maximised.
- The concept of household food security has low priority within the overall framework of the ministry of agriculture and needs to be promoted. Moreover, in view of existing school malnutrition, the integration of nutritional aspects, in particular educational feeding practices need strengthening within the policy of the ministry of education. The Fiji Plan of Action for Nutrition (FPAN) was endorsed by cabinet earlier this year and provides a multi-sectoral instrument to address these and other issues of food security in Fiji (see annex 3). The FPAN is based on the International Conference on Nutrition and a subsequent World Declaration by 159 countries. Given the extent of nutritional problems in Fiji, it is recommended that

it's implementation under the guidance of the NFNC be given high priority by all ministries concerned in 1999 and support for its implementation be solicited from the donor community.

7. FOOD

7.1 Situation

From a household food security perspective, the current drought is reflected in reduced access to certain foods by economically weak population groups. These foods include vegetables and green leaves, but also staple foods such as cassava, dalo and kumala, the leaves of which also serve as an important source of micronutrients. More than 9 out of 10 households surveyed in the western division drought assessment exercise reported partial or complete failure of their food gardens and /or subsistence agriculture production. Although major municipal markets continue to show availability of commonly consumed vegetables and root crops by through acquisition from the central division and other areas with sufficient rainfalls, low income peri-urban and rural households are often unable to purchase these. This is because their already low income has been further affected by lack of normal employment opportunities (casual labour in the sugar sector), income generating opportunities (e.g. selling of home grown vegetables) and relatively high food prices for these commodities. Field visits have confirmed that social welfare recipients are consuming vegetables as little as once a month. As part of resulting dietary substitution processes, rice, flour and sugar have become the major source of energy, since they have the lowest cost per calorie ratio. This effect has been further reinforced by the food rations distributed.

Two surveys of drought affected areas have been carried out by the government of Fiji in May and July 1998. They indicate that the majority of rootcrops and other food crops had been severely affected. This was confirmed by field checks. In the Western Division the number of households identified as in need of assistance has increased from approximately 30,000 in the first survey to 50,000 in the second survey. This includes approximately 3,000 households on outer islands. Similarly, the Northern Division has reported an increase from about 370 to 4,570 households in need of food assistance. Total population in need of continued food aid is estimated at 230,000 in the West and 20,000 in the North.

Supplementary food rations have been distributed by the Government of Fiji, the Red Cross and Save the Children Fund. Other NGOs assisting with food rations include Bayly Welfare and the Rotary Club. Foreign assistance has been received by the USA (HDRs worth US\$ 500,000), Taiwan (US\$ 30,000) and Japan (\$ 125,000). Further assistance is awaited from Australia (A\$ 200,000) and the People's Republic of China (rice worth F\$ 500,000). The following table summarizes the main types of rations distributed:

Table 5: Main Ration Types Distributed

Ration Type	Target Group	Distribution Mechanism	Distributor/ Donor	Quantity Delivered
Rice, Flour, Sugar and Canned Fish (monthly adult supplementary ration = 4 kg rice, 4 kg flour, 2 kg sugar, 4 tin fish)	1.cane farmers 2. non-cane farmers in cane belt 3.subsistence farmers in non cane belt, including islands Areas: Western Division, Northern Division	Affected Households identified in government of Fiji (GoF) surveys	Government of Fiji	1. Round Total: 18,912 bags of rice 17,020 bags flour 17,730 cartons tin fish 8,510 bags of sugar
Humanitarian Daily Ration (HDR) Packs *	School children in Western Division	Schools in need of assistance	Red Cross / USA	120,000 Units, (0.5 Mio. US\$)
Rice, flour, dhal, oil, milk and where feasible fresh fruit and vegetables	Most affected Households in Western Division	Households identified in GoF surveys	Red Cross / Government of Japan	F\$ 124,000
Breakfast crackers, coconut biscuits, whole milk powder	School children Western Division Northern Division	Schools responding to appeal	Save the Children Fund/ Naftarang / Donations	F\$ 180,000

* A HDR consist of 8 airtight sealed, vitamin enriched food items: Biscuit, Short bread, Strawberry Jam, Peanut Butter, Fruit Pastry, Fruit Bar, Lentil Stew, Beans in tomato sauce (Salt, pepper, red pepper, spoon, matches). No dates of expiry were to be found on the ration packs.

All rations except the HDRs have had supplementary character, in that their nutritional content only meets part of the daily requirements. The current monthly adult ration (4 kg rice = 4,920 kcal, 4 kg flour=13,880 kcal, 2 kg sugar=7,760 kcal, 4 cans of 425 g mackerel = 3,111 kcal) provides a total of 29,671 kcal in supplementary energy. This translates to approximately 990 kcal per day or 47 % of energy requirements of 2100 kcal (light level of physical activity). The total daily contribution of protein is 28g, equivalent to about 50% of adult requirements. Oils and fats do not form a major part of the rations. The contribution of rations towards micronutrient needs, in particular iron and vitamin A is negligible, except for the canned fish.

