International Journal of Arts Humanities and Social Sciences Studies
Volume 7 Issue 7 ǁ July 2022
ISSN: 2582-1601
www.ijahss.com

Medical Care in the Management of the Lake Nyos Gas Disaster Of 1986

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Abstract: *This paper explores the humanitarian health crisis that was generated by the Lake Nyos Disaster and examines how it was managed by the various actors that were involved. The disaster caused serious emergency and long-term medical problems that were described by medical experts and disaster responders as a humanitarian crisis. This came with the need to provide immediate and long-term medical care to the over 10,000 survivors that were evacuated from the disaster zone. With humanitarian medical aid obtained from national and international humanitarian agencies, emergency medical care was provided to survivors in hospitals and makeshift camps. The long-term medical needs of the survivors constituted part of the resettlement scheme that was launched by the Cameroon Government. This explains why medical facilities were constructed in all the sites were survivors were resettled. Using largely primary sources, this paper concludes that medical care was at the centre of the management of the Lake Nyos Disaster, which in many ways ameliorated the welfare of survivors in immediate and long-term basis despite the numerous difficulties that were encountered.*

Keywords*: Disaster, Lake Nyos, survivors, healthcare, Cameroon.*

I. Introduction

In human history, crater lakes that resulted from volcanic eruptions have been a source of livelihood to humans and animals and have scarcely been associated with natural disasters. Unexpectedly, Lake Nyos in the North West Region of Cameroon, which had been a source of welfare for the Nyos people and neighboring communities, released toxic gas on 21 August 1986. The carbon dioxide that was forced from the bottom of the lake by a landslide devastated three villages in Menchum Division (Nyos, Chah and Su-Bum). It was the worst natural calamity ever to strike Cameroon. Besides claiming the lives of about 1,700 people and destroying property, the disaster displaced thousands of survivors (Tchuente, 1987: 42). This amounted to a humanitarian crisis since critical assistance had to be provided to populations in need. The much needed humanitarian assistance included immediate food, health care, shelter, clothing, water, sanitation and hygiene. The situation was further compounded by the submission of scientists that the lake and its environs was still unsafe and that there was a real possibility of a similar episode re-occurring. Consequently, the three villages and surrounding hills (inhabited mostly by graziers) were declared 'out of bounds' for habitation. This necessitated the deployment of rehabilitation practices in the hope of returning displaced people to a new stable state. This rehabilitation programme called for local, national and international humanitarian aid efforts peddled by both Cameroonian and international actors.

Within the context of this massive rehabilitation program, resettlement camps were later constructed in Yemngeh, Kumfutu, Buabua, Esu, Ukpwah, and Ipalim. Amazingly, this post-disaster rehabilitation scheme was stalled by planning, implementation and coordination lapses. It is important to mention that the displaced people still face myriad problems since the launching of the scheme in 1986. In addition to the resettlement scheme, a degasification programme was launched in the hope of rendering the disaster zone suitable for habitation. As this was/is ongoing, the unstable nature of the lake's banks was further identified as a potential source of a similar explosion if nothing is done. Hence, the threat of renewed disaster remains high both from the slowed degasification and landscape threats caused by the possibility of surrounding rocks collapsing into the lake as well as its southern bank crushing into the nearby valley. Disturbingly, people are gradually returning to the disaster zone due to numerous attractions. These are just a few of the daunting array of challenges that currently confront the continued management of the Nyos disaster.

This was probably the worst natural calamity ever to strike Cameroon. The year 1986 was therefore a turning point for the population of these ethnic communities whose wellbeing was unprecedentedly threatened by the calamity. On the overall, the Nyos disaster was catastrophic for the local populations, leading to societal

breakdown and extraordinary humanitarian need. Hence, effectively responding to this disaster was going to be a very difficult task for the Government of Cameroon. The magnitude of the disaster and the mystery about its origin caused it to be treated as an international concern. Apart from the need to quickly burry the decomposing bodies and prevent the outbreak of an epidemic, there was also the responsibility of evacuating the 10,000 survivors to emergency relief camps and hospitals where their immediate needs had to be promptly met (Lang, 2018: 14). In light of what precedes, this paper explores the humanitarian health crisis that was generated by the Lake Nyos Disaster and examines how it was managed by the various actors that were involved.

