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GOVERNMENT OF VANUATU

NATIONAL DISASTER CO-ORDINATING COMMITTEE

CYCLONE UMA, FEBRUARY 1987

REPORT ON DISASTER MANAGEMENT

By

W NICK CARTER

Port Vila, Vanuatu
7 March 1987

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SECTION 1 - INTRODUCTION

The impact of Cyclone Uma on the Republic of Vanuatu during 7/8 February 1987 sharply underlined, once again, the severity of the disaster threat faced by the country and its people. In this case, the broad areas affected were Efate, including the national capital Port Vila, and the Tafea Region.

2. The effects of the cyclone were extensive and it is likely that they will be felt, in various ways, for a long time. In fact, it is impossible at this early stage to forecast just how far the damage and destruction will affect the future development of the nation and its long-term social and economic status. What does seem certain is that Vanuatu faces a difficult post-disaster recovery period, during which there is obviously the possibility of yet another disaster event.

3. It follows that with this scale of disaster threat there is a need to review the events surrounding Cyclone Uma and to do so for the following important reasons:

- First, to provide information to Government which may assist with the development of various future policies and programs.
- Second, to present a perspective on current disaster management arrangements, so that these can be effectively developed for the future.
- Third, to serve as a basic reference and information document.

SECTION 2 - AIM OF THE REPORT

4. The aim of the report, therefore, is to outline major factors affecting the preparedness for, response to and recovery from Cyclone Uma, and to make recommendations accordingly.

SECTION 3 - SCOPE OF THE REPORT

5. Because the report is being compiled so close to Cyclone Uma (February/March 1987), its scope must be largely confined to the preparedness for and immediate response to Cyclone Uma. The report can, however, also provide some general indicators to the restoration and reconstruction aspects which comprise the total recovery program. This program, is the responsibility of a separate committee.

6. The information contained in the report has been obtained from the records of various committees, departments and agencies and from detailed discussions with key officials and others.

SECTION 4 - COUNTER-DISASTER MEASURES PRIOR TO CYCLONE
UMA

Recent Cyclone Experience

7. Prior to Cyclone Uma, Vanuatu had had recent experience of the effects of cyclones. In 1985, Cyclone Eric and Cyclone Nigel inflicted significant damage upon various parts of the country, to such an extent that international assistance was required in the response to and recovery from these situations.

8. These two cyclones were not of the same magnitude as Cyclone Uma. However, they did raise in the mind of Government the question of effective disaster management arrangements.

National Disaster Plan, 1985

9. Consequently, in late 1985, the Government decided to introduce a new National Disaster Plan and, to this end, requested the United Nations to provide the services of a specialist disaster adviser. The plan was formulated on a co-coordinated basis, with agencies at national and regional government levels being involved, plus representation from non-government organizations.

10. The essential aim of the plan was to provide a disaster management organisation and structure which would be capable, within the resources available, of coping with various types of emergencies throughout Vanuatu. The plan was approved **by** Government in December 1985 and given wide circulation. It placed a wide range of responsibilities on Government at all levels. It also recognised that the support of non-Government organisations (NGOs) and the general public was an important ingredient in successful disaster management.

Introduction of Legislation

11. In 1986, again with UN assistance, the Government investigated the possibility of introducing a Disaster Management Act. The underlying purpose of this Act was to provide support for the National Disaster Plan and to underline, in legal form, the major areas of responsibility for dealing with disasters. Draft legislation was produced, approved by the Attorney-General's Department and is currently (March 1987) awaiting Government confirmation.

Development of Disaster preparedness

12. One of the significant features of the 1985 National Disaster Plan' was the establishment of a National Disaster Management Office (NDMO), the responsibilities of which included the development and maintenance of disaster preparedness arrangements.

13. Between the time when NDMO was established and Cyclone Uma struck (approximately one year), the office carried out some valuable disaster preparedness measures. These included:

- The establishment of 11 Regional Disaster Co-ordinating Committees, plus the relevant Area Disaster Committees.
- The management of certain aspects left over from Cyclones Eric and Nigel (1985).
Inputs into national media programs to promote general disaster preparedness.
- Checks prior to the cyclone season of 1986/87 that the best achievable counter-disaster arrangements were in place. This included reminders to Government departments of their roles and responsibilities under the National Disaster Plan.
The preparation of information for issue to the public, by radio and other means, in the event of a major disaster such as Cyclone Uma.
- The preparation and circulation of public awareness posters and other material.
The acquisition of disaster-related publications and other information, as part of the development of NDMO.

14. In relation to the above measures, it must be noted that Government departments did not respond to NDMOs reminders concerning preparedness. Nor did they submit their states of readiness on 1 November 1986, as required under para. 26 of the National Disaster Plan.

15. There may be some good reason for this but it is disappointing and it constitutes a significant preparedness shortcoming. After all, Government departments were major contributors to the formulation of the National Disaster Plan and had generally agreed to preparedness requirements. It is to be hoped that this aspect will be satisfactorily resolved for the future.

16. As an important aspect of disaster preparedness, the National Disaster Plan stipulated the need to test the plan by exercises or other means. Prior to Cyclone Uma this had not been done, largely, because of the priority given to the measures described in para. 13.

17. So, as a broad summary of disaster preparedness prior to Cyclone Uma, whilst some valuable measures had been put in hand, two important goals were not achieved, namely:

- Complete checking and confirmation of the readiness of Government departments, and
Testing of the National Disaster Plan.

A further point concerns the arrangements for the setting up of the National Emergency Operations Centre (NEOC) and this is taken up in Section 9.

SECTION 5 - BRIEF DESCRIPTION OF CYCLONE UMA

Development and Track of the Cyclone

18. Cyclone Uma was monitored by the Tropical Cyclone Warning Centre (TCWC) Nadi, Fiji, in co-ordination with the Vanuatu Meteorological Service, Port Vila.

19. Tropical Cyclone Uma developed northwest of Santo on 5 February 1987 out of a depression, this had formed from an area of low pressure that had been present since the end of January.

20. The system remained more or less stationary for 12 hours before beginning to move slowly east southeast and was expected to intensify and pass close to Santo. However, further movement seemed to indicate that although the cyclone was intensifying, it was taking a more south southeasterly track, to be some 120 miles west of Santo by 2100 hours on 6 February.

21. The predicted track seemed to be maintained and a further forecast put it at about 100 miles northwest of Vila by 0600 hours on 7 February. However, by 0130 hours on 7 February, satellite imagery suggested it was intensifying further and taking a more southeasterly track, towards Efate, and was expected to be about 30 miles west of Port Vila by 1800 hours. This proved to be the case, a minimum pressure of 957 hectopascals being recorded at the Main Meteorological Office, Port Vila at 1900 hours.

Winds

22 No actual recordings were made of the maximum wind reached in Port Vila. Due to a combination of equipment limitations, power supply cut and cyclone damage, the highest wind recorded was around 60 knots, as from 1623 hours on 7 February. However, it has been officially estimated that mean speeds of 90 knots occurred, with gusts up to 120 knots; and in view of some damage characteristics, it is considered that some gusts could have been in excess of 120 knots. see also Annex A.