A further problem with the relief rations is that they are not suited towards the nutritional needs of infants of weaning age - who are amongst the most vulnerable - and therefore assists little in the control and prevention of child protein-energy malnutrition (unbalanced nutritional content, limitations in preparing them in a form easily consumed by young children). Intra-household food distribution is a variable that needs further probing.

Rations are reinforcing the economically induced (and from a health point of view undesirable) transition towards increased consumption of cheap imported food products such as flour and rice amongst the people of Fiji.

It also has to be kept in mind that rice, flour and sugar are not recommended for consumption by diabetic patients without medical consultation, as they aggravate existing blood sugar problems. Although 5.4 % of adults in the western division have been diagnosed as diabetic, their proportion amongst poor households, i.e. ration recipients is not known.

7.2 Recommendations and Potential Interventions

- Vulnerable households are not expected to experience a significant improvement in terms of their food security until income mechanisms, market supply and own food production normalise again. Therefore, in order to mitigate nutritional deficiencies, it is recommended to continue issuing of relief food rations until first quarter of 1999. The situation is to be reassessed then.
- Although it is acknowledged that current government rations have been labelled as supplementary, they are nevertheless insufficient in that they do not address the nutritional needs of specific vulnerable groups, in particular children of weaning age and pregnant women. Therefore it is recommended that the NDMC and relevant decision makers review the composition of the current rations with assistance of technical resource persons from the MOH and NFNC. Based on mission findings, main issues for discussion are:
 - Infants of weaning age are likely to be amongst the most vulnerable groups, because the general ration does not include foods which can serve as quality weaning food. Dhal is a possible addition to the ration which could address this problem. Numerous discussions with households of both ethnicity suggest that the inclusion of dhal would also be a welcome addition from the recipient side. Therefore it is recommended to include dhal in the next round of rations. Information on ways of utilisation and recipes should be provided with the rations. If future rations are to be procured from overseas, similar considerations should be taken into account (e.g. inclusion of wheat soya mix).
 - Thought should be given to provide complimentary foods to cover recipients (high risk groups: pregnant women, school children) needs for micronutrients, until they are able to procure foods that contain sufficient quantities of these for themselves. Highest priority should be given to iron and folate, however Vitamin A may become an issue if current dietary trends continue. The most promising delivery vehicle appears to be micronutrient enriched food items. Wheat flour appears as the apparent option for iron fortification, because it is already part of the rations, and it is easily fortified by adding ferrous sulphate during the milling process. Rice can also be fortified, as practiced in the Philippines. Other delivery options include supplements/tablets, distribution of dried fruits and vegetables, although these may be less effective.
- In the light of existing and growing deficiencies amongst children - about 94,500 children are amongst recipients of government rations - it is recommended to continue to target on children as already practiced by some NGOs, such as Save the Children Fund. Food items for this purpose could either be in form of milk-biscuits or milk powder. If possible the items should be fortified in iron and vitamin A. Milk powder has been discussed as possible source of diarrhoeal diseases if water for mixing is of poor quality. However the additional infection risk may not be as high as assumed, because the same water is being consumed anyway. Boiling of water prior to any usage is highly recommended. Another alternative is UHT milk. In any case, targeting of children is crucial aspect as there is otherwise the possibility of misuse of milk for adults, making tea, sweets, etc.. For children under five, feeding programmes within health centers are a feasible targeting mechanism, while children of schooling age can be best reached through school programmes. The Ministry of Health has plans to launch a skim milk programme

as of 1999 targeting on identified malnourished pre-school children at health service delivery level, however funds or milk powder are greatly needed to activate this initiative throughout affected areas. School children are currently being served by NGOs, but funds are likely to be a major constraint in continuing this important assistance to school children.

- In view of impending food deliveries (in kind), Food Safety and Quality Control at the point of entry is to be ensured.

Table 5: Nutrient Content Of Relief Food Items (Per 100 G)

Food Item	Energy (kcal)	Protein (g)	Fat (g)	Carbohydrate (g)	Iron (mg)	Vitamin A equivalent (µg)
Flour (wheat, white)	347	10.8	1.2	73	1.3	0
Rice, white	123	2.3	0.2	28	0.3	0
Sugar (brown)	388	0.2	0	97	1.2	0
Tin Mackerel, in natural oil	183	18.6	12	0	2.5	160
Dhal (split peas)	57	6.6	0.4	7	1	5
Milk Powder (whole)	497	27.2	26.4	38	0.3	370
Milk Powder (skim)	359	36.9	0.8	51	0.3	0

Source: *The Pacific Islands Food Composition Tables, SPC 1994*

A HDR consist of 8 airtight sealed, vitamin enriched food items: Biscuit, Short bread, Strawberry Jam, Peanut Butter, Fruit Pastry, Fruit Bar, Lentil Stew, Beans in tomato sauce (Salt, pepper, red pepper, spoon, matches). No dates of expiry were to be found on the ration packs.



Save the Children Fund distributes bus fares and milk food to schools.



Fiji Red Cross distributes 200,000 HDR food packs to the needy.