II. Understanding the Humanitarian Health Crisis

The Lake Nyos disasters killed close to 2000 people and displaced over 10.000 persons from their homes. The nature of the disaster resulted in a serious health crisis. This disaster affected the health and wellbeing of the survivors due to the immediate health consequences it caused (Tchuente, 1987). While some of the survivors suffered from serious burns and other injuries, others were exposed to devastating diseases owing to the collapse of the healthcare system and their displacement from the disaster area (Baxter et al, 1989, 443). In the aftermath of the disaster, therefore, there was need for immediate and long term health responses in the hope of ameliorating the livelihood of survivors. As a result of the disaster, health services in the area were shot down while health facilities in neighboring towns such as Wum, Nkambe and Fundong were overwhelmed.

Taken together, the Lake Nyos Disaster caused significant health consequences, especially for the over 10,000 persons that were forced from their homes. In the context of this disaster, these displaced persons were in need of timely healthcare in temporary camps were they were initially resettled. According to testimonies, recorded by King et al, and those collected, survivors indicated that the perception and effects of the gas changed with distance from the Lake. Survivors from Nyos and other localities within 3km from Lake described experiencing no unusual odour or taste before losing consciousness. They described, fatigue, light-headedness, warmth and confusion, before collapsing and lying unconscious for up to 36 hours. Carbon dioxide that escaped from the lake was responsible for the numerous health problems that were faced by the survivors. Of the 10,000 survivors evacuated from the disaster zone, consciousness was lost for hours by about 1,000 persons. Most of the survivors, especially those who were evacuated from Nyos and Chah complained of persistent cough, difficulty with breathing, and haemoptysis.

The most common physical abnormalities seen on examination were erythema and various skin changes that looked like burns. In fact, a vast majority of the survivors suffered from blistering or ulceration of the skin though only a few had underlying muscle necrosis. Summarising these health problems, Baxter et al. (1989: 442) explain that the respiratory difficulties, skin burns and other health problems were caused by exposure to carbon dioxide that was forced from the bottom of the lake. To these health problems associated with carbon dioxide should be added the collapse of the healthcare system in the area owing to the disaster. These two situations created a humanitarian health crisis that necessitated the intervention of various actors.

III. Intervening Actors

An understanding of the operation mechanism that was put in place for the take-off of medical relief response following the occurrence of the Lake Nyos Disaster is relevant to this study. It is capable of informing the manner in which this immediate response unfolded along with its bearing on the survivors. Once a disaster occurs, as already observed, the initial response involves the provision of emergency healthcare needs to the affected population. As officials in Cameroon became aware of the dimensions of the disaster, especially the health concerns it generated, preparations for swift and effective intervention were kick-started. Following an emergency meeting at the presidency on 22 August and after a brief visit to the disaster site, the Cameroon Government pleaded for international assistance with which to cope with the calamity (Lang, 2012: 7). This was followed by the putting in place of a National Disaster Committee headed by Jean Marcel Mengueme. The committee was commissioned to set up immediate priorities and to receive and manage emergency supplies for such short-term tasks. Top on the agenda of the committee was how to identify and respond to the medical emergencies of the survivors. It is important to mention that similar committees were created at the provincial and divisional levels. In Menchum Division which was host to the disaster zone and where the short-term relief response was needed, the Lake Nyos Divisional Committee (LNDC) was constituted. This type of preparation accords credibility to Bang's observation that the administrative framework for managing disasters in Cameroon constitutes an integral part of government administrative machinery (Bang, 2013).