Rainfall

23. Rainfall associated with Cyclone Uma was typically heavy. In Port Vila on 7 and 8 February there were nearly 8 inches of rain. In the Tafea Region, on the island of Tanna, some 18 inches of rain were reported on 8 February.

Storm Surge

24. It has been estimated that a storm surge of up to 4 metres could have been experienced at the centre of the cyclone.

SECTION 6 - WARNING FACTORS

Issue of Warning Information

25. As inferred in Sections 4 and 5, and within the concept of the National Disaster Plan, the importance of accurate and

timely warning was clearly recognised. This applied to warning of both the disaster management authorities and the general public.

26. In the case of Cyclone Uma warning was certainly timely. The Vanuatu Meteorological Service, operating in conjunction with TCWC Nadi, ensured that the best possible warning lead-time was made available. This has been confirmed by disaster related agencies and the public.

Dissemination of Warning

27. Vanuatu Meteorological Service disseminated warnings in accordance with its own standard procedures and the provisions of the National Disaster Plan. Its system included telephone and telex channels and also ensured that Radio Vanuatu could make timely broadcasts.

28. In addition, the two sets of warning lights (3 Reds) in Port Vila were utilized to provide additional warning information.

29. In connection with the dissemination of warning, it should be noted that Radio Vanuatu ceased transmission during the evening of 7 February, when power was cut off. This was due to the fact that Radio Vanuatu's standby generator had become unserviceable a week or so prior to Cyclone Uma and no spare parts were available within Vanuatu; neither could local repairs be effected. It is considered that this failure in transmission had no significant adverse effect on warning because the cyclone had already started to lash Fort Vila. The failure did, of course, inhibit communication with the public for other matters.

Utilisation of Warning

30. As stated in para. 26, very good warning lead-time was provided. Some individuals used this to good effect, others did not. Some departments and agencies initiated precautionary

measures, others took no special action.

31. One good example of utilising warning to beneficial effect was the official decision to move people from exposed and low-lying areas into the shelter of strong school buildings prior to the cyclone's impact.

32. In retrospect, the question did arise of what, in real terms, the warnings meant. If people have never experienced wind intensities of 75 or 90 knots, what do these figures mean? Do they necessarily and automatically indicate what kind and degree of action should be taken? This aspect of warning, which was considered during the formulation of the National Disaster Plan, clearly needs further attention where this is possible. However, warning information is issued in accordance with an international system and the interpretation aspect mentioned above should certainly not be allowed to detract from the performance of the Vanuatu Meteorological Service. In the case of Cyclone Uma, VMS deserves credit for its effective contribution to disaster management arrangements. Its own preparedness measures were also commendable.

SECTION 7 - ACTIVATION OF COUNTER-DISASTER ORGANISATION

33. As already stated in Section 6, warning information was accurate and timely, giving plenty of advance notice to both disaster-related agencies and the general public. Thus, members of the counter-disaster organisation, as a whole, were well-informed in advance of the possible impact situation.

34. However, the impact and immediate aftermath of Cyclone Uma was so severe that very acute problems confronted the early effective mobilisation of the National Disaster Coordinating Committee (NDCC) and the Central Control Group (CCG). In Port Vila, damage was very severe and wide-spread; debris made roads virtually impassable, and communications and other essential services were severely disrupted. In addition, the home situations of many key counter-disaster personnel were badly affected and required urgent attention.

In fact, the overall situation was so bad that the affected

regions were officially declared disaster areas and 9 and 10 February were declared self-help days for people who so needed them.

35. Another significant factor was that Radio Vanuatu was capable of limited transmission only, thus exacerbating the problem of disseminating information concerning relief and other matters.

36. Consequently, it became impossible to achieve formal activation of the counter-disaster organisation on 8 February. However, the Chairman NDCC and certain committee members, and other Government officials succeeded in initiating various emergency measures on that day and during the morning of 9 February. These measures included broadcast information by the Chairman NDCC to assure the public that assistance was being mobilised. The NDCC then met formally on the afternoon of 9 February.

37. It is significant that during this early post-impact stage, the central Government and the Port Vila/Efate area as a whole was almost exclusively concerned with its own plight. It was therefore not possible to mobilise assistance to the Tafea Region (ie. Erromango, Tanna, Aneityum, Aniwa and other small islands). This makes the point that if the focal organisation for counter-disaster response is itself affected, then activation and mobilisation of effort becomes more complicated and takes more time. However, in this instance, due to development of preparedness from national level, the Tafea Region did have its own regional arrangements. This makes the further point that reasonable self-dependence at regional level is most important and should be regarded as a feature of further preparedness development.

38. In the context of activation, it should be noted that police and Vanuatu Mobile Force (VMF) reacted quickly effectively prior to and immediately following the cyclone's

impact. In particular, prior to impact, warning patrols were carried out and assistance provided with the movement of people to shelter. Immediately post-impact, patrols were again carried out for rescue, survey and general assistance purposes.

39. Finally on activation, all credit should be given to the Chairman NDCC for his initial efforts from first light on 8 February to mobilise effective response measures as soon as possible. He held the key responsibility and he fulfilled it very capably under extremely difficult circumstances.

SECTION 8 - IMPACT OF CYCLONE UMA AND INDICATIONS OF ITS EFFECTS

40. The impact of Cyclone Uma was undoubtedly very severe when judged by international and regional standards. It is difficult to make accurate comparisons (and probably unwise to do so). But in terms of destructive capacity, Cyclone Uma 'probably compares roughly with Cyclone Tracy which, in 1974, did such enormous damage to the city of Darwin in Australia. Anyway, the fact that Cyclone Uma battered Port Vila for something like 9 hours speaks for itself.

Early Indications of Effects

41. The fact that the capital city itself was so severely affected produced one asset from a disaster management viewpoint. It enabled central Government authorities to make an immediate assessment, at first hand, of roughly what the major effects were likely to be and, in general terms, what scale of remedial action would be required for all areas affected.

Summary of Effects

42. In summary, the main effects appeared, and later proved generally to be as follows:

- Casualties
 - Disruption to essential services and facilities
 - Destruction of or damage to housing
 - Destruction of or damage to other property and installations
 - Restricted movement on land
- Possible limitations to air and sea transport
 - Damage to subsistence and cash crops
- Loss of livelihood
 - Disruption to functioning of Government and the private sector
 - National economic loss.

The needs created by these effects and the main measures taken to meet those needs are covered in Sections 9-11 below.

SECTION 9 - EMERGENCY PHASE OPERATIONS

Some Important Principles

43. In considering Emergency phase operations, and the organisation needed to deal with them, it is advisable to bear in mind certain points of principle. In Cyclone Uma, as in most disaster[#] situations, it is the Government which has the primary responsibility. The Government is responsible to the people for meeting the needs and requirements created by disaster, in the same way that it is responsible for other aspects of national life. The Government may, and usually does need assistance from NGOs, the private sector and the general public; and, in many cases, from its international friends also. But this does not change the fact that the primary responsibility still rests firmly with the Government.

44. This being so, it is Government organisation and Government resources which necessarily have to bear the brunt of counter-disaster action. Furthermore, when Government departments and agencies have to deal with disaster, they invariably have to accept a considerable work overload; also, they usually have to function under pressure and in co-operation with a variety of other agencies, Government and otherwise.