All rations except the HDRs have had supplementary character, in that their nutritional content only meets part of the daily requirements. The current monthly adult ration issued by the government of Fiji (4 kg rice = 4,920 kcal, 4 kg flour=13,880 kcal, 2 kg sugar=7,760 kcal, 4 cans of 425 g mackerel = 3,111 kcal) provides a total of 29,671 kcal in supplementary energy. This translates to approximately 990 kcal per day or 47 % of minimum energy requirements of 2100 kcal (light level of physical activity). The total daily contribution of protein is 28g, equivalent to about 50% of

adult requirements. Oils and fats do not form a major part of the rations. The contribution of rations towards micronutrient needs, in particular iron and vitamin A is negligible, except for the canned fish.

A further problem with the relief rations is that they are not suited towards the nutritional needs of infants of weaning age - who are amongst the most vulnerable - and therefore assists little in the control and prevention of child protein-energy malnutrition (unbalanced nutritional content, limitations in preparing them in a form easily consumed by young children). Intra-household food distribution is a variable that needs further probing. Rations are reinforcing the economically induced (and from a health point of view undesirable) transition towards increased consumption of cheap imported food products such as flour and rice amongst the people of Fiji. It also has to be kept in mind that rice, flour and sugar are not recommended for consumption by diabetic patients without medical consultation, as they aggravate existing blood sugar problems. Although 5.4 % of adults in the western division have been diagnosed as diabetic, their proportion amongst poor households, i.e. ration recipients is not known.

8. SOCIO-ECONOMIC SECTOR

8.1 A Qualitative Macroeconomic Assessment of the Drought

The 1997/98 drought is perhaps the most catastrophic natural disaster to face Fiji in this century. It is disastrous a Fiji's narrow economic base is primarily driven by sugar (apart from tourism), which is so vulnerable like any other agricultural crop when exposed to extreme weather conditions. In fact, the limited structural composition of Fiji's economy had aggravated the economic situation, as growth in other sectors are not strong enough to offset the abnormal low growth in the sugar industry during the period of the drought.

Latest estimate for sugar production is around 205,000 tonnes from the usually recorded range of between 350,000 – 450,000 tonnes over the past several years. This is around 45 percent of a normal production in a year. Also, contributing to this setback is the lower growth in the production of other crops, such dalo, kava, which may probably take at least a year to recover. Consequently, GDP growth has been projected around a negative 4.0 percent as compared to an average growth of 3.0 percent per annum over the last five years. The growth rate projection is also a reflection of the general weakness in domestic demand and the slow growth in the international economy.

The shortage of root crops affects food prices and in turn inflation which is now hovering around 7.0 percent. The current high rate of inflation is predominantly due to the currency devaluation earlier this year and which is expected to peak at around 10 percent in December 1998. The negative growth reflects a decrease in national income, implying a stalling of some income and employment-generating projects. A portion of funds in the economy (both private and public) would be directed towards rehabilitating the sugar industry. This in effect is limiting the amount of scarce funds available for productive investments. At the same time, the lower national income would translate into lower consumers' demand, which will be reflected in the lower than normal retail sales.

Government finance would feel the brunt of this natural calamity through increased government spending to mitigate the effects of the drought, such as the granting of

the \$8.0 million dollars to cane farmers and other mitigating measures associated with the effects of the drought. The budget deficit is expected to increase above the 2.4 percent of GDP achieved last year.

However, foreign exchange reserves is expected to be maintained at around 5-6 months of import cover and debt serving despite the expected reduction in sugar production for 1998. This is largely due to the gains derived from the currency devaluation earlier this year. (*the above statement, 8.1 from the Ministry of National Planning Office, Fiji*)

8.2 Education

Education also suffered, especially in the western and northern divisions. Altogether 183 schools in the western division and 35 schools in the northern division were affected. The schools were supplied with either emergency water or food and in some cases both food and water. About 996 students in the western division were provided with bus fare. In the eastern division 19 schools have problem with drinking water and 2 schools with 40 boarding students need food ration. The 19 schools have requested water tanks to ease water shortage. Section VII covers this in greater detail. It should be noted that water tank would only serve its purpose if associated material like guttering, downpipes, etc. are available and in good working condition. The field assessment found out that several schools with water problem already have water tanks but support material like guttering and pipes have been broken or missing altogether. Ministry of Education indicated that despite difficulties experienced by most schools, no school was closed. Closure of schools would have far reaching implications on students and teachers particularly in their preparation for important external examinations scheduled towards the latter part of the year.

Ministry of Education has drawn up a Drought Contingency Plan largely to curb water problems in affected schools. The Ministry is liaising closely with Ministry of Regional Development and line Ministries for remedial actions. As a long-term mitigation measure the Ministry is considering the inclusion of water tanks as an integral part of school building project.

Problems encountered by families as a consequence of the drought included inability to meet expenses on bus fares, lunch, school materials, problems of finding water (family wells have dried up). Some children had tea only and some even nothing for lunch. Children travel to school without having a bath for days. Some children are not going to school because of financial difficulties; their parents have to borrow from neighbours to be able to send them to school. Parents are either subsistence farmers, cane farms labourers or small cane farmers.