As a matter of fact, disaster management in Cameroon is the duty of several agencies (government ministries, national organs and local councils) in collaboration with humanitarian organizations and international partners. At the time of the disaster, the emergency intervention plan which was initiated by government grew

out of this administrative framework. Power was disseminated from the central administration (at the level of the presidency and Ministry of Territorial Administration) through the provinces and Menchum Division where the relief response was taking place. This explains why crisis committees were set up at the national, provincial and divisional levels to manage the disaster (Lang, 2012: 7). Through this framework, we can now understand the various actors that were involved in the immediate healthcare relief operations. They included the Ministry of Territorial Administration through its national, provincial and divisional authorities, especially the Governor of the North West Province and the Senior Divisional Officer for Menchum Division. Suffice it to mention that other ministries were also associated in the relief response. The Christian churches in the area and the Wum Rural Council also actively participated in the operations. This highly centralized framework with power and resources largely emanating from the top, I argue, had huge injurious implications on the short-term emergency relief response. This will become evident in the sections of the paper dealing with the provision of immediate healthcare needs to survivors.

IV. Provision of Immediate Healthcare Needs

The gas that escaped from Lake Nyos affected the health of the survivors in multiple ways. Most of the survivors sustained burns from the carbon dioxide along with the respiratory problems they faced. This created the need of medical treatment of some of the displaced people. It was for this reason that most of the refugees were evacuated to the government hospitals in Wum and Nkambe for examination and treatment. Others went to mission hospitals such as Mbingo Baptist Hospital and the Catholic hospitals in Njinikom and Shishong. It was the task of the government to respond to the emergency health needs of the survivors in these hospitals. But this immediate medical relief response could not effectively take off probably because authorities were distracted by the impending arrival of Israeli Prime Minister Shimon Peres (Simolowe, 1986: 8). Good enough, Peres' visit aided the swift medical relief response. Just three hours before Peres was to make his flight from Tel Aviv to Yaounde, the first reports of the gas disaster began to circulate outside Cameroon. Consequently, half a ton of emergency medical supplies was promptly loaded onto the Prime Minister's Israeli air force along with a 17-member army medical team headed by Colonel Michael Wierner.

A few days later, a full international relief effort was underway. The United States of America provided a $250,000 US aid package, which included among other things medical supplies. Tons of medical supplies also came from Britain, France, Canada, West Germany and Spain. This international medical relief aid along with what was generated at home had to be managed by the National Disaster Committee. The medics dispatched by Israel set up a medical unit at Nkambe which was attached to the Nkambe General Hospital (Dibussi, 2006). The presence of these medics caused many survivors who had health problems to be evacuated to Nkambe for proper medical attention. In all, 234 survivors were handled by the Israeli medical team in collaboration with the Cameroonian doctors that were deployed to the area. As the evacuation was on-going, the Cameroon Army provided medical aid during the first week at Chah and Su-Bum.

Some survivors were transported to Wum and Nkambe hospitals following proximity. Most survivors from Cha and Nyos villages were evacuated to Wum and those from Subum to Nkambe. Some had earlier been taken from Bafmeng to Njinikom hospital.

The majority of survivors that were transported to Wum and Nkambe hospitals were unconscious and many others had skin lesions[1]. The medical team from Israel was of great help to doctors and patients in Nkambe. It should be noted that nurses from surrounding villages were called up to reinforced the team in the hospital for over two weeks

Dr Ngufor and Dr Pisoh shared the opinion that in this area cough and scabies were prevalent. They envisaged diarrhoea and bronchiolitis as illnesses which in future will attack the survivors because of the carbon dioxides inhaled. They also agreed that the local medical team could handle the situation effectively and what they needed most were drugs. There was also a similar problem in Wum as webs, plasters, and antibiotics were not enough. Doctors were therefore obliged to use personal money to buy drugs. For example Dr Pisoh of Wum[2] hospital is estimated to have spent more than 142 000CFA of his personal money to buy drugs.

In the Wum General Hospital, the team of medical doctors worked tirelessly to improve the health of the survivors. But the medical relief workers could not do much during the first days after the disaster given that

[1] Burns as a results of the heat produced by the Poisonous gas.
[2] Cameroon Tribune No 3660, Tuesday 2 September 1986.2.

government hospitals were selling their drugs from the pro-pharmacies.[3] As a result, most of the affected people could not receive immediate treatment at the Wum Hospital because they lacked the required money. Besides, the work of the medics was bedevilled by overcrowding and insufficient medical supplies in spite the assistance from international partners including the United Nations International Children Emergency Fund (UNICEF) which had donated medical supplies desperately needed by children orphaned by the disaster. The overcrowded hospital in Wum, as reported by its Director Dr. Pisoh, remained in dire need of antibiotics, cotton swabs, plaster to cover burned skin and milk for the scores of children whose parents died in the cataclysmic event (Simolowe, 1986: 10).

