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TROPICAL CYCLONE BETSY

INTERIM REPORT

EMERGENCY RESPONSE PHASE

Prepared By

THE

NATIONAL DISASTER MANAGEMENT OFFICE

Port Vila

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TROPICAL CYCLONE BETSY  
EMERGENCY RESPONSE PHASE

INTRODUCTION

1. The emergency response phase of the operation commenced on Monday 6th January, 1992 when the Vanuatu Meteorological Service (VMS) advised of the formation of a developing tropical depression near position 10.0S and 170.0E.
2. Initial action by the National Disaster Management Office (NDMO) centred around establishing the National Disaster Executive Committee and conducting frequent education/information broadcasts on Radio Vanuatu.
3. The cyclone continued to develop over the next few days and by 1400 hours on Wednesday it had intensified to a severe tropical cyclone and was directly effecting all islands in the Pentecost, Ambrym, Paama, Epi, Malakula, Shepherd and Efate groups.
4. At around 0600 hours on the Thursday (9 Jan'92) TC Betsy altered course from its southerly track, to a west southwest direction and on line for a direct impact on the islands of Ambrym, Paama and Epi. By 1000 hours (10 Jan'92), the cyclone had passed through the island group and was moving further away to the west.
5. Maximum wind gusts in excess of 90 knots were experienced on islands within 35nm of the cyclones centre. Islands in the shepherd and Efate groups were also effected by a storm surge of about three metres which accompanied the cyclone.

WARNING AND ALERTING PROCEDURES

6. Initial warning of the cyclones presence to the general public was issued in a cyclone advisory message by the VMS on Monday 6th Jan'92. This was followed by broadcasts by the NDMO which were conducted twice daily during Monday and Tuesday, and hourly on Wednesday and Thursday as the threat increased.
7. Unfortunately Radio Vanuatu had problems with their FM antennae during the height of the cyclone (AM 9/1/92) resulting in islands under direct threat of the cyclone being unable to receive radio broadcasts for about 2-3 hours.
8. Observation of preparedness on many islands, together with feedback from the public would indicate that these broadcasts were most effective in heightening the awareness of the public to the need for preparedness measures to be taken.

9. The introduction of a public information boards displaying details on the cyclone was also a most successful initiative. These boards are located at the Post Office and selected hotels and resorts and were updated every three hours by VMS staff.

10. General situation reports combined with formal briefings were the major tools used for alerting government agencies and Non government Organisations( NGO's). This appeared to be successful in that many departments were observed taking precautions to protect government assets. This was of course one of the failings during cyclone Uma, however there is no doubt that the experiences of Uma helped to achieve success in this instance.

11. Overall it is considered that the warning and alerting procedures used during this operation were effective. The NDMO will be investigating the use of a warning sound to precede future cyclone broadcasts in an effort to improve current procedures. These are used effectively in the major cyclone regions of Australia and other countries.

#### EVACUATION CENTRES

12. A total of five evacuation centres were opened to shelter people living in hazardous or potentially dangerous housing. The transfer of these people to the centres was co-ordinated by the police and Vanuatu Mobile Force (VMF) and from all reports was most effective, with approximately 1500 persons being relocated by 1000 hours on the morning of the 9th Jan'92.

13. The following centres were identified as evacuation shelters for the areas designated:

A.Vila North School	-	Togabe/Ohlen
B.Ecole Namburu	-	Namburu/Freshwater
C.Ecole Public	-	Seaside Tongoa/Seaside Paama
D.Police Club	-	Police Officers and families
E.Central Primary	-	Seaside

#### NATIONAL DISASTER ADVISORY COMMITTEE

14. In the past the responsibility for co-ordinating the disaster response in Vanuatu was the responsibility of the National Disaster Co-ordinating Committee or NDCC. Whilst some individuals on this committee worked tirelessly to ensure some form of control, it is clearly known that large unweilding committees are not a viable means for achieving effective decision making, control or co-ordination.

15. The committee is now known as the National disaster Advisory Committee (NDAC) and is responsible to the NDAC Executive for the provision of advice, resources and assistance as required or directed. Its role as a decision making body has been removed owing to the unreliability of representatives to attend meetings.

16. The NDAC Executive comprises the National Disaster Controller (recently appointed), Commissioner of Police, Senior Disaster officer (NDMO), First Secretary Home Affairs, Disaster Advisor and other persons as determined by the threat.