Ministry of Education could not establish a trend on whether absenteeism in schools was directly related to drought, as under normal circumstance absenteeism was always a problem in schools.

School management actively involved in fund raising drive to keep the school going. In most fund raising drives children were directly involved in the actual collection of funds and they were made to suffer psychologically if they could not meet the levy. Such activity was taxing on the family's scarce resources. Ministry of Education has written to School Managers to put on hold all fund raising activities in light of financial burden brought about by the drought.

Beneficial discussions were held between school management and bus companies to help school children that had bus fare problem. Save The Children Fund helped out in providing bus fares and food ration to needy students. Funds obtained through public appeal launched by radio station NAVTARANG. Several boarding schools in the western division were supplied with government food ration. In the two weeks to 15/10/98, Red Society had distributed 34,300 (US donated Humanitarian Daily Ration, HDR) Packs to 38 schools in the western division. Red Cross continued to receive requests from school management and Save the Children (latest request on 21/10/98 for 10 schools involving 1097 school children) for food rations for affected schools in the western division.

School Management also suffered due to non-payment of school fees and other levies. Ba Methodist High School with a roll of 261 was a classic example. Most parents of the school are from the interior of Ba, Ra and Navosa who are small farmers and because they could not get any income as farms were devastated by the drought, they were not in a position to pay school fees/other levies. At the time of the visit, two water metres at the school were disconnected due to non-payment of water rates. Students had to walk almost a kilometre to fetch water for bathing and cooking. The school had to buy rice and flour as root crops from the school garden were used up and those planted in the middle of the drought simply died. Management decided not to send home students whose fees were in arrears given the priority for the students to sit exams. The school could not engage in fund raising activities in light of the Ministry of Education's position on the matter. MOE already pays out to the school per capita grant and school fees up to form four (tuition free fee). According to Divisional Education Officer (Western), boarding schools in the division experienced shortage of fresh vegetables and crops from their gardens and were relying on flour, rice and tinned fish from the shops. Yasawa High School was the worst affected.

Schools effected in the Western division and the emergency relief needs are tabulated below:

Table 6: Schools affected in the western division and emergency relief needs

District	No. of Schools			No. of Students			No. of Schools Affected			Number in Need of		Number Assisted		Daily Absenteeism APPR. %
	Pr.	Sec.	Tot.	Pr.	Sec.	Tot.	Pr.	Sec.	Tot.	Food	Busfare	Food	Busfare	
Ra	41	5	46	6647	1936	8583	23	2	25	594	592			5-8
Ba/Tavua	62	14	76	13853	7123	20958	42	4	46	4605	3661	Many (biscuits etc.)	Many (funds)	5-12
Lautoka/Yasawa	84	21	105	24251	13059	37310	72	6	78	4774	2261	2758	996	5-12
Nadroga/Navosa	59	11	70	10153	3276	13429	29	5	34	1153	239	1023	Nil	6-15
TOTAL	246	51	297	54886	25394	80280	166	17	183	11126	6753	3781	996	

Note: 183 schools which represent 61% of schools in the division were affected,
 No. of students in need of food: 11126
 No assisted: 3781
 No. students in need of busfare: 6753
 No. assisted: 996

8.3 Social Welfare

Some people affected by the drought had applied for family assistance; however, they were not considered, as they did not meet the criteria. Social Welfare was considering revising the criteria and family assistance policy in order to accommodate drought victims as short-term relief measures. It was reported by the Department that several approved applications during the year were from the aged and sick who have lost family support services due to economic hardships faced by their families as a consequence of the drought. This is reflected in the increased number of applications for 1998 both for the western and northern divisions. Details of recipients and new applications for the last three years are tabulated below:

Western Division	1996	1997	1998 (Sept)
Total No. of Recipients	3983	4088	4105
Total No. of New Applications	1177	1019	806

Source: Senior Welfare Officer North/West & South West Reports

Northern Division	1996	1997	1998 (Sept)
Total No. of Recipients	2212	2340	2521
Total No. of New Applications	724	627	709

Source: Senior Welfare Officer Northern Report

Existing criteria

- People of 60 years and over
- Dependants of people who are in jail
- Breadwinners who are chronically ill
- Breadwinners who are severely disabled (mentally or physically)
- Widows with dependents
- Women who have been deserted by their husbands.
- All the above must have little, or no means of financial support.

In the Western and Northern Divisions, several recipients of family assistance have applied for increase to their monthly allowance and this might have a bearing on the drought as home gardens which most of them depend for sustenance have been devastated. At present family assistance allowance ranges from \$15.00 (minimum) to \$80.00 (maximum) per month.

Perhaps other form of investment and not straight-out handout need be closely examined.

The Poverty Alleviation Programme was established primarily for this purpose and to entice family assistance recipients to be involved with income generating projects to promote self-reliance. The project unfortunately could not continue on its original goal as Ministry of Social Welfare lacked the necessary expertise and technical support. The project is still in operation but largely geared towards housing.