/ 12 ."

A further point is that disaster produces some needs which may not be covered by normal Government organisation, for example, emergency feeding.

45. This is why, in essence, a disaster management organisation is needed. But, and this is important, the disaster management organisation does not control other Government departments, it does not tell those departments how to do their jobs. The main function of the disaster management organisation during emergency operations, as at other times, is to ensure, as far as possible, that the resources and operations of these Government departments (and NGOs) are co-ordinated to produce the best possible operational effect. As a famous American general of bygone days is reputed to have said, 'the aim is to get there the fastest with the mostest'. What is discussed in the remainder of this section should be considered against this background.

Nature of the Emergency Phase

46. The Emergency Phase in a disaster is invariably a period during which initial severe disruption (sometimes chaos) has to be gradually brought under control. In Cyclone Uma the emergency phase was typical of this situation. There were problems at first in organizing a coherent and cohesive response but there is no doubt that the counter-disaster action, organized through the NDCC and its Action Committee (see para. 59) was effective.

Period of Emergency Phase

47. It is usually accepted that the Emergency Phase in disaster management should be approximately 2-3 weeks. The essential principle is that, during this initial period, centralized national and regional control is necessary in order to ensure that available resources can be mobilised and utilized to full effect. After this, there should be a progressive return to the normal systems and processes of government; and to normal life in the private sector

and the community generally.

48. In the case of Cyclone Uma, it was decided that the Emergency Phase would be 3 weeks. This is considered to be an accurate decision. If the Emergency Phase is extended too far, it may ;

- . produce over-dependence on emergency aid,
- . adversely affect the commercial system and
- . unnecessarily delay return to normal community life.

Organisation for Emergency Operations

49. National Disaster Plan

As stated earlier, preparedness measures had been developed under the National Disaster Plan and contact had been maintained between the national and regional administrations • However, there had been no real opportunity to test the plan, either in exercises or minor disaster situations. Certainly, Vanuatu's support for the Solomon Islands, during Cyclone Namu in 1986, had provided some practice in disaster responses But in real terms, the National Disaster Plan faced its first test in Cyclone Uma.

This meant, of course, that key officials and operating departments were not well practised in applying the plan. In this regard, during Cyclone Uma operations, it was noticeable that some officials were unfamiliar with the contents of the plan. There would appear to be little excuse for this.

50. National Disaster Co-ordinating Committee

The NDCC was also facing its first major operational test under the plan, though its members had previously worked on various planning, preparedness and legislative aspects. Also, some, if not most NDCC members had had previous experience of dealing with disaster (for instance, during Cyclones Eric and Nigel).

51. Central Control Group

The Central Control Group had no previous operational experience, as a group, working under the plan.

52. Arrangements for Co-ordination

Effective co-ordination in a situation such as cyclone Uma is obviously vital. However, detailed arrangements for co-ordination remained virtually untried. These arrangements were based on a combination of:

- NDCC - decision-making and allocation of broad tasks, with priorities.

CCG - in co-ordination with resource organisations, arrangements for implementing tasks.

Again, it must be borne in mind that the experience factor among officials would, to some extent, offset the lack of proven arrangements for co-ordination.'

National Emergency Operations Centre

53. The plan had envisaged that the NEOC would function in the normally accepted role of an information-processing centre, aimed to ~

Receive and, if necessary acquire, information.

Display and assess *it*.

Facilitate decision-making.

Disseminate decisions and information.

To this end, it would utilise information visual displays and a series of functional action desks. Thus, it would facilitate clear and rapid operational action by the Central Control Group, especially *in* allocating resources to tasks.

54. In Cyclone Uma, because the NEOC was not set up to fulfil normal function, the organisation for emergency operations took on a different format from that stated *in* the plan.' This point is explained *in* paras. 58-62.

Functions of NEOC Action Desks

55. The action desks in an NEOC are not necessarily standardised. For instance, the combination used in Cyclone Isaac, Tonga 1982, differed from those in Cyclone Namu, Solomon Islands 1986. An example used in the South Pacific with successful results is:

- Administration/Finance
- Services
- Construction
- Medical and health
- Commerce
- Logistics
- Agriculture

The activity groupings used during Cyclone Uma (eg. Food and Shelter) would be a useful guide for Vanuatu but it should be remembered that, requirements may change, depending upon the type and location of a particular disaster.

56. Associated with action desks there is, of course, the automatic build-up of a comprehensive visual display of information, so that at any time there is a reasonably up-to-date picture of ongoing operations.

57. Thus, in sum, the action desks achieve co-ordinated action, under whatever form of central direction (eg. National Committee, Control Group, etc) is being used.

Functioning of Operations Centre during Cyclone Uma

58. During Cyclone Uma, there was no NEOC as such. The Police Operations Room was used in a partial NEOC role but it also served extensively as a conference room. It is most undesirable, in the interests of efficiency, that this dual role should apply. An NEOC needs to be kept completely free of anyone but the staff and controlling officials. This is a golden rule, proven by sometimes bitter experience. It is interesting in this regard that in Fiji, it became

necessary to set aside a separate room, close to the NEOC, for Ministers and other persons, in order to prevent interference with NEOC operations.

Enforced Change in Organisation

59. The lack of a proper NEOC (and thus its information and co-ordinating capability) led to an interesting but inevitable outcome. The planned Central Control Group: blew out, balloon-like, into a very large Action Committee. This committee then utilized sub-sections (eg. Food and Shelter) to implement detailed operations. But, these sub-sections had no automatic co-ordinating system, as with an NEOC. Therefore, the Action Committee had to hold very frequent meetings (mostly daily) in order to keep a tag on operations.

60. This was obviously not the easiest way of achieving co-ordinated operational response but every credit must be given to the Chairman of the Action Committee and its members for the way in which they made this enforced system work. Their capability for improvisation was exceptional.

62. However, as stated in para. 60, it would be uncharitable to

61. There were, of course, some disadvantages. For instance:

- The Action Committee became very large indeed and it proved somewhat difficult for the Chairman to control the attendance of persons who might originally have been co-opted for one meeting only.
- The Action Committee, lacking an NEOC, had to deal with a mass of detail.
- There was inevitably a tendency to some duplication of work between the Action Committee and the NDCC. It was sometimes difficult for persons outside the system (eg. aid donors' representatives, NGOs) to know to which committee they should relate.

detract in any way at all from the achievements of the Action Committee. The important thing is to organise matters

as effectively as possible for the future. In this regard, it is, of course, essential that arrangements are made for the proper functioning of the NEOC. To be fair, it should be said that, during the formulation of the National Disaster Plan and the definition of responsibilities for the NDMO, the intended role of the NEOC was probably not covered in sufficient detail.

Functioning of NDCC

63. Given the situation described in paras. 53-61, the functioning of NDCC was also affected. This Committee found itself in a position where it was difficult to sit back and consider the situation objectively, because it was part and parcel of the 'disaster front'. Moreover, with a large Action Committee and a limited NEOC, it had a somewhat difficult structure through which to implement its policy and other decisions. It says a great deal for the flexibility of the Chairman and members of NDCC that they were able to make this unplanned, unexpected and untried system work. What is more, they were able to make it work successfully, as was indicated by the Committee's sound management and firm decision-making. As an aside, the NDCC's situation makes the point that, under pressure and if the need arises, disaster plans must be used in a flexible way.