17. During TC Betsy, the executive committee was expanded to include the VMS, VMF, Red Cross, NGO'S, First Secretary Foreign Affairs, Health, Public Works Department (PWD), Agriculture and representatives of the Australian and New Zealand High Commissions and AIDAB as observers.

18. The NDAC Executive met daily throughout the operation to analyze the situation and determine priorities as demanded by the changing situation. This was a most effective means of controlling the Emergency Phase of the operation and should be adopted for all future operations.

19. During full NDAC meetings on the 7th and 8th January, 1992., all departments were requested to maintain contact with the NEOC in case they were required to respond to urgent requests. This in many cases did not occur as officers were unable to contact many departments on Friday (10th Jan'92) for an NDAC meeting because they were closed.

20. This is an unacceptable situation and must be rectified prior to the next cyclone occurring. Whilst the NDAC have the responsibility for co-ordinating the activities associated with the Emergency Response phase, it is the responsibility of all departments with disaster roles and responsibilities to make themselves available and especially so outside of normal working hours.

#### DONOR COUNTRY SUPPORT

21. A request for donor country support was submitted on Friday 10th January, 1992., by the Minister for Foreign Affairs. As a result of this request two aircraft, a French Guardian and an Australian Orion, were despatched to Vanuatu for the task of conducting aerial surveillance operations.

22. Both aircraft arrived on the 11th Jan'92., and had completed all surveillance flights by 1000 hours 12th Jan'92., after which time they returned to their respective countries.

23. A donor country meeting involving the Australian, French, New Zealand and British high commissions was convened at 1600 hours 12th Jan'92., to discuss the findings of the aerial surveillance flights and also to determine the assistance each country could provide in support of the disaster relief operation.

A. AUSTRALIA

(1) Aircraft: one Iroquois helicopter to assist in the relief operation. This resource arrived at 0800 hours Monday 13th Jan'92., and commenced its first task at 1330 hours that same day. The helicopter remained on task until 1830 hours Wednesday 22nd Jan'92 and had logged 68 flying hours, transported 200 personnel, and delivered 5000kg of freight during its ten day assignment.

Its major tasks included the deployment of ground assessment teams and distribution of medical supplies, food and shelter items.

Aircraft Suitability: Following discussions with the captains of both the Orion and Iroquois aircraft on completion of their tasking, it is considered that the Orion aircraft was not suited to the task of aerial surveillance around the Vanuatu Island groups. The captain explained that this was because of the tightness involved with trying to manoeuvre the aircraft around the rugged coastline of some islands. The Iroquois was a most useful resource throughout and suited to this type of operation.

(2) Food and other items: Australia provided two consignments of food and other assorted products. The first aircraft arrived on Saturday 18th Jan'92., and consisted mainly of shelter stores, rice and water containers.

The second aircraft arrived on Thursday 23rd Jan'92 with a further supply of rice, tinned meat, shelter items and mosquito nets.

B. FRENCH

(1) Aircraft: A Puma helicopter arrived at 1530 hours Monday 13th Jan'92., to assist in the relief operation. It was immediately despatched to Santo for deployment in the Banks and Torres Island group and later returned to Port Vila for tasking in the other Islands.

The Puma remained available for tasking until 1800 hours Monday 20th Jan'92 and during its eight day deployment logged 46.10 flying hours, delivered 10655kg of freight and transported 222 passengers. It also conducted 100 landings.

Aircraft Suitability: Both the Guardian and Puma aircraft were considered to be most suitable for the tasking completed during the operation.

(2) Food and other supplies: A Transaal aircraft carrying 3 tonnes of medical supplies and a consignment of rice, meat, milk powder, tarpaulins and other products arrived in Port Vila on Friday 17th Jan'92. French authorities are awaiting advice from the NDAC on further requirements.

#### C. NEW ZEALAND

A. Aircraft: An Andover aircraft arrived for tasking at 1530 hours Wednesday 15th Jan'92., and was immediately tasked to deploy the final ground support teams to Malakula. The arrival of this aircraft was delayed firstly because of bad weather, and secondly because staff shortages at the Civil Aviation Authority prevented the airport from remaining open on the night of the 14th Jan'92.

During its six day assignment the Andover logged approximately 32 flying hours, transported 116 personnel and carried 28,945 kgs of freight.

(Refer to Problems Identified)

Major tasking for this aircraft included the transport of fuel supplies, Vmf personnel, stores and Aerial surveillance operations to the southern island group.