Dislocations

People and families have started moving to new locations in search of water and work opportunities as reported from Ba, Naiyalayala, Raviravi, Saivou, Navolau, Rakiraki and Labasa. More survey need to be done on this for a fuller picture.

8.4 Socio-economic Impact

The Government recognises that the basic needs of its people need to be met and that all people should have the opportunity to participate fully in society and the economy. Accordingly, there have been a number of initiatives and strategies of government that have been designed and targeted towards the achievement of social and equitable development. The current drought situation in Fiji has revealed shortcomings and gaps in these development strategies. The team observed that there are a number of vulnerable groups within the community with their degree of vulnerability determined by their geographical settings and income earnings. The drought has therefore been disastrous as Fiji's economic base is primarily driven by the Sugar and the Agro Industries which are vulnerable when exposed to extreme weather conditions. This has shocked the economy and has affected levels of investment and the social and economic status of a fair proportion of the population. The age groupings identified as most affected are those who are over 55 years and those that are below 5 years recipients of family assistance and those who heavily rely on extended farming families. There is also a distinct correlation between small island communities and poverty. Assessment so far indicate an increase in anti-social behaviour amongst these vulnerable communities where there is an acute shortage of paid employment. There has also been an increase in the number of recipients of government family assistance allowance which has grown by 46 percent to 8,800 between 1990 and 1995 with more who are eligible for such allowance still being wait-listed and are unable to be assisted.

8.4.1 Needs

It is considered timely that cash help be channelled in the form of 'needs based assistance'.

About 15,000 families, who are totally dependent on sugar cane farm labour and domestic garden sales, have no other means of income these last nine months. They are on the verge of starvation as food ration equates to 17cents per meal per person or \$19 per week for a family of five, compared to a minimum low cost diet of \$68 per week for a family of five. It is recommended that Government makes welfare provisions of \$30 million for the next six months (\$2000 per family) for family support and school purchases in the new year. Government needs to tighten criteria and control of food distribution and welfare assistance:

- Proper assessment and classification of vulnerability and vulnerability groups should be carried out.
- Strengthening capacity through greater partnership with NGOs of both the Department of Social Welfare and District Administration to address rural social-economic problems.
- Utilising sea and foreshore marine resources to improve productive capacity of the people.
- Increasing the capacity of community groups and NGOs to work with and assist those now being affected.

9. Recommendations

Table 7: Emergency Management and Coordination

Findings	Needs	Recommendations
1. Existing disaster management Structure goes as far as district level Only, as a result of which island and village/settlement level response to the drought emergency was insignificant.	Medium term: Extend the disaster management structure to village/settlement level.	Medium term: To review the disaster management organisation structure with a view to extending it to island and village/settlement level.
2. Lack of organisation at village/settlement level contributes to poor community response to disaster.	Medium term: To establish organisational and operational arrangements and procedures at village/settlement level.	Medium term: To adopt village/Settlement Disaster Plan.
3. The absence of trained people to carry out community training and over reliance on outside support to deal with this.	Medium term: Develop a cadre of trained people within the village/settlement to deal with community training.	Medium term: To develop a training programme for trainers.
4. The absence of community training programme targeted at specific areas of need.	Medium term: The development of training programme to address specific needs in the community.	Medium term: To develop appropriate training programme geared towards specific needs in village /settlement.
5. Unco-ordinated emergency relief operation between government agencies and NGOs. This could contribute to duplication of efforts and assistance not provided to the needy	Short term: To adopt an integrated approach between government agencies and NGOs in undertaking damage assessment and emergency relief work.	Short term: To strengthen emergency relief co-ordination arrangements in accordance with the provision of the Natural Disaster Act.
6. Absence of laid down policy and procedures, drought monitoring mechanism and organisational arrangements affected government and NGO response to the drought emergency.	Short term: To develop policy and procedures and drought monitoring/response system.	Short term: To develop National/Departmental Drought Contingency Plan.
7. Absence of co-ordinated community response to the drought emergency.	Medium term: Educate the community and raise their awareness on national and community drought response systems	Medium term: To develop community education and awareness program
8. Poor inter and intra agency co-ordination and information exchange affected management decisions	Short term: Strengthen information exchange and networking amongst agencies	Short term: To develop a strong emergency information exchange network involving all key agencies

Table 8: Water and Sanitation - Water

Short –term water needs	Medium-term water actions
Continue emergency deliveries to approved requests Delivery of tanks in lieu of water Chlorination and monitoring of carted water Expanded bacteriological monitoring Follow-up unsatisfactory results	Improve use of rain water especially for schools (metered and non-metered) Expand borehole subsidy scheme Fast-track urban water supply plan implementation Improve use of hydrogeological info by district level decision makers Trials with solar distillation for remote islands.
Key needs for government action	Key needs for donor support
Guidelines for emergency water delivery including chlorination Standardised reporting of all emergency water delivery costs Methodical follow-up on unsatisfactory water samples Expanded support for the 1/3-2/3 scheme for community water supplies	Provision of fibreglass or poly tanks to key locations. Ferro-cement rainwater tank projects for island communities and schools Funding for emergency water deliveries Water quality monitoring equipment Chlorine residual kits Water sampling gear