64. Having said that, it would be desirable for the future to reaffirm the clear roles of the NDCC, the Central Control Group and the NEOC. It is suggested that this should be a post-disaster review priority for the NDCC. In this connection, the NEOC appears to be the critical factor. and it may be worth considering whether an alternative site, other than police Headquarters, might be preferable. The Police Headquarters is not very easy to convert to the NEOC role and, perhaps more importantly, there may be times during disaster when it could be difficult to combine the NEOC and Police role. A building such as the Government Training Centre might be

a possibility, provided the necessary conversion kits (communications, information boards etc.) were kept readily available. Another possibility might be to persuade an aid donor, under bilateral arrangements, to fund the building of an NEOC, or the conversion of an existing building for that purpose. It is suggested that this point concerning NEOC arrangements should be pursued by the NDCC as a part of post-disaster review.

Survey and Assessment

65. Under the National Disaster Plan, broad responsibility for survey and assessment rested with the NDCC and Local Government Disaster Co-ordinating Committees. In the allocation of responsibilities under the plan, survey and assessment is specifically mentioned in regard to some resource organisations and is implicit in the roles of others.

66. In the event, following the impact of Cyclone Uma, survey and assessment reports originated from a number of different sources. These included:

General air surveys, giving broad damage information. A specific survey of Port Vila by the VMF.

Surveys carried out as a part of a departments post-disaster function, for instance, by Department of Health teams primarily concerned with medical and health matters.

Assessments from specialists sent to investigate particular problems or situations, for instance, Rural water Supplies, public Works, physical planning etc.

General situation reports from the Tafea local Government Disaster Co-ordinating Committee and the Municipality of Port Vila.

surveys carried out in the Tafea Region, in line with the National Disaster plan, utilising 22 Area Committees, to gain information on needs at local level ..

Information from NGOs which were operating within their normal areas of interest and responsibility. Information gained from various requests for assistance. Local knowledge, especially by disaster-related officials in Port Vila, should also be recorded as a source of information for survey and assessment.

67. Comments made concerning survey and assessment included the following:

There is a need to have survey and assessment responsibilities clearly earmarked prior to a disaster, defining who is responsible for areas such as building damage, the food situation, shelter requirements and so on. Also, a set of criteria needs to be developed, so that there are no duplicating and conflicting reports.

Information collected by specialist teams did not seem to be utilised for the maximum general benefit. This tends to reaffirm the need for an NEOC. Overall, assessment of needs was not adequate, especially in Port Vila area.

There were difficulties in getting survey and assessment information to the NDCC early enough, mainly due to the severe conditions in the affected areas • This had a delaying effect on response operations.

68. There were, undoubtedly, problems with survey and assessment. However overall, judging from committee reports, and taking full account of the general disaster situations, the information picture for and during emergency operations appears to have been fairly reasonable. Whether the information required for the recovery phase is adequate, for major program assessment and implementation, is a separate issue.

69. As with most counter-disaster aspects generally, survey and assessment can undoubtedly be developed and improved for the future. Since the drafting of the National Disaster Plan, information resulting from a special workshop on survey and

assessment, sponsored by the Pacific Islands Development Program, has been published. Vanuatu was represented at this workshop. Also, a survey was found necessary in the Solomon Islands, following Cyclone Namu, and report forms were designed for this purpose; examples of these forms could certainly be

be obtained from Solomon Islands. Fiji also has some useful forms which could be easily adapted for use in Vanuatu.

70. It is suggested that NDMO take up the matter of providing satisfactory report forms for survey and assessment. Also, the NDCC should consider whether more information on survey and assessment generally needs to be included in the National Disaster Plan.

Identification of Needs

71. For the purpose of emergency operations immediately following the impact of Cyclone Uma, the following main needs were identified. These are not listed in any particular order of priority because, obviously, many of them had to be tackled simultaneously. They were the need to:

- Search for and treat casualties
- Deal with the dead
- Locate missing persons, if possible Survey and assess effects (paras. 65-70)
- Clear debris from roads and other vital movement and access areas
- Restore essential services such as telecommunications, power supplies, water supplies
- Restore radio services to full capacity Maintain law and order and suppress looting Determine number of people homeless and in need of shelter
- Identify emergency feeding requirements
- Determine transport capability (land, sea and air)
- Consider evacuation measures, if necessary
- Provide medical, health and sanitation measures and facilities
- Provide assistance for aspects of agriculture, livestock and fisheries

Determine international assistance requirements
Impose price controls, if necessary
Arrange local purchase systems, both to obtain
necessary items for emergency operations and to
assist commercial establishments which had been badly
damaged
Clean up affected areas.

72. It is considered that, despite limitations which applied to survey and assessment (see paras. 65-70) " .and bearing in mind the separation of the Tafea Region from Port Vila, identification of emergency needs was generally effective. Longer term sociological and psychological needs usually take more time to emerge.

Availability of Resources

73. Obviously, to meet the needs described in para. 71, maximum availability of local resources would be required, especially in terms of movement capability, equipment and supplies. Some points relevant to this aspect are:

Air Capability

Only one light aircraft was damaged during the cyclone. Air Melanesie's airlift capability therefore remained intact.

It is noteworthy that airport authorities took sound precautionary measures to protect airport installations, aircraft and equipment.

Shipping.

Ships in Port Vila harbour were put out of action in various ways, thus reducing shipping capability, at least initially. A total of 15 ships were in northern ports but there were delays in making early contact with them due to communication problems.

Road Transport

Damage to Government transport was not serious. However, many private vehicles within the community,

which might otherwise have been available for disaster purposes, especially self-help, were put out of action.

Equipment and supplies

Despite the damage caused by the cyclone, major equipment required for clearance and for restoration of essential services was not, overall, seriously affected.

In-country supplies of disaster relevant items, such as shelter materials, chainsaws, etc. were limited.

Food was also limited, in terms of meeting anticipated emergency feeding needs, plus a longer term food program (if the need for this developed).

74. Although, therefore, in-country resources were not drastically downgraded overall, international assistance was obviously a requirement. The NDCC, in co-operation with other Government departments., therefore initiated action to this end. At the same time, immediately following the impact of Cyclone Uma, some donor countries and agencies made early offers of assistance.

SECTION 10 - INTERNATIONAL ASSISTANCE

Definition of Needs

75. The National Disaster Plan contained guidelines on international assistance and recommended careful definition of needs. This was stressed in order to avoid wasteful over-contribution and/or the dispatch from overseas of inappropriate items. The NDCC endeavored to follow this policy and, early on in the Emergency Phase, identified major requirements, which included~

- Tents, tarpaulins and shelter materials Food
Clothing
Cash grants for purchase of supplies Air
survey assistance
Emergency equipment (eg. chainsaws etc)

- Specialist personnel (eg. engineers, technicians)
- Seeds for agricultural rehabilitation
- Medical supplies
- Communications equipment, including a portable emergency broadcasting system.

