Damage and Needs Assessment

An overall picture of conditions in the affected area was in fact built up quickly, not by some large pre-established reporting system (for there was none) but by a carefully planned, small-scale action by small teams formed several months beforehand. There were two groups of assessors. The first, a joint programme involving staff from the armed forces, the police, the UN Disaster Management Team, and the Red Cross, limited themselves mainly to overflights of the whole area in helicopters, and visits to the main urban centres of damage. Their objective was mainly to get a sense of the scale and scope of the disaster, the boundaries of the affected area, and the limits on access. These teams ended their missions with high morale, but experienced a number of disturbing incidents in which they were forced to decide between moving injured people, women in labour, and other people in urgent need and completing their primary mission of information collection.

The second team attempted to obtain a more scientific assessment of risks and needs throughout the area. An early sample survey of the Cyclone-affected area was co-ordinated by two staff from the Ministry of Health, using four two-person teams, flown by helicopters provided by a multinational company and by a USAID charter. Sampling sites were selected during overflights, and two person teams then flew to centrally located relief centres, to interview individuals about personal losses, village losses, and immediate needs. Conditions and supply requirements were discussed with local relief officials, and all available ill and injured people were examined clinically. Radio links with the police network, together with the excellent personal and working relationships between the police air unit and local ministry officials, enabled the teams to call up police helicopters for casualty evacuation on the few occasions where this was required. Sources of drinking water were tested for salinity. The teams summarised their findings each afternoon, and these summaries were collated, edited, and issued nightly to the Government EOC and to several major donors. A total of eighteen sites were visited during this first survey, enabling the team to generate an estimate of overall mortality, losses of housing, and overall Cyclone-related morbidity. The relative absence of excess levels of communicable disease was noteworthy, providing further evidence to resist the widespread clamour for mass-immunization. Water sources were found to be mostly usable.

Immediate Needs for Most People

The immediate problems facing the population were shelter and food. Those who were marooned outside for several days became very hungry, their condition exacerbated by constant drenching in the continuing rain. Reconstruction of shelter from debris was certainly possible. However, there were no stocks of nails or rope, few tools, and most survivors were extremely tired. The inclination of many people was to gather their remaining possessions, and to leave the area to seek refuge with relatives or friends elsewhere. But some, especially those with only moderately damaged homes, quickly began to patch up damage using salvaged materials. The occasional distributions of plastic sheet and tarpaulins by the Army, government officials, or NGOs, while widely welcomed, mainly served as coverings for salvaged possessions.

Food, however, remained the main preoccupation. Shipments of cooked grain and bread brought in by the Army, and by people from neighbouring provinces, were appreciated by all. But distributions were inevitably confined mainly to the more densely populated areas. To a large extent, people in less damaged houses shared remaining food stocks and cooking fuel with their neighbours. Merchants quickly began to sell salvaged stocks in markets even in the more damaged areas, and prices, though at least double the pre-impact levels, were still within reach of most people, who had managed to protect household stores of cash.

Managing Public Health

There was widespread concern about the quality of water supplies, and some local rumours (incorrect for the most part) of water-borne epidemics. Within the more densely populated urban areas, staff from the Ministry of Health had quickly moved to monitor free chlorine levels and bacterial contamination in public water supplies, following detailed instructions given in a number of seminars and training programmes the previous year. In the city of Morenia, staff of the water utility corporations were so familiar with their systems that once broken domestic connections had been isolated, delivery of water in quantity to stand-pipes was quickly restored. However, the vulnerability of the water system to both electricity failure and debris damage to chlorination apparatus was clear. A number of hasty improvisations had to be made to connect the pumps to diesel generators supplied by the Armed Services. The system had to resort to batch chlorination, using supplies of high test hypochlorite brought in by helicopter. Before this was done, two hundred thousand people in Morenia were without clean drinking water for two days. The need for structural mitigation measures in this part of the system was obvious.

Deteriorating sanitary conditions in a number of schools and churches housing displaced people were causing particular concern to Ministry of Health staff. A major problem was the lack of sufficient water storage to match the numbers living in and around the buildings. Once collapsible water tanks had been brought in, and supplied with water by tanker, the risk of diarrhoeal disease outbreaks declined somewhat, but the problem was never adequately dealt with. Within a week, most of the centres were emptying fast. Health officials focused much of their epidemic surveillance activity on these centres, and on the poorer sections of the main towns. In addition, all hospitals were requested to report the last known location of any patients showing a range of communicable disease symptoms.

To their own surprise, health officials managed to resist pressure for indiscriminate mass cholera immunization from the Minister of Health himself. The combined appeals of the WHO representative, a USAID consultant, and a visiting senior official from the US Public Health Service, together with a well-informed CNN reporter, finally prevailed.

Distribution of Casualties and Damage

Even at this early stage, the relationship between poverty and vulnerability were becoming clear. Injury and death rates were higher in the poorer sections of most towns. Particular occupations, and social groups, had suffered disproportionately. The high death toll among poorer fishermen was noteworthy.