Aircraft Suitability: The Andover with its short take-off and landing capabilities was a most useful resource for this operation. Whilst not having the same workload as the rotary wing aircraft, it was a real workhorse when it came to the distribution of stores and personnel.

(2) Food and other supplies: Rations for ground assessment teams were provided. Unfortunately (for Vanuatu) New Zealand had exhausted much of their supplies in providing aid to Western Samoa and were unable to offer further resource support.

#### D. BRITISH

(1) Funding: Geographical remoteness made the provision of material resources a non viable proposition and therefore the British Government provided VT5,000,000 in financial support towards the purchase of relief supplies. To date funding from this source has been used to purchase 28,250kg rice, 9,400kg sugar and to assist in the establishment of a forward resupply base at Craig Cove.

24. The response by donor countries was swift and very much appreciated by the NDAC, and indeed the Government and people of Vanuatu. In most cases the donor countries, through their NDAC representatives, were fairly well aware of the type of assistance that was to be requested and this reduced the delay factor involved with the provision of overseas assistance.

25. The governments decision to allow the NDAC Executive to determine the type of assistance required from donor countries and the priorities for distribution of same, was a major factor in this phase of the operation being successful and well co-ordinated.

26. All aircraft crews and support staff worked tirelessly and most professionally to complete their given tasks and were dually acknowledged for same by the Vanuatu Government.

#### LOCAL RESOURCES

27. Local resources were and will be used for future tasks as the operation continues. Complaints have been aired by some sectors regarding the non use of local aviation aircraft, however whilst being sympathetic to their cause it is very difficult to justify using local resources when donor country aircraft can perform the same task and are available to do so.

28. A total of three local fixed wing aircraft were chartered during the first ten days of the operation. These were utilised to deliver fuel to Craig Cove for use by the helicopters, to conduct an aerial search in support of the Tukoro, and to deliver a maintenance crew to Craig Cove in support of the Iroquois which had mechanical problems.

29. Local rotary wing support was being utilised by Vanitel and Home Affairs during the first seven days of the operation and with two donor helicopters provided, there was no immediate operational requirement for this resource. This of course may change following the departure of the Military aircraft.



30. It is intended to produce a resource register listing all major local resources, contact names and numbers, performance capabilities. This was listed as a project for 1992, however as the cyclone season still has three months to run it will be given some priority.

#### DAMAGE REPORTS

31. The first damage reports received at the NEOC suggested that TC Betsy had caused massive destruction to all islands in its path. Aerial surveillance flights did not support such reports and infact indicated that little damage had been observed in most locations.

32. It was determined that in order to obtain an accurate estimate of damage, it would be necessary to deploy VMF ground assessment teams to all islands observed to have been effected by the cyclone.

33. The first of these teams were deployed on the 14th Jan 92 and the last on the 15th following the arrival of the NZ Andover.

34. VMF reports supported the observations of the aerial surveillance flights in that damage whilst quite severe in some locations, was in view of the intensity of the cyclone only moderate. Damage to plantations and crops was however quite substantial in many areas.

35. The worst effected areas appeared to be the Shepherd Islands and North Efate as they received the brunt of the storm surge associated with the cyclone. Damage in other areas was caused mainly to bush houses, although many schools, clinics and churches also received moderate to extensive damage. A full list of damage as extracted from the VMF ground assessment reports is attached at appendix one.

36. The use of VMF personnel to conduct ground assessments was a significant factor in the NDAC Executive being able to obtain a clearer picture of what had happened and where, and then set priorities. A total of thirty teams were deployed and recovered following completion of their tasks, within a six day period.

37. The officers and personnel involved in this exercise are to be congratulated for their efforts.

FOOD RESUPPLY

38. VMF assessment reports together with observations from Agriculture Department officers indicate that despite the damage caused by TC Betsy, most villages will have sufficient foodstock to last 3-4 weeks and more.

39. The difficulty for the NDAC Executive has been to determine which villages have a genuine need for immediate resupply, as most areas are stating that their food supplies have been exhausted when in fact the opposite exists.

40. As at 25 Jan'92., food resupply had been affected to all Islands in the Shepherd group and North Efate. Despite the damage to some villages in the North Efate area, food distribution teams were surprised at the amount of food that was available and reduced the allocation of resupply by half.