76. Some further information on international assistance is given in Annex B.

77. An interesting comment was made from an in-country *point* of view by a senior Government official. He suggested that aid donors should wait until a proper list of requirements is drawn up, so that appropriate aid can be supplied and accepted. This point is recorded not to discount in any way the generousities of and need for international assistance but to indicate how difficult it sometimes is for stricken nations to determine what exactly they need and, at the same time not to offend well-intentioned donors.

Contact with Donor Countries and Organisation

78. The French Government was very quick to respond to the situation in Vanuatu. From Noumea, it sent in a transport aircraft early on 8 February (the morning after the Cyclone struck) with electrical equipment and one Puma helicopter.

The helicopter was a particularly invaluable asset, especially at this early stage.

Liaison Arrangement

79. Initial dealings with donor countries and agencies were somewhat inhibited initially by the organizational problems outlined in paras. 58-64. One senior representative of a donor country stated that at his first contact with the Action Committee, some 50 people must have been in attendance; and that constructive aid negotiations could not be achieved in this kind of forum.

80. Subsequently, the Government organized a liaison system, based on periodic meetings of aid donors, and this materially assisted aid program arrangements. In this regard, it is appropriate to state the relationship between aid donors and the Government appears very amicable and is thus favourable for constructive results.

Future Arrangements

81. It has been suggested that in future the following arrangements should apply:

- Ministry of Foreign Affairs to be responsible for diplomatic contacts and matters of protocol.
- National Planning and Statistics Office to be responsible for detailed arrangements, with Director NPSO included as a member of the Central Control Group.

82. This proposal is prompted by the fact that NFSO is involved, in non-disaster times, with aid projects and similar matters.

Involvement of NGOs

83. At one stage, NGOs became involved in these aid donor meetings. This is understandable because of the international nature of most, if not all NGOs. However, it does raise the point that NGOs need and should have a contact point with or channel to Government. It is suggested that this question will be resolved, in principle at least, if the Chairman of the NGOs Committee takes full membership status on the NDCC, as provided by the National Disaster plan. The Chairman can then ensure that detailed liaison arrangements for NGOs are satisfactory.

SECTION 11 - KEY ASPECTS OF EMERGENCY PROGRAMS

84. The intention in this section is not *to describe* emergency programs in detail but to identify **key** aspects of

those programs, with a view to assisting disaster management in the future. In this way, aspects which may apply to one or more programs will be clearly defined and emphasised.

General Approach to the Post -Impact Situation

85. There was a good, vigorous and positive approach to the post-impact situation by all concerned including, it would appear, the general public. The attitude was that a disaster had occurred and there was no alternative but to deal with it; so the sooner, the better. Then normal life would be resumed as quickly as possible. It would seem that this approach has significantly assisted the counter-disaster authorities and the affected communities in general.

Management of Programs

86. A good deal has been said in Section 9 concerning the main factors which affected disaster management generally. Some additional comments submitted on this aspect were:

- Whilst recognizing the difficult circumstances affecting activation of the counter-disaster system in this case, early activation is important, especially to ensure that emergency programs are quickly identified and initiated.
 - Transport is a key item in implementing emergency programs. The Government should investigate the possibility of maintaining extra vehicles for emergency use.
 - Limitations in in-country air transport capability are likely to apply for some time. Therefore, self-dependence at regional levels should be an important objective for the future, thus strengthening the capability for emergency program management.
- ▷ When Port Vila is affected, the Municipality should immediately become closely involved with the NDCC. This is necessary because there is no Regional disaster committee in this case. It

might be worth considering the setting-up of a special Municipal counter-disaster organisation. However, care should be taken to avoid too many committees. Co-ordination of programs would have been improved if Public Works Department had been represented at all meetings of the NDCC and the Action Committee. The intensified role of PWD during the Emergency Phase and the urgency of its commitments are understood. However, the absence of a PWD member at the Committee meetings did make it difficult to ensure co-ordinated action on some matters. For its part, PWD stated that it did not have enough senior staff members available to permit attendance at all meetings.

There is a need for defined storage areas for relief commodities, including those sent from overseas. Also,

- incoming supplies have to be properly controlled at the main airport in the interests of safety and effective organisation, even though this may cause some minor problems for individual recipient organisations.

87.. As an additional observation, it is considered that in future the staff of NDMO should not be used for emergency program operations. Their operational role is intended to be that of assisting in management (see Annexure M, para. 10 of the National Disaster Plan).

Evacuation

As stated in para. 31, in Port Vila people were evacuated to school buildings as a safety measure prior to the impact of the cyclone. For the future, it would be prudent for the NDCC to obtain technical advice on the structural safety standards of buildings, which might be used for this purpose. There have been several cases internationally where buildings being used as shelters have collapsed under disaster conditions,

involving heavy loss of life. The possible litigation consequences for Government on this aspect need to be borne in mind.

Restoration of Essential Services

89. Government and other authorities concerned with the restoration of essential services responded very effectively overall, especially considering the post-impact conditions. This applies to both Efate (including Port Vila) and the Tafea Region. Generally speaking, priorities were accurately identified and teams and individuals worked long hours to achieve restoration.

90. Comments and suggestions made on this aspect need included the following:

During cyclones and some other disasters) power supplies must be controlled, especially in the interest of public safety. Therefore, standby generators will always be required. It is imperative that these generators are maintained in a serviceable condition. After the impact of Cyclone Uma, there were cases, including Radio Vanuatu, where urgently needed emergency power supplies were not available.

With regard to Radio Vanuatu, there is currently split responsibility for various aspects of operation, including standby power. This split responsibility is being terminated in the near future and, hopefully, future problems will be avoided.

Rural water supplies, especially in the Tafea Region, gave cause for some concern. Once damaged, these supplies cannot be restored quickly. This meant that people would have to resort to using water from streams. There was also a danger *if* unclean pool water was used.

- Restoration of telecommunications proved to be major problem. This was mainly due to structural

damage, breaking of overhead cables and damage to telephone Installation themselves. Under the circumstances, it is doubtful whether the telecommunications system could have been rehabilitated more quickly than, in fact, occurred. For the future, it would be worthwhile holding a small 100-watt transmitter in reserve for emergency requirements.

An important aspect affecting telecommunications is use of available links. Posts and Telecommunications can arrange priority for essential services, both prior to and immediately after a disaster. The department does, however, need to know which services should, if necessary, receive priority. The NDCC should consider this matter during post-disaster review.

Distribution of Food

91. As stated in para. 71, local purchase of supplies, including food, was made by the Government, primarily to avoid waste of stocks in damaged shops and stores. Action was also taken to prevent refrigerated stocks, affected by power failure, from being used and thus causing possible health problems. Therefore, these and other doubtful foodstuffs were disposed of under Government supervision.

92. A food distribution program for the Port Vila area was initiated on 9 February, aimed to prevent additional hardship on people who had been most severely affected by the cyclone's impact. Food programs were also put in hand for rural Efate and the Tafea Region. In the case of Tafea, transport problems existed initially and the Local Government Disaster Co-ordinating Committee was obliged to resort to local resources to ensure a reasonable emergency feeding standard.

93. Food supplies from overseas began to arrive as early as 9 February and a progressive build-up of these supplies

continued over the next 2-3 weeks.