Damage to industrial resources was widespread. Within the relatively narrow corridor of major damage, most of the larger industries involved processing of agricultural products. Outside stores of raw product were mostly lost. Much machinery was damaged by metal roofing sheets blown from the large expanses of roofs. Sixty kilometres to the south, the new Freeport, with its container port, natural gas terminal, and refining complex, had experienced significant damage from 150 km per hour winds. Most of the completed capital facilities were relatively unaffected. However, plant still under construction was much more seriously damaged, and flying debris from these units caused specific, highly expensive damage to critical catalytic units and control valves. Noteworthy also was the level of damage to computerised control systems at the natural gas plant, mainly from wind damage to roofs, combined with inadequate rain protection for electronic equipment. Little had been done beforehand to provide expedient protection, and it was clear that the roof design of buildings containing this equipment was inappropriate. Equally serious in terms of disruption was the level of damage to the temporary buildings in which construction workers lived, and in which key tools and materials were stored, beside the sites. Many of these were completely destroyed. Lost also were the pay and personnel records of the largest construction firm, and the firm providing security services. It quickly became clear that construction would be delayed by several weeks, at least.

I. Secondary Effects

The initial impact and its aftermath had a number of immediate secondary effects throughout the area.

There was a rumour, which swept the national stock exchange on the afternoon of the 5th October, that the new container marshalling port had been seriously contaminated by the breakage of a shipment of used transformer oil, containing polychlorinated biphenyls (PCBs - a highly toxic chemical, which is extremely hard to clean up). This was erroneous; in fact a container was damaged, and it did contain a toxic substance (tetra-ethyl lead - shipped contrary to regulations). But there was little leakage, and a safety team from the oil refinery provided adequate advice and assistance to the local fire brigade. However, the rumour added to the general atmosphere of uncertainty and concern, and the stock exchange index lost 20 percent of its value that afternoon.

More immediately serious in welfare terms was the impact of continuous rain, and flooding of the main route from the major port of Sotorino inland to Suremia - the neighbouring country - which had just experienced a serious influx of refugees. A large shipment of food aid, including bagged wheat, and drums of oil had just arrived and

had been offloaded to the quayside three days before the Cyclone made landfall. A large convoy had already been dispatched. The convoy was halted for six days by flooding and landslips on the road north into the mountains. The tarpaulins of the vehicles proved inadequate, and much of the food was drenched. Meanwhile, on the quayside, where bags were stacked unpalleted, and where the available tarpaulins failed to cover the stacks, the wholly unanticipated levels of rain ruined at least half the 15000 tonne wheat shipment.

Flooding of routes proved very disruptive to international road traffic. This was exacerbated by the loss of one bridge on the main international route, at Oketo. It took nearly fourteen days to reopen this route, when the Army built a pontoon bridge.

The most immediate, and in the longer-term one of the most damaging, effects of the initial impact was the loss of future tourist trade. News of the disaster spread quickly within the travel industry, exacerbated by rumours of serious breakdowns in the government's handling of tourists' emergency needs in the affected area. The outcome was an immediate flood of cancellations by travel agents, and the abrupt suspension of negotiations for room space during the next tourist season.

Cost of Damage

It would be several months before even a preliminary comprehensive estimate of the costs of damage had been made. However, within a few days aerial surveillance clearly indicated that up to 30 percent of buildings in the Provinces of Akutan and Kylinia had been damaged to some extent, and some 40,000 housing units (mostly low-income families) had been destroyed completely. Preliminary estimates of losses, compiled by the Government, with help from UNDP, World Bank, and OFDA, were an estimated $450 million in public facilities and infrastructure, $350 million in housing, $240 million in agriculture, $130 million in tourism, and $260 million in manufacturing.

J. Shortcomings in Management of the Response

Overall, the response period was not well-managed by the government. To those on the spot, the responses of most officials seemed half-hearted, unplanned, and lacking any clear sense of co-ordinated action in relation to clearly recognised priorities and goals. From the local perspective, during the first week, every transaction between individual families and officialdom seemed to end in confusion, frustration, and finally outright anger. Few in authority seemed to be doing anything useful for ordinary people.

Failures in Emergency Planning

The root causes of this were not so much incompetence or venality, but rather the failure of a system of planning, anticipation, and control. In the detailed, but largely confidential analyses carried out by the Office of National Audit, UNDRO, USAID, and a number of NGOs, breakdowns in the relief response were systematically traced back to failures in preparedness and planning. These in turn stemmed from a complex set of problems related to funding levels, the lack of institutions providing effective training, the low level of education and lack of motivation of many junior ministry staff, the lack of "champions" of emergency planning within the system, and the general unwillingness of most people to consider that disasters on this scale would ever happen.

Throughout the government system, there was little prior understanding of who would do what, where, when, and how in different kinds of emergency. There were no adequate databases of personnel skills, buildings, or available equipment resources, and nobody with the sustained motivation to either build them, or challenge their absence. Few line ministries had tested standard operating procedures, and the Emergencies Department lacked the political "clout" to enforce compliance. Overall management structures for emergencies were ill-defined in both national and local plans. The plans contained few job descriptions or outlines of responsibilities. They contained no clear instructions on how vital supplies and equipment were to be made available.

