

Volume 19

No. 4

December 1995

# DISASTERS

*The Journal of Disaster  
Studies and Management*

## Contents

Choice and Constraints in Floodplain Occupation: The Influence of Structural Factors on Residential Location in Peninsular Malaysia  
**NGAI WENG CHAN**

The American Print News Media 'Construction' of Five Natural Disasters  
**PENELOPE PLOUGHMAN**

Effective Emergency Management: Reconsidering the Bureaucratic Approach  
**DAVID M. NEAL and BRENDA D. PHILLIPS**

Evaluation of Long-term Community Recovery from Hurricane Andrew: Sources of Assistance Received by Population Sub-groups  
**SHARON MCDONNELL et al.**

Rehabilitation Planning for Flood Affected Areas of Thailand: Experience from Phipun District  
**EBEL WICKRAMANAYAKE et al.**

The Role of the Zairian Health Services in the Rwandan Refugee Crisis  
**DENIS PORIGNON et al.**

Conference Report

Correspondence

Book Reviews

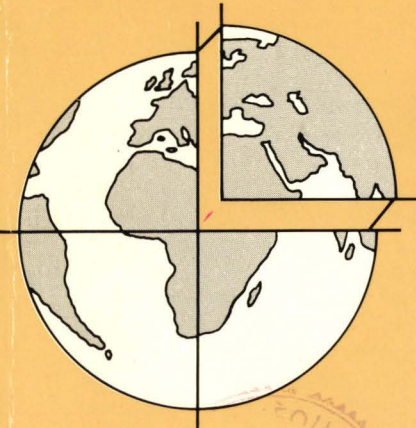
Author Index for Volume 19

Subject Index for Volume 19

  
Overseas  
Development Institute

  
BLACKWELL  
Publishers

ISSN 0361-3666



---

# The Role of the Zairian Health Services in the Rwandan Refugee Crisis

DENIS PORIGNON, JEAN-PIERRE NOTERMAN and PHILLIPE HENNART,  
Centre Scientifique et Médical de l'Université Libre de Bruxelles pour ses  
Activités de Coopération (CEMUBAC)  
RENÉ TONGLLET, Catholic University of Louvain  
ETIENNE MUGISHO SORON'GANE and TARCISSE ELONGO LOKOMBE,  
CEMUBAC, Goma, Zaire

---

*In July 1994, a stream of Rwandan refugees entered the southern part of North Kivu Region, Zaire. The public health consequences of this crisis for the host population and health services have not been analysed up to now. The lack of human and financial resources did not prevent Zairian health structures and personnel from taking care of the many refugees settled outside the camps, following their arrival. The public health consequences of the crisis for the local population should be considered an integral part of the disaster.*

In July 1994, hundreds of thousands of Rwandan refugees entered the North Kivu Region of Zaire through the town of Goma. Soon after their arrival, most of those who survived were given shelter in several camps in the surrounding area where assistance was provided by a number of relief organisations. The public health consequences of this influx of people into the city and the main camps have been described elsewhere (Paquet & Van Soest, 1994; Goma Epidemiology Group, 1994; Siddique et al., 1995). Reports and comments published up to now, however, have not been very informative about the disaster response of the host health services, particularly to the many refugees settled outside the camps. The observations reported here focus on the important contribution made by the Zairian

health services operating in the area in response to the disaster.

## METHODS

The North Kivu Region is densely populated. Most inhabitants live mainly from subsistence farming or informal commercial activities. They are faced with poor socioeconomic conditions, including an inflation rate which reached 1,320 per cent between November 1993 and January 1995. In this region, malaria, respiratory infections and diarrhoeal diseases (including cholera) are endemo-epidemic (Malangreau et al., 1979; De Mol et al., 1983; Delacollette et al., 1989; Tonglet et al., 1992a). These infectious diseases and other health problems, such as protein-energy malnutrition, are of great concern, particu-

larly among women and young children. A study of 461 women who gave birth at the maternity hospital at Rutshuru in the late 1980s found that malaria parasites, malaria-associated placental lesions and low haemoglobin levels ( $<10$  g/dl) were present, either singly or in combination, in 73.1 per cent of the women. These findings were associated with a low birthweight ( $<2.5$  kg) in 18.1 per cent of the newborns, whereas the prevalence of low birthweight was 6.4 per cent among cases without these findings (Meuris et al