Table 8.1: Water and Sanitation - Sanitation

Sanitation	
Country-wide clean up of solid waste Promote construction and proper use of pit latrines where shortage persist Construction and cleaning of drains before wet weather begins	

Table 9: Agriculture and the Community - Emergency and Immediate Needs

Findings	Needs	Recommendations
Cost of damage 1997/98 Drought in loss of revenue from agriculture and relief operations will be over \$125 million by December 1998. Rain deficit period is forecast to continue to May 1999. (National total damage cost for Kina was \$170 Million)	Emergency measures to continue Undertake in depth sectoral assessment to define short term and long term strategies.	Extend declaration state of emergency in drought stricken areas to channel Government funding and resources to address immediate needs of the affected population.
10,000 cane-farm workers normally required off-season and 18,000 during harvest starting in June. 20,000 non-cane households now receiving ration in Western Division only –seems high. Agriculture surveys find only maximum 11,000 household affected (>50% losses).	Need to establish criteria for assistance and re survey before next round of distribution.	Continue monthly ration distribution of \$2.7 million for 54,000 households subject to monthly monitoring till major Feb review. Recommend that this be tagged to poverty threshold considered with both ownership of other exploitable resources and or sources of income. Owners of other resources to be considered for other kinds of fiscal/economic intervention to utilise resources. Relief assistance needs be directed; to stop slide to absolute poverty.

Table 9: continued

Findings	Needs	Recommendations
Farm labour and supportive informal sector have been repeatedly hit very hard, safety nets in extended family to support and supplement food and income now disabled. 54,000 household affected with economic hardships, with income much reduced and on food ration. Of these an estimated 15,000 household with zero income over the last twelve months.	Cash welfare assistance \$2,000 per family to support families over Christmas period and purchases in the new school year until economic activity normalised on the farm approximately June 1999 and onwards.	Immediate cash/welfare support to family with acute hardship. Approx. F\$30 Million for six months welfare assistance. Undertake household economic activity survey to define extent of problems and define strategies for short and long-term measures. Accelerate implementation of newly proposed micro-financing ventures
A loss in cane production of 1.5 million tonne. Total loss of revenue \$104; loss to farmers \$72.6 Million. This will be felt in 1999 sugar payments.	Farm dependent families need welfare assistance to cover acute period to harvesting in June 1999.	Cash welfare assistance as above
Total sugar cane Crop Rehabilitate Programme funding is \$42.7 Million to assist farmers replant for 1999 crop – a short fall of \$30 million from lost revenue. Of the \$42.7 Million, only 6% go to farm labourers; the rest go to cane seeds and farm inputs.	Shortfall of \$30 million to be propped up as it's this farmers share that trickle down to farm dependent families and rural economy.	Cash welfare scheme as above.
Farm drains and overland channels blocked with solid wastes; soils on hill catchment exposed, drain outlets on lower moist sections planted. High risk of soil erosion and flooding	Drainage maintenance to be undertaken now, in the dry conditions much more effective. Drainage Boards raise revenue from farmers who are now unable to pay drainage rates.	Government to provide 2-year annual grants each of \$180, 000 to Drainage Boards to maintain drains. Board to employ people in drought stricken areas.
On crops for food security, over 70 % damage in worst hit Western sides of main and islands and all near-by islands. Eastern and southern regions hit by drought have sufficient for next three months to January. New planting have mostly died.	Review food security requirements February 1999.	Agriculture to have special programme of planting kumala, grains, pulses and vegetables (fast crops) in Central Division flat land to feed rest of Fiji over the next year. Assistance for this likely coming from FAO.
Livestock food mostly dried up. Beef farm cattle and drought animals number 311,000 in drought stricken areas. Their feed/pasture has dried up. Of these 22,000 are milking cows producing about 132,000 litres per day. Losses in milk production now 50% equal to \$39,600 per day	Supplementary feed to save drought animal and milking herd. This programme can be commercialised to recover operating costs.	Support MAFF urea molasses blocks rehab-feeding programme of \$2.4 million, \$2.2 be directed for donor assistance.
Vegetables for domestic and subsistence usage completely destroyed.	Seeds for vegetables, pulses, and maize. Provide access to irrigation equipment viz pool arrangements. Free of charge until level of production back to normal.	Agriculture to set up a pool of pumps, pipes and garden hose sprinklers for use by farmers through farmer groups/community farm organisations.
NGO's particularly Save the Children Fund and Red Cross have very focussed emergency assistance with food and bus fare to schoolchildren.	Well organised education information base missing to quantify total number of children facing bus fare and food difficulties.	School head teachers to work closely with these NGOs active in meeting immediate needs of school children.
Schools need special attention over next six months re: food security. The Ministry of Education with and through FSP has identified vulnerable schools and food garden requirements to supply required nutrition diet.	Funds from donor assistance to support project. School projects to be included in community pooled irrigation equipment.	Donor assistance through FSP to implement school garden project. Total cost to establish 0.25 hectare in 137 schools F\$250,000

Findings	Needs	Recommendations
Shortage of planting material becoming acute for CDF and root crops. On ground nurseries vulnerable to floods, and increase risks to pest attacks and diseases in these times of shortage.	MAFF to invest in its own tissue culture facilities to rapidly multiply planting materials free of diseases, disposable countrywide. Run on commercial basis to maintain sustainability.	Government to invest \$410,000 in equipment, facilities and technical expertise in tissue culture to save economic viability of multi-million CDF programme and bring food security programme back on target..
FSC is promoting backyard gardening	A special joint FSC – Agriculture home garden crop rehabilitation programme.	To be addressed in agriculture rehabilitation strategies.