94. Food distribution involved some problems, as it usually does during the Emergency Phase. In Port Vila, for instance, distribution points were announced but, for the first intended distribution, food stocks did not arrive. This was apparently due to problems of co-ordination between the NDCC and the Action Committee.

95. Some observations submitted concerning the food distribution program were as follows:

Food distribution was commenced too early. Generally speaking, people had access to food in the first days of the Emergency Phase. As against this, it was the Government's underlying intention that, following the traumatic impact of the cyclone, people should not suffer unnecessarily. It was better therefore to over-react than otherwise.

As a matter of principle and policy, there should be better arrangements for the utilisation of available in-country food supplies. Organised support from non-affected areas would help to offset the need for large quantities of food aid. After all, the freight costs of this aid are very large and the savings could be better utilised for other aid programs.

- Extensive food distribution can seriously affect rural people who depend on selling their cash crop produce for a livelihood.

Problems of access, especially in the Tafea Region, affected distribution and thus probably caused some hardship.

There is a need for close co-ordination of food distribution as between Government programs and those of NGOs.

Some food donated from overseas was not entirely appropriate for local purposes.

It was reported that in some of the outer islands political preference was shown in distributing food.

96. Overall, it seems evident that there were difficulties with the food distribution program. These difficulties seem to have arisen mainly from limitations concerning accurate information and the availability of transport and manpower. However, the general thrust of the program was right, and reasonable steps were taken to ensure fair and adequate distribution. The food distribution aspect is usually difficult to implement, especially to ensure fair supply to meet all needs.

Provision of Shelter

97. Provision of emergency shelter was required on a wide scale because of the severity of Cyclone Uma. Also, the shelter problem was generally exacerbated by post-cyclonic rain which continued for something like two weeks.

98. Estimation of shelter requirements was a difficult problem but available information indicated that approximately 35,000 people throughout the affected areas would require some form of shelter assistance.

99. Plastic sheeting and tarpaulins began to become available from overseas aid sources on 10 February, with some tent supplies arriving from 12 February onwards. Distribution of items began without delay, according to priorities laid down by the NDCC. These initial priorities were:

essential Government services food
distribution points essential
private sector business private
houses.

The NDCC also directed that distribution of shelter items should be carried out in co-ordination with the Tafea Region Disaster Co-ordinating Committee.

100. As with food, there were some distribution problems, largely concerned with transport availability and the implementation of priorities.

101. Various points were raised concerning the provision of shelter. These included:

Tarpaulins were often wrongly fitted and this resulted in tearing and damage. There is need for training in the fitting of tarpaulins (and the erection on tents) and this would probably be best centered on the VMF.

There is need to conserve tents, as far as possible, for future eventualities.

Distribution of shelter equipment could have been achieved more quickly if air dropping facilities had been available.

It is questionable whether widespread resort to tents, tarpaulins and plastic sheeting is the total answer to the shelter problem. For instance, rural communities usually cook inside: their living quarters; and it is not really feasible to cook in tents.

Consideration should be given to holding emergency stocks of local roofing materials and issuing them to rural communities in time of need.

102. In general, it would appear that the best possible effort was made to distribute shelter materials expeditiously. However, problems were such that the needs of many disaster victims could not be met in time to avoid some privation and additional hardship.

Medical and Health

103. Department of Health tackled its problems by co-ordinating action under the following headings:

Medical teams

Malaria program

Public health

- Health education

Transport

Communications.

104. The main concept of the program under these headings for the first week following the cyclone's impact is given I..32.***

below. Subsequent weeks of the Emergency Phase were a logical extension of the first week's program.

- Medical teams reported on and treated victims in both rural and urban areas of Efate, identified health risk factors which were passed on to other co-ordinators for action, and established a pattern of action to ensure effective cover of all areas. The Malaria Co-ordinator arranged for back-up

ULV spray unit to be flown in, prepared equipment and checked stocks of spray chemicals. Town spraying for malaria was started during this week when transport could be organised.

The Public Health co-coordinator began water testing, review of sanitation facilities, and began the project of building toilet slabs for the construction of toilets blown down. Slabs came into production during the second week.

Health Education co-coordinator began broadcasts over radio, with input from all other areas, including medical team representatives.

The Transport Co-coordinator took control of all available transport and allocated use according to need.

The Communications Co-coordinator established links with a number of rural areas and hospitals to assess damage, morbidity and mortality. It was not possible to establish communications with Tanna until late in the week, when radio contact was made.

105. Major problems were communication with related establishments in the Tafea Reeion and shortage of transport to enable medical and other teams to operate. Weaknesses and strengths were assessed as:

Weaknesses

Absence of a departmental plan of action. poor collection of statistics.

Inadequate evaluation of damage to equipment, materials and buildings.

stricken communities. There were some problems of co-ordination, as outlined in para. 83. However, as suggested in that paragraph, if the Chairman of the NGOs Committee takes up full member status of the NDCC, this should assist matters. If this is done, and Red Cross also takes up its full member status, the interests of NGOs should be adequately preserved.

Clean Up

111. In the context of emergency operations, particular mention must be made of clean-up action taken, particularly in the Port Vila area. The problem of fallen trees, scattered roofing iron, broken power and telephone lines, and general debris was a mammoth one. However, Public Works Department, with assistance from Emoleum (an Australian construction company), the Municipality and other agencies, set about the problem in an organised and vigorous way. Great credit is due for this effort which was not only of practical significance but of morale benefit as well •.

The Cost of Cyclone Uma

112. The cost of Cyclone Uma is obviously very considerable. As an indication, at the end of the Emergency phase, the following facts give some indication of what Vanuatu has suffered.

113. Casualty figures were 28 persons killed or missing and approximately 70 injured.

114. Latest assessment of Government expenditure needs arising from the cyclone is VT87,000,000, or approximately US\$8.3 million. This includes all emergency relief purchases (eg. Food etc) and costs, including those assisting communities in general. It does not include:
All provisions in kind leg. by direct purchases etc) by aid donors, except as regards provision of building materials by direct purchase New Zealand), which are costed into PWD'S reconstruction items.

All non-Government sector rebuilding (eg. churches, private sector, village housing etc).
Loss of Government revenue.

Summary of Emergency Programs

115. Obviously this Section can only provide a general perspective on emergency programs. A multiplicity of activities go on during the Emergency phase, in conjunction with the major effort which is centred on Government. However, what is covered in paras. 84-114 above gives a general indication of what was done following Cyclone Uma and, in particular, it underlines certain essential requirements.

These include:

- Effective direction and management of programs.
Co-ordinated effort by departments and agencies involved ..
Adequate information for program operations.
- Need to keep affected communities well-informed ..
Good communication facilities.
- Adequate transport and personnel.
A background of good preparedness.

116. These requirements also underline the difference between action taken by Departments and the action needed to deal with special programs, such as Emergency Feeding and provision of Shelter. As stated in para. 44, Government departments come under very considerable pressure in meeting the emergency programs necessary under disaster circumstances. But they do have the basic organization, resources and infrastructure to tackle such programs. With special programs, there may often be a lack or insufficiency of this general support and backing. This applied in this case and it reflected on the difficulties, which, in fact, arose in these specialized areas of food and shelter. This matter, again, is an essential part of post disaster review and it may be that, for the future, consideration should be given to the Vanuatu Mobile Force taking on responsibility for emergency feeding and provision of shelter, even if this means increasing the strength of the Force.