This lack of medical supplies negatively affected the emergency health relief operation probably causing the demise of some survivors in the hospitals. The desperate shortage of supplies may be attributed to the poor management of the medical aid allotted by international partners. In its September 1986 edition, the News Week reported how the Cameroon Army, with only a few transport planes, had a hard time handling the influx of supplies. This poor management of the disaster was further attested by a Western diplomat in Yaounde in his observation that the Cameroon Government had never faced a disaster of that capacity before (Cooper, 1986: 18). It is therefore a probability that some of the medical supplies got to the concerned hospitals late or were diverted by self-serving officials and relief workers who were involved in the management of the disaster. Reacting to the dilemmas of the survivors in the hospitals, Dr. Lyn Coene of the World Health Organisation noted that "We heard that everything was here, that everything was completely organized, but in fact there is nearly nothing." [4] Another abnormality worth exposing is the fact that the Lake Nyos Disaster Committee refused to take responsibility for illnesses that were not directly related to the disaster (Lang, 2012: 14). This resulted in more hardship on the destitute survivors. On the overall, the medical relief operation in the government hospitals was chequered.

V. Provision of Long-Term Medical Services

The provision of long-term medical care to survivors of the Lake Nyos Disaster was built into the resettlement scheme that was initiated by the Cameroon Government. The prime objective of the programme was to construct permanent resettlement sites and assist the survivors to re-establish normal lifestyles. This emanated from the fact that many of the survivors had become wanderers in neighbouring villages and therefore needed to be resettled permanently (Lang, 2012). In selecting and constructing resettlement sites, attention was given to the long-term medical needs of survivors. This dictated the location of the sites as it was ensured that these people be resettled in areas where they could easily access medical services. the construction of permanent sites for the survivors commenced immediately after the International Conference on the Lake Nyos gas disaster that was held in Yaounde from 18 to 20 March 1987. The conference participants made it abundantly clear that the gas-affected site could not be inhabited in the short term.[5] Expert contractors from the ministries of Fisheries, Animal Husbandry and Agriculture were selected to study sites for the permanent resettlement of survivors. The initial construction funds for these sites were derived from the National Committee for the Reception and Management of Relief Aid for the Lake Nyos Disaster victims. The first sites to be constructed included Ipalim, Yemgeh, Kumfutu, Esu, Waidu, Kimbi and Bwabwa.[6]

In addition to houses, other socio-economic infrastructural facilities were made available to victims in the permanent resettlement villages. Some of the facilities were: Educational infrastructure, health infrastructure and agricultural infrastructure. Schools were constructed in IPalim, Upkwa, Kumfutu, Bwabwa, Kimbi, Kumfutu and Yemgeh just to name a few. Also, in some areas where s urvivors lived out of the resettlement villages, schools were provided for them for example, in Ise, Imo and Funkuka[7]. At the Yemngeh resettlement site that was expected to receive close to 1,000 survivors, a health centre was constructed and equipped. It was manned by a medical team employed by the Cameroon Government. Similar health units were constructed in the eight other resettlement camps. These medical facilities have since the early 1990s been offering healthcare services to the survivors of the Lake Nyos Disaster.

[3]SAMSAB, Report by Father Frederick Ten Horn on the Nyos Disaster, 8 October 1986.
[4] Ibid.
[5]George W. Kling, Conclusions from Lake Nyos disaster(https://www.researchgate.net/publication/277474406 Conclusions from Lake Nyos disaster),201, Cameroon, 1987.
[6] Marcel Ngwangwa, Management of the Lake Nyos, 49.
[7]Interview with Samuel Geh aged50 victims, Wum, 23 January 2020.