Table 9.1: Agriculture and the Community – Short Term Measures

Findings	Needs	Recommendations
Cane production loss 1998 is 1.5 Million tonnes. Droughts following past cyclones have also affected past crops.	Irrigated cane on flat land. Under irrigation yield can increase > 30% i.e. irrigation can raise flat land average from 75 Tonne/hectare to 100 tonne/hectare. This requires only 40,000 hectare of irrigated cane land to produce national target of 4 million tonne.	FSC to bring in irrigation specialist for a feasibility study on sugar cane production and for non-sugar crops to replace steep land cane production.
Family labours very important in Vanua Levu. There are 17,000 farm dependent families in Viti Levu and 3,000 in Vanua Levu. Each farm dependent family has 3- 5 people average.	To determine degree of economic hardship and acute indebtedness.	Undertake household economic activity survey, through Labour Department and Bureau of Statistics.
Fisheries sector – hardly hit	Promote income generation from sea resources to widen income base of community.	Reactivate fishing gear assistance scheme through Government with lump sum of \$200, 000 (from proposed \$30 million welfare fund) in trust fund arrangements. MAFF to accelerate mariculture project and related other projects as salt farming in Ra.
CDF programme has been hit hard with high 70 % mortality in new plantings.	Introduce improved technology to CDF programme as irrigation, shading and plastic sheeting to take better care of new plantings.	Halt CDF rehabilitation and new plantings in final quarter. Identify and procure improved production technology before resumption.
Shortage of planting material becoming acute for CDF and root crops. On ground nurseries, vulnerable to floods, and increase risks to pest attacks and diseases in these times of shortage.	MAFF to invest in its own tissue culture facilities to rapidly multiply planting materials free of diseases, disposable countrywide. Run on commercial basis to maintain sustainability.	Government to invest \$410,000 in equipment, facilities and technical expertise in tissue culture to save economic viability of multi-million CDF programme.
Commercial forests, alternate sources of income for landowners, badly destroyed by fire. Additionally trees stressed by the six previous natural disasters cannot cope and die.	Re-establish damaged plantation.	Re –establish damaged mahogany plantation \$80,000. Provide jobs and income to people in drought stricken areas.

Table 9.2 Agriculture and the Community – Long Term Measures

Findings	Need	Recommendation
Six major disasters in six years, each time a huge repair cost to government upto 30% of budget & 3X lost revenue. Vulnerability keeps increasing.	Identify and implement mitigation measures.	Recommendations Incorporate mitigation planning in all development planning.
Cane harvestable area dropped 30% from 74,000 hectares to 53,000. Most of these on marginal land along the coast and on steep sloping land.	Marginal lands to be taken out of sugar production as non-sustainable, to be replaced with other appropriate land use. Mariculture for lowlands bordering the sea and pastures/agro-forestry for steep land.	Intensify cultivation on good flat land soils, bring irrigation to boost yield to maintain national quota. Examine other land uses for marginal land.
Too many wild fires are out of control burning with attendant risk to property and lives.	Steep land Public education programmes.	Establish fire indices. FSC, Fiji Pine co-fund public education programmes and setting up of Community Fire Volunteer Services.

Table 10: Food, Health and Nutrition

Findings	Needs	Recommendations
No significant improvements in food security of affected households are expected to occur within the next 4 months	Continued assistance in food rations	- continue distribution of food rations to needy households until February 1999 - reassess situation in first quarter of 1999
Infants of weaning age are showing increases in malnutrition rates. Inadequate nutrition during the first 3 years of life can negatively impact on future physical and mental development .	The addition of an appropriate weaning food to the rations is a precursor in preventing and controlling child-malnutrition	Decision makers to revise ration composition together resource persons from MOH and NFNC Proposal: - Include dhal as a component of the rations. - Provide information on appropriate utilisation (recipes) and good weaning practices
Anaemia rates (69%) amongst pregnant women in affected areas suggest this an issue of public health relevance. Rates among primary school children (5.8%) have also increased tenfold this year	Short term: -Improve dietary intake / rations Medium-long term: - Improve dietary intake in a sustainable manner - Identify and address contributing factors	Short Term: - discuss addition of iron rich foods or supplements in rations Medium term: (1) conduct awareness campaign targeted at women of childbearing age (2) request international micronutrient specialist be requested from WHO or UNICEF to assist in identifying a medium to long term solution