SECTION 12 - POST-DISASTER REVIEW

117. The importance of post-disaster review in any situation cannot be over-emphasised. In the case of Cyclone Uma this is particularly so, in view of the relatively new counter disaster system in Vanuatu.

118. General guidelines for this review are contained in paras. 70-74 of the National Disaster Plan. In this regard it is extremely important that adequate reports should be compiled by Government departments and agencies, and if possible by NGOs. These reports should then be submitted to the NDMO for co-ordination and subsequent presentation to the NDCC.

119. The importance of this review for Vanuatu is emphasised once again. The future capability of the country to deal with its disaster problems depends very significantly on such a review.

SECTION 13 - RECOVERY ASPECTS

120. It is recognised and understood that the recovery program is being dealt with as a separate project. However, it may be useful to project, very briefly, some of the indicators from the Emergency phase, in order to assist the recovery program.

Main Program Requirements

121. It is suggested that the main program requirements are as follows:

- To ensure that the assessment of cyclone damage is accurate and that there is an adequate information base.
- To identify and formulate the necessary components of the restoration and reconstruction programs, which comprise the recovery phase.
- To ensure effective direction and co-ordination of these programs.

Accurate Assessment of Damage

122. As indicated in earlier sections of this report, the availability of accurate information on which to base the programs of the Emergency Phase was sometimes a problem. It is recognised that for recovery purposes, additional information is being acquired. However, the point is that it would be advisable to slow down the program or parts of it if the information base is found to be inadequate and needs to be augmented.

Program Components

123. In cases similar to Cyclone Uma, it has been found necessary to divide the recovery program into clear component parts, for instance:

- Housing Agriculture
- Medical and Health
- Civil Works and Infrastructure
- Etc

124. It is obviously assumed that something similar will be done in the current recovery program.

125. Where possible, within program components, it would be advisable to take account of future disaster management aspects, for instance, building design, the need for building regulations, etc.

Program Management

126. The need for effective management was well illustrated during the ~emergency phase. Normally, the recovery program does not suffer from the pressures and disruptions of the Emergency Phase, and extends for a much longer period. However, it may be worth bearing in mind that some small management section would be useful in assisting the existing Reconstruction Committee.

127. It may also be worth noting that under the approved national Disaster plan, the Minister of Home Affairs, in conjunction with the Prime Minister, the Minister for Finance and the Minister for Foreign Affairs will be responsible for advising the Council of Ministers on long-term recovery policy.

SECTION 14 - CONCLUSIONS AND MAIN
RECOMMENDATIONS

General

128. In this section the conclusions and recommendations are framed in broad format, so that they can be readily identified. However, this report contains many minor points which apply to detailed disaster management.

129.] It is therefore recommended that the report should be carefully scrutinised by the Senior Disaster Management Officer in order that these minor points are not overlooked.

National Disaster Plan

130. It may be that amendments to the National Disaster Plan will be advisable following the experience of Cyclone Uma. This point should become clear after the post-disaster review.

131. It is recommended that the effectiveness of the National Disaster Plan should be considered during the post-disaster review and if considered necessary, the plan should be amended accordingly.

Preparedness

132. Some valuable preparedness measures were implemented prior to Cyclone Uma and these proved valuable and effective. There were, however some shortcomings in relation "to the requirements of the National Disaster Plan.

133. It is recommended that preparedness measures be maintained and developed for the future and that, in particular, the requirements of the National Disaster Plan be met by all departments and agencies concerned. This applies especially to the preparation and maintenance of departmental action plans and procedures.

Warning

134. Good warning lead-time of the cyclone was provided by the Vanuatu Meteorological Service. Overall, warning was utilized satisfactorily, though there were some exceptions to this. In this connection, it is crucial that standby power supplies are available. In the event, Radio Vanuatu's emergency power supply failed to function, though it did so at a time that did not significantly affect the effectiveness of warning.

135. It is recommended that warning arrangements be maintained at the highest possible standard, including the relevant emergency power supplies.

Aviation of the Counter-Disaster Organization

136. Due to the severe post-impact conditions, some difficulty was experienced in immediately activating the NDCC, though the Chairman took immediate action to initiate various measures. The Police and VMF reacted well, prior to and immediately following the cyclone's impact

137. It is recommended that the NDCC review the arrangements with a view to enhancing them for the future.

Organisation for Emergency Operations

138. A critical factor affecting emergency operations was that the National Emergency Operations Centre had not been fully developed in the required form. This had an effect on the functioning of the NDCC and, more particularly on the Central Control Group. The latter, in fact, blew up into a very

large Action Committee and this complicated its functioning significantly. However, it is to the credit of the *NDCC* and the Action Committee that they performed extremely well under the difficult circumstances caused by the lack of a standard *NEOC*.

139. It is recommended that arrangements for the setting up of a conventional *NEOC* be implemented as soon as possible; also that the roles of the *NDCC*, the Central Control Group and the *NEOC* are reaffirmed and applied as laid down in the National Disaster Plan.

Survey and Assessment

140. Survey and assessment was achieved through a variety of activities, some of which had been outlined in the National Disaster Plan. However, no standard procedures and forms were in place and, consequently, some problems arose.

141. It is recommended that the *NDCC* should review this aspect and introduce survey and assessment forms and any other measures to improve this aspect generally.

Identification of Needs

142. Given some limitations to survey and assessment, identification of needs arising from the impact of Cyclone Uma was generally satisfactory.

Availability of Resources

143. In-country resources were not seriously downgraded by the cyclone's impact but the level of needs clearly made international assistance necessary.

International Assistance

144. Overseas countries and organizations were quick to indicate their readiness to assist Vanuatu. However, there

were some initial organizational difficulties before a system of aid donors meetings was introduced.

145. It is recommended that a slightly revised system for handling international assistance should be set up for the future. This is described in para. 81.

Approach Emergency Programs

146. There was a good, positive and vigorous approach to tackling the post-impact situation and this significantly assisted the implementation of emergency programs.

Evacuation

147 •. strong school buildings were used as shelters for certain sections of the community prior to the Cyclone's impact.

148. It is recommended that, in future, the structural safety standards should be checked before buildings are used for this purpose.

Restoring of Essential Services

149. Restoration of essential services was effective, especially given the scale of damage and general conditions.

Distribution of Food and provision of Shelter

150. These were difficult programs, especially since they did not fall under the direct responsibility of a Government department. There were, therefore, problems in implementing both programs and some shortfalls occurred, though these were certainly not due to lack of effort and hard work by those responsible. The difficult conditions and limitations in

Accurate information and transport imposed significant restrictions on these programs.

151. It is recommended that consideration be given to making distribution of food provision of shelter a responsibility of the Vanuatu Mobile Force, even if this requires a slight increase in the size of the Force.

Medical and Health

152. Overall, medical and health aspects were handled well.

Information Program

153. Some problems arose concerning the dissemination of media information. The NDCC therefore Cave co-coordinating responsibility to the Director of Media Services.

154. It is recommended that the NDCC should consider future arrangements for the information program, as a part of post disaster review.