VI. Challenges of Medical Response Operations

The immediate relief response to medical problems generated by the Nyos disaster, as in most complex emergencies, was challenging in many respects, with huge operational and programmatic problems growing out of virtually negligible infrastructure, misuse of relief aid, the centralized and bureaucratic administrative system and other unethical practices. Indeed, an examination of reports along with the review of minutes of meetings and interviews with survivors themselves and general observations reveal a number of daunting challenges which stalled the medical relief operations, especially the provision of emergency healthcare to survivors in makeshift camps. The lack of critical infrastructure was one of the things that constrained emergency relief operations after the occurrence of the Nyos disaster. At the time of the disaster, the state of the road linking Nyos and Wum was deplorable. The road was passable only in a four-wheel drive vehicle. The road had been neglected for so many years by the government. This poor state of the road network into and out of the disaster area, as confirmed at that time by Nancy Cooper a reporter deployed by the News Week newspaper to cover the disaster rendered relief efforts extremely difficult. She observed that heavy rain turned the unpaved tracks around Lake Nyos into a soggy mess, slowing the arrival of medical relief workers to the area (Cooper, 1986: 19). Another foreign journalist dispatched by the Time newspaper, Jill Smolowe, reported that "the primitive dirt tracks, which provide the only access to the hamlets for some 40 miles around, were muddled by pelting rains." (Simolowe, 1986: 10). Apart from stalling the swift arrival of relief workers, the poor state of the road also slowed the evacuation of survivors to hospitals in Wum and Nkambe.

Besides, there was no telephone, radio or television network in the area to quickly communicate the cataclysmic incident. Consequently, news of the disaster reached Wum about 24 hours after its occurrence because those who first got the news had to trek for 45km from Nyos to Wum. This certainly delayed the launching of emergency medical relief operations. To put it another way, the recue and evacuation of survivors from the disaster zone were seriously constrained by the complete absence of communication network along with the bad state of the road into the area. This placed the lives of many survivors at risk due to delays and difficulties in evacuating the sick ones to hospitals. During field interviews, some of the survivors noted that they had to trek to hospitals and relief camps in the absence of rescue and relief responders.[8] Worse still, the road conditions made it difficult for medical supplies to be transported to the various camps. Hence, the grief of the destitute population was aggravated by the lack of critical infrastructure.

Medical relief operations were also marred by the misuse of medical aid by some responders who were able to exploit the assistance for their own benefit. There was persistent diversion and looting of relief aid throughout the period of the emergency operations which lasted for three years. Indeed the embezzlement of funds and resources destined for the survivors, as Bang notes, was a common phenomenon. He estimates that over 50% of the entire aid destined to survivors was embezzled by government officials at the national, provincial and divisional levels (Bang, 2013: 9). Such abuses of relief aid inevitably fuel the claims of those who argue that corruption was a hallmark of the management of the disaster. Mbuh writes about corrupt practices during the management of the Nyos disaster in these words:

> They steal even blankets and milk destined for displaced people. The case of the bus diverted to Colombe Football Club of Sangmelima is very glaring…. Many reports of how fraud and theft took place were never investigated (Mbuh, 2005: 194).

Further credibility was added to these allegations by a 30 August 2005 report in the Cameroon Post which stressed among other things that "the management of resources…was characterized by corruption and sheer dishonesty as emergency needs destined for Nyos were being hawked in the streets of Yaounde." Bang and Few attribute this heightened fraud and theft during the relief operation phase of the Nyos disaster to the administrative bottlenecks that was a hallmark of decision-making on the procurement and allocation of emergency needs to the survivors (Bang & Few, 2012).

When the relief operations were ongoing, there was much talk about the misuse of aid as the national, provincial and divisional committees were allegedly accused of diverting emergency supplies meant for the survivors. In one of his reports, Father Ten Horn observed that these allegations resulted in the fear among administrative officials of being accused of corruption and mismanagement of aid. This was common at the level of the divisional committee in Menchum where much was done to give the perhaps false impression that aid was administered scrupulously. In spite of this, allegations on the misuse of aid persisted, forcing the administrative officials of the North West Province to use the good name and the trust enjoyed by the Christian leaders in Wum, especially Father Ten Horn, to refute these allegations of corruption and mismanagement in the

[8] Interview Ntang Jonas, 76 years, Nyos Disaster Survivor, Buabua Resettlement Camp, 14 October 2014.