41. Further resupply operations will be conducted during the week 27-31 Jan'92 utilising the services of Tukoro and other Government vessels. The same procedure as adopted for the North Efate deliveries will apply prior to any distribution of food and thus ensure that it is provided to those in most need.

42. Islands which can expect food resupply during this week are; Tongoa, Epi, Ambrym and possibly South Pentecost.

43. The NDAC Executive have had several setbacks in there attempts to execute food resupply to the worst effected islands. The most severe of these was the unserviceability of Tukoro following damage to its propeller shaft seals. Repairs are expected to be completed by the 31ST Jan'92., and she should be ready for retasking soon after.

44. The NDAC Executive remains committed to ensuring that food is provided on a needs basis only, and that distribution is conducted on a fair and equal basis.

MEDICAL SUPPLIES

45. The distribution of medical supplies and personnel to clinics identified by the Health Department officials was seen as the number one priority. Some 36 clinics were selected and distribution was affected within the first four days of the donor aircraft arriving.

### NATIONAL EMERGENCY OPERATIONS CENTRE

46. The police Emergency Operations Centre (EOC) was used as the National Emergency Operations Centre (NEOC) for this operation and was considered to be a suitable venue for such operations. The absence of Standing Operating Procedures (SOP'S) and the need for training of officers working in the centre was identified prior to the arrival of TC Betsy and will be attended to in the near future.

47. Despite the lack of training, officers performed well and tackled their duties with great enthusiasm. Further work will be required on mapping displays and whiteboards if the venue is to remain as the NEOC.

### DISASTER MANAGEMENT ARRANGEMENTS

48. TC Betsy has provided the NDMO with the opportunity to test new initiatives under realistic conditions which will greatly assist in the establishment of future disaster management arrangements including the drafting of disaster legislation.

49. The current National Disaster Plan (1985) requires major amendment to reflect the proposed changes and this will be done over the next month or so, provided the NDMO has access to suitable resource support to complete the task.

50. Staff of the NDMO worked almost continuously for the duration of the emergency phase and this placed enormous pressure on them especially towards the end when fatigue was becoming a problem. It is intended to identify, either locally or regionally, suitable persons to be trained in disaster management procedures so that they can assist in the management of future operations.

51. The recent appointment of a National Disaster Controller will ease this problem somewhat, however this officer will not take up his duties for at least another month. Following discussions with a United Nations Disaster Relief Organisation (UNDRO) officer immediately after the cyclone, it may be possible to establish a pool of trained Disaster Management officers from the various Pacific countries who could be available to assist in long term operations.

52. This is of course subject to UNDRO funding becoming available to establish regional training and development courses specifically for Pacific Nation Disaster Management Officers.

AID AGENCIES

53. Representatives of the NGO's and Red Cross were invited to become members of the NDAC Executive on the second day of the operation (7th Jan'92) and actively participated in daily discussions. These groups are an essential ingredient for the successful conduct of response operations, especially during the emergency phase, and their tireless efforts (in particular the Red Cross) were most appreciated.

RECOVERY COMMITTEE

54. As a result of the NDAC not being able to meet immediately after the cyclone passed (refer para.19), most departments have set about doing their own assessment of damage and are doing so usually in isolation.

55. A recovery committee, possibly chaired by the National Planning and Statistics Office (NPSO) should be formed as a matter of priority to ensure that the recovery phase of the cyclone relief progress's in an orderly and co-ordinated manner. This is particularly important when determining priorities for the allocation of donor country relief funding.

56. Suggested composition of the recovery committee is as follows:

- \* NPSO
- \* HEALTH
- \* PWD
- \* RURAL WATER SUPPLY
- \* AGRICULTURE DEPARTMENT
- \* EDUCATION DEPARTMENT
- \* LOCAL GOVERNMENT DEPARTMENT
- \* FINANCE DEPARTMENT
- \* POLICE

PROBLEMS ENCOUNTERED

57. There were several problems identified during the course of the operation which caused some delay in initiating various tasks:

A. Airport Closure: As stated previously in this report, the New Zealand Andover aircraft was delayed in arriving at Port Vila because staff shortages at the Civil Aviation Department (CAA) prevented the airport from remaining open on the evening of the 14th Jan'92.

Whilst appreciating the problems faced by the CAA management, it seems quite incredible that a country requesting aid can hang out the "closed" - call again tomorrow" sign when others are rushing to provide assistance.