The outcome when the Cyclone struck was widespread confusion within government over roles and tasks; authority and access to resources were not commensurate with assigned emergency functions; organizations were far too dependent on others for equipment or information; and preparations for handling the massively increased demand for information were very poorly done.

Communications proved to be the most important constraint. The disaster destroyed much of the regional communications system, and the surviving communications network just did not reach those who could have used it best. Existing communications were clogged by calls to higher authority for permission to act. Senior officials were hopelessly overloaded, whether or not they had any idea what was going on. The lack of protection for the telephone system, and the lack of effective substitute civilian communications rendered central government mostly impotent. Confusion over the availability and capacity of military communications ensured that even the surviving channels were not used effectively. The solutions to these problems were largely political, but little was ever achieved.

The subsequent inquiries pointed in detail to other specific shortcomings which in many cases had led to serious loss of life, or massive economic disruption. The early warning system of the meteorological department was criticised for lack of standard operating procedures, and weaknesses in the content of warning messages. The Secretariat of the National Emergencies Committee was castigated for failing to link various levels of meteorological warnings to standard operating responses by the Committee and by individual departments.

Planning for pre-impact preparations (on receipt of warning) received special criticism in the analyses. No detailed plans had been made within the Ministry of Internal Affairs or the Provincial governments. Only the health authorities had paid much attention to this issue, although the operations directors of several public utilities were beginning to pay more attention to the requirements. Planning for protection of most critical economic resources during the warning period was non-existent.

Weaknesses in Co-ordination and Assessment

The lack of plans and preparations for activating the national emergency operations centre were also a major factor in the confused response. A central civilian co-ordination centre was not operating until 36 hours after the Cyclone made landfall. The Prime Minister, and other senior Ministers found themselves having to take decisions "blind", without any real sense of what was happening.

The initial post-impact assessment went better than expected operationally (because of close, detailed planning, and much prior consultation), but then experienced major problems in disseminating and sharing assessment data. This again was mainly a function of the lack of planning in other areas (no one knew who needed data, or for what purpose), but interpretation of results was also complicated by the lack of baseline data. A special weakness also was the failure to link assessment information with the improvised search and rescue efforts of the Navy, several army field units, and a national police special unit. In addition, information on route blockages was never passed on to the NGO groups who were attempting to mobilize convoys of relief items. One final problem in assessment stemmed from the non-availability of video and photographic equipment. It was hard for returning teams to convey an overview of conditions. News footage gathered by ENG teams from the national commercial television stations tended to concentrate on areas of worst damage and gave a very biased picture. Nonetheless, it was this that most politicians, civil servants, and NGO officials were initially responding to.

Key Problems in Relief Provision

The provision of immediate relief suffered from many problems, but two seemed to dominate everything: the failure to organise road clearance, and the inability to distribute fairly. The extent to which deep flooding and fallen trees would prevent access by road was not understood by many planners. It took days to clear roads, even after the flood waters subsided. Much of the clearance was done not as a result of government efforts, but by local people attempting to get out of their villages to seek help. Distributions were described by all as "a complete mess", with local people milling around road junctions, market squares, and government offices, in search of the latest official or private hand-out. A number of NGO convoys were simply looted, as they halted at some broken bridge or tree-strewn highway. Only the Army, which provided cooked food, tarpaulins, and organized manpower mainly to more isolated rural villages, seemed to achieve what they set out to do.

Shortcomings in the Medical Response

The medical response was probably better planned than other official actions. Emergency medical planning at national level had achieved several key goals, including appointment of a qualified and properly trained emergency advisory committee, development of a realistic basic national emergency health plan meeting international standards, an accurate database of resources, and standard operating procedures for disasters incorporated into routine health activity. Above all, planning was integrated with training, and senior officials took this seriously enough to make it work, even at the local level. Noteworthy in the planning was the emphasis on structural mitigation. Plans for new medical facilities were carefully scrutinized for signs of poor resistance to hazard agents. Noteworthy too was the emphasis on communications development (and protection).

Nonetheless, the medical system still displayed a number of serious problems. First, the impact of population displacement and evacuation were underestimated. The practical problems caused by several thousand people concentrated in one improvised centre were simply not appreciated. There was little provision for detailed supervision of these centres. Lack of information on the location of emergency evacuation sites, and lack of staff, made it impossible in many cases to visit to supervise water and sanitation and to confirm rumoured disease outbreaks.

Second, mortuary provision was totally inadequate in the affected area. Many bodies were taken to clinics (themselves damaged) near the coast. Nothing had been done to prepare for identification of corpses, or to arrange for their disposal. Attempts were made to quickly cremate them, but much of the wood from debris proved too wet to burn.

Third, the medical planners did not anticipate the scale of the requirement for sorting incoming medical items at the main airport. Not enough trained pharmacy staff were designated.

Fourth, the need to produce plans for hospital and clinic reconstruction within weeks had not been anticipated in the emergency plans, and a number of significant mitigation opportunities were lost as a result.