official media by co-opting them in a round-table conference with the Governor and Senior Divisional Officers of the province, which was broadcast on the national radio.[9] But the overall observation may be that the lack of clear accountability and lack of clarity regarding who was responsible for the aid at the national, provincial, divisional and relief camp levels resulted in aid diversion and looting. Besides, there was little or no accountability to the affected populations in the camps. In fact, there was lack of communication, consistent messaging and feedback to the survivors about relief situations. Hence, some of the groups that were involved in emergency relief actions during the Nyos disaster failed to conform to the ethics of working with a traumatized people. In the course of their work, some of the relief workers used the disaster as an opportunity to cart away relief aid. It is even alleged that many people who were in no way affected by the disaster colluded with relief workers to register and obtain relief aid. No wonder the survivors I interviewed labeled such relief workers and fraudulent administrative officials as 'wolves in sheep's clothing'.[10]

The centralized and bureaucratic administrative system which characterized the emergency relief phase of the Nyos disaster adversely affected the pace at which relief workers responded to the medical needs of the affected populations. As a matter of fact, this complicated administrative process caused confusion and the duplication of functions, stalling rescue and relief operations. It was indeed difficult for financial and material resources required for immediate response to reach the survivors due to administrative bottlenecks in the system from the National Committee through the Provincial Committee to the Divisional Committee. It emerged from reports and minutes of meetings that there was a too high-handed approach from Yaounde, which took little notice of local advice and expertise. Consequently, the National Commission which was headed by Jean Marcel Mengueme quite often took decisions that did not reflect the realities on the ground. In addition, expedient solutions to problems such as medical supply shortages that were raised by the coordinators of camps could not be easily provided. On many occasions, coordinators of camps received assurances from the committee with regard to matters they brought to its attention, but it always took weeks or months before action was taken, if at all. This explains why the Catholic Church maintained a critical stand towards the efforts that were made by the National Committee.[11]

The authorities of the church who were co-opted in the management of the disaster declared that there was general lack of efficiency and coordination. They attributed this to the divisional commission's lack of influence on decisions taken at the provincial and national levels despite its familiarity with local conditions. This represents a weakness of the highly centralized disaster management system that was put in place shortly after the occurrence of the Nyos disaster. There was an alleged minimal cooperation between the SDO of Menchum, Fai Yengo Francis and the Governor of the North West Region who headed the divisional and provincial disaster committees respectively. This amounted to misunderstandings, aid delivery delays, and the injurious duplication of functions.[12] What generally emerges from the foregoing challenges is the obvious conclusion that it was extremely difficult for the responders to effectively achieve relief objectives in the context of such dilemmas. Indeed, the coming into play of this plethora of challenges caused rescue and relief operations to be so inherently flawed that it failed to result in some of the benefits that were intended.

VII. Conclusion

This paper has examined the centrality of medical care in the management of the healthcare crisis that was generated by the Lake Nyos Disaster. The disaster caused serious emergency and long-term medical problems that were described by medical experts and disaster responders as a humanitarian crisis. This came with the need to provide immediate and long-term medical care to the over 10,000 survivors that were evacuated from the disaster zone. With humanitarian medical aid obtained from national and international humanitarian agencies, as shown in the study, emergency medical care was provided to survivors in hospitals and makeshift camps. The long-term medical needs of the survivors constituted part of the resettlement scheme that was launched by the Cameroon Government. This explains why medical facilities were constructed in all the sites were survivors were resettled. The paper submits that medical care was at the centre of the management of the Lake Nyos Disaster, which in many ways ameliorated the welfare of survivors in immediate and long-term basis despite the numerous difficulties that were encountered.

[9] SAMSAB, Report by Father Frederick Ten Horn on the Lake Nyos Disaster from August 1986 to August 1987.

[10] Interview with Ntang Jonas; Interview with Aneng Marcel, 68 Years, Kumfutu Resettlement Camp, 12 October 2014.

[11] SAMSAB, Report by Father Frederick Ten Horn on the Lake Nyos Disaster from August 1986 to August 1987.

[12] Ibid.

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