Support from Non-Government Organizations

155. Non-government organizations rendered valuable support to the Government during the aftermath of the cyclone. There were, however, some problems of co-ordination.

156. It is recommended that, for the future, NDCC should ensure that the two membership places on the Committee, one for Red Cross and the other for a representative of NGOs, should be filled, as provided for in the National Disaster Plan.

Clean Up

157. Clean-up after the cyclone, especially in the Port Vila Area, was an enormous task. It was carried out most efficiently

Post-Disaster Review

158. Following a disaster such as Cyclone Uma, post-disaster review is essential, especially to ensure effective counter disaster arrangements for the future.

159. It is strongly recommended that a post-disaster review be initiated by the NDCC as soon as the necessary reports are available.

Recovery Aspects

160. It is recommended that the Reconstruction Committee note the brief comments made on recovery aspects.


ACKNOWLEDGEMENTS

161. Finally, it is desired to place on record appreciation for the very willing contribution made by members of Government departments, NGOs and other agencies, who provided information for inclusion in this report. Without their help the report could not have been completed, especially in the short time available.

162. Thanks are also due to the Chairman NDCC for his valuable contribution and his assistance with the necessary administrative arrangements.

It has been a pleasure to undertake this consultancy on behalf of the Vanuatu Government.

7 March 1987
Port Vila


(W. Nick Carter)
International Disaster
Consultant

TROPICAL CYCLONE

UMA

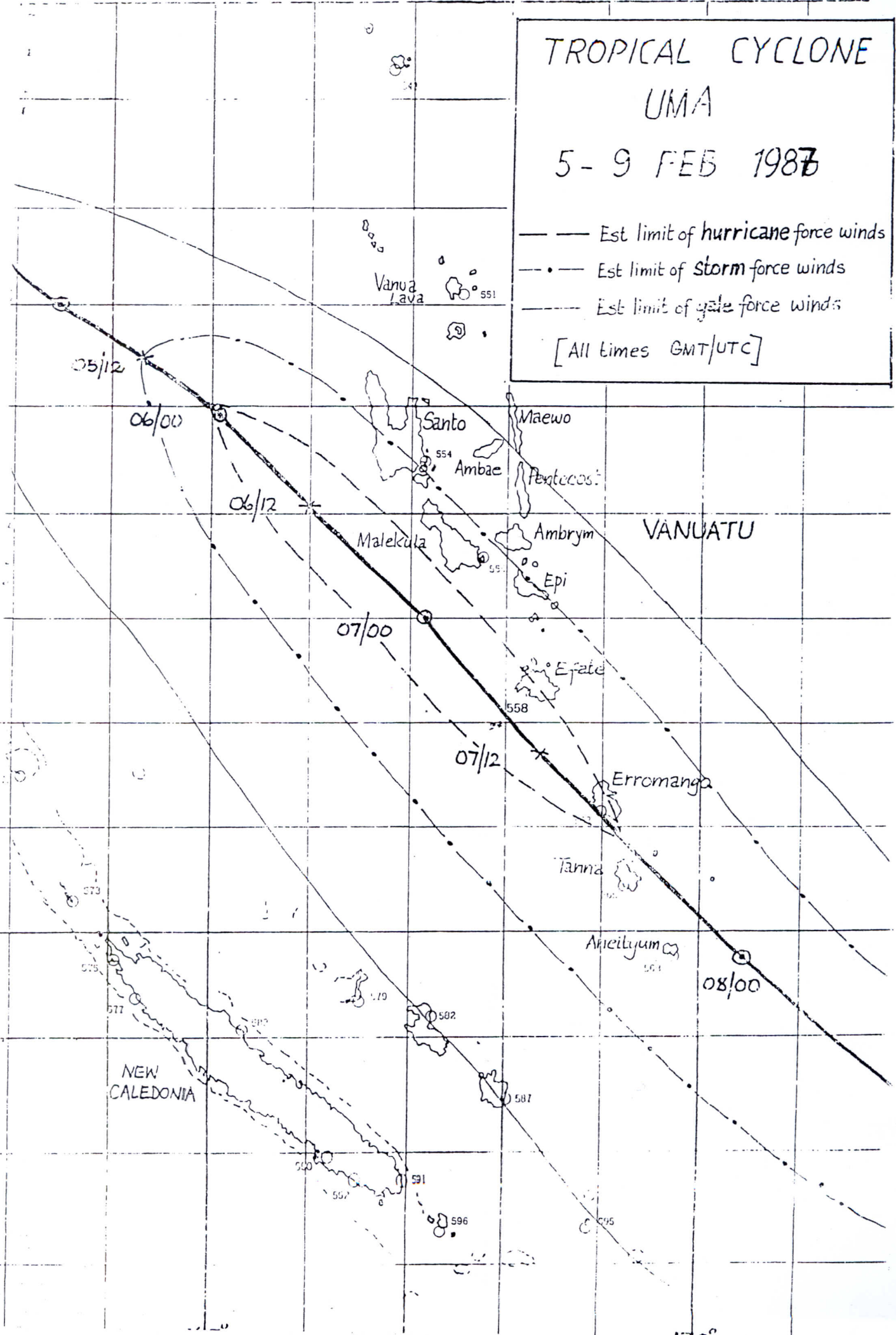
5-9 FEB 1987

— — — Est limit of hurricane force winds

- · - · - Est limit of storm force winds

- - - - - Est limit of gale force winds

[All times GMT/UTC]



ANNEX B

Information on International Assistance

The purpose of this Annex is to provide a very general outline of the types of international assistance received Or requested by the Vanuatu Government. The information was supplied by the National Planning and Statistics Office and was current up to 2 March 1987.

ADRA - Food, disaster equipment, clothing, blankets
Australia - Airlift assistance, disaster equipment and stores, emergency broadcasting system, technicians, shelter materials, generator, medical supplies.
Australian Red Cross - Blankets, medical supplies and equipment.
Burns Philip - Sea transport.
Canada - Cash grant.
China Red Cross - Cash grant.
Fiji - Food, sea transport.
France - Food, airlift, aircraft assistance, disaster equipment, technical assistance, medical personnel, hospital tent, medical supplies, timber.
French Red Cross - Clothing.
Japan - Cash grant, Food, disaster equipment, technical assistance, tents, medical supplies, emergency radio.
Japanese Red Cross - Cash grant.
Lions International - Sheets and pillow slips.
Medicins du Monde - Medical supplies.
Nauru - Cash grant.
Netherlands - cash grant.
New Zealand - Cash grant, air survey assistance
New Zealand Red Cross - disaster equipment. Rotary - typewriters.
Russian Red Cross - Blankets, first aid kits, tarpaulins. Save Children Fund - Food, tarpaulins
Solomon Islands Red Cross - Soap.
Tahiti Red Cross - Food and clothing
United Kingdom - Cash grant, technical assistance.

United States	Cash grant, Airlift assistance, tents, tarpaulins.
UNDP	Cash grant.
UNDRO	Cash grant.
UNESCAP	Damage assessor.
UNFAO	Seeds costs
WEPP/EEC	Food program.
WHO	Cash grant.
World Vision Vanuatu	Disaster stores; seeds; medical supplies.
Red Cross -	Blankets, clothing, disaster stores, building materials.

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