Table11: Education and Social Welfare - Education

Findings	Need	Recommendation
1. Schools have water tanks but guttering and downpipes are broken or missing altogether.	Short term To carry out necessary repair work.	Short term Provide assistance to the schools concerned to repair/install damaged/missing guttering and downpipes
2. Some schools have no water tanks or existing tanks do not have the capacity to meet the needs. FSP has prepared a project proposal for schools with water supply problem	Short term All schools to have adequate water supply system	Short term Ministry of Education to closely liaise with FSP on the progress/implementation of project.
3. Some boarding schools in the western division have lost school gardens and are living on rice and flour. Virtually all food items are bought which is taxing on their scarce resources. Red Cross and Save the Children continued to provide relief food to about 50 schools in the western division.	Immediate term Ministry of Education to carry out an assessment to identify the affected schools and the food needs and draw – up a feeding program.	Immediate term To provide food ration to affected boarding schools up to February 1999 and to reassess the situation before end of first quarter 1999.
4. School gardens lost crop and vegetables and that affected schools need to rehabilitate their gardens. FSP has submitted a project proposal aimed at rehabilitating school gardens	Short term Assistance required in land preparation , planting materials and seedlings	Short term Ministry of Education to liaise closely with FSP on school garden rehabilitation program.
5. School children needing financial support for bus fare. Save the Children provided bus fare to more than 50% of school children in affected schools in the northern division.	Immediate term Ministry of Education to carry out survey in northern/western divisions schools to determine school children needing bus fare assistance.	Immediate term To provide bus fares to needy students till the end of the 1998 academic year.

Table 11.1: Education and Social Welfare – Social Welfare

Findings	Need	Recommendation
1. Drought victims applied for family assistance but were not considered for not meeting laid down criteria.	Short term. To identify a programme of assistance aimed at generating self-reliance.	Short term. To pursue assistance through the Poverty Alleviation Scheme Social Welfare Department to consider revising the family assistance criteria.
2. Increase in the number of family assistance recipients by 46% to 8,800 between 1990 and 1995.	Medium term. Support needed to meet basic needs of families in the vulnerable groups.	Medium term. To explore other avenues for increased self-reliance.
3. Family assistance recipients asking for increase to what they are getting.	Medium term. Social Welfare to assess the needs of recipients and justifications for increase to current level of support.	Medium term. Department of Social Welfare to look into the matter on a case by case merit.
4. Vulnerable groups' degree of vulnerability determined by their geographical setting and income earning power. Their level of vulnerability exacerbated by the drought.	Medium term. Proper assessment and classification of vulnerability and vulnerable groups should be carried out.	Medium term. To draw up a programme of assistance targeted at specific groups.
5. Social Welfare Department lacked capacity to handle poverty-related problems in the country. For example, Poverty Alleviation Scheme.	Medium term. Programme of assistance set up to address specific target groups would require special attention by Social Welfare Department.	Medium term. To strengthen the capacity of Social Welfare Department in terms of human resources and finance.

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ANNEX 2

List Of Agencies/Places Visited

DATE	PLACES/AGENCY VISITED	TEAM MEMBER
16/10/98	Ministry of Health	SI, JR,
	Director Extension Agriculture-Suva, FTUC-Suva, FCOSS, Marine Dept	AK
	FSC-Suva	AK, PR
7/10/98	Nadroga Subdivisional Hospital	SI, JR, DS
	District Office Sigatoka	AK, PR, JR, SI, DS
8/10/98	Western Division Meeting-Lautoka	AK, PR, JR, SI, AG, DS
	FSC Extension and Research Centre, Red Cross Lautoka District, FSP	AK, PR
	Divisional Medical Officer-Lautoka	AK, PR, SI, DS
	Fiji Meteorological Service-Nadi, DO-Nadi	JR, DS, SI
9/10/98	DPO-Western, HART-Nadi, DO-Ba, HART-Ba	AK, PR
10/10/98	District Officer-Tavua	AK, PR, SI, JR, DS
	Ra Pine Scheme-Drauniivi	AK, PR
12/10/98	Kadavu Hospital Conference Room	JR, SI
13/10/98	NDMC-Suva	AK, PR, SI, DS
14/10/98	Commissioner Northern Division-Divisional DISMEC, Northern, Save the Children-Labasa	AK, PR, SI, DS
	Agriculture-Labasa	AK
	Social Welfare	AK, PR, DS
15/10/98	Agriculture-Wavuvavu Dogotuki, Agriculture-Natewa Bay	AK, PR
16/10/98	DMO Northern-Savusavu, SAO Cakaudrove-Savusavu	AK, PR
	Education Office-Savusavu	AK, PR, DS
16-19/10/98	Vanua Balavu Island	JR
17/10/98	Lakeba Island	PR, SI, DS
21/10/98	Viwa Island, Naviti Island Teci Island and Vatulele Island	PR, SI, DS
23/10/98	National Planning Office-Suva	AK, PR

- *AK – Atu Kaloumaira*
- *PR – Poasa Ravea*
- *JR – Joeli Rokovada*
- *SI – Steve Iddings*
- *DS – Dirk Schultz*