Some daily tasking of aircraft was also effected for the same reason, and it must be accepted that when Donor country aircraft arrive immediately following a disaster, they may arrive or be required to operate outside of "normal working hours," and therefore some consideration should be given to catering for this requirement.

The situation was more annoying than critical, and should be addressed as a matter of some priority to ensure a repeat is avoided.

B. After Hours Contact: It would seem that many representatives of the NDAC do not have after hours contact numbers and unless contact is maintained with the NEOC, there are problems in trying to activate departments to respond to developing problems. It must be appreciated by all departments that disaster response activities are not restricted to normal working hours Monday to Friday.

This problem is common in many places and can be resolved through education and participation in exercises once the National Disaster Plan has been revised and new procedures finalized.

The NDMO had prepared an emergency contact list in early December 1991, however this was only partially useful owing to changes that took place during January 1992. A new list is currently being prepared and should be completed within the next week or two.

C. Damage Reports: Many of the damage reports received from islands were exaggerated and as a result the true picture of the full impact of Betsy was not known until after the VMF ground assessment teams had completed their tasks. This presented a delay factor which could be prevented, and the NDMO staff will be concentrating on this area when conducting visits to all islands during 1992.

### CONCLUSION

58. As stated in this report, TC Betsy provided the NDMO with the opportunity to test new initiatives under realistic conditions. The most important of these was the introduction of the NDAC Executive and Public information/education broadcasts.

59. It was identified from the outset that in the absence of any current or tested procedures, that the important tasks ahead were firstly, to keep the public informed of what was happening, and what they should be doing in preparation, and secondly to establish the NDAC Executive and use the experience of the Disaster Management Adviser to ensure it worked in an effective manner.

60. Revision of the current National Disaster Plan, supported by relevant Disaster Legislation are the two ingredients required to set the benchmark for future disaster operations. Both should be addressed as a matter of priority.

61. The Australian, French and New Zealand High Commissions in particular, worked very closely with the NDAC Executive throughout the Emergency Phase and this assisted greatly in the delivery of donor assistance being so prompt.

62. The continued success of the relief operation hinges on the immediated formation of the Recovery Committee as discussed at paragraphs 54-56. Already some departments are contacting the NEOC to enquire about Aid funding to make good repairs to schools, water supplies, etc. Unless co-ordinated from the beginning the recovery phase may end up being a disaster in itself.

63. It should be noted that the role of the NDAC Executive is to initiate action involved with assisting the community to recover from the immediate effects of the disaster. This includes the provision of Food, Water, Shelter, Medical Supplies, Evacuation and, search and rescue.

FORECASTED RESOURCE SUPPORT

64. The major problems over the next 4-6 weeks will be those associated with food shortages. The Department of Agriculture has already indicated that support in obtaining seed crops will be required on a fairly large scale.

65. Food products required will be very much dependant upon the availability of these crop seeds, however at this stage it is going to be at least 3-4 months before any crops would be produced to supplement food supplies.

66. The NDMO staff are continuing to process the VMF assessment forms in an effort to ascertain those areas which have an immediate food problem. These supplies are being obtained through already donated stocks of rice, canned meat and sugar, as well as being purchased with British Government relief funds.

67. The supplies are being delivered by available Vanuatu Government vessels, however as the demand increases in the next 2-6 weeks further assistance may be required.

68. An official request for assistance through the United Nations system was sent last Thursday (16 Jan '92) in an effort to obtain an initial supply of seed crops, and to alert the international community to the fact that food supplies on a large scale will be required within the next month to help supplement the dwindling food holdings in many villages.

69. In addition to food problems, there will undoubtedly be a requirement to request support to rebuild and/or repair the many schools, clinics, churches and water supply facilities which received damage as a result of TC Betsy.

DISASTER CONTROLLER  
28 January, 1992.

COMPOSITE DAMAGE REPORT  
BUILDING DESTROYED

ISLAND	CLINIC	SCHOOL	CHURCH	BUSH HOUSES
AMBRYM	1	10	7	266
MALAKULA	11	34	12	652
PENTECOST	3	7	31	781
EPI	1	16	17	201
EMAE	1	6	5	64
MATASO	1			2
MAKIRA			1	2
PAAMA	1	4	6	159
TONGOA	4	12	15	513
TONGARIKI		3	1	69
BUNINGA	1	1	2	47
AMBAE		1	4	72
TOTAL:	24	94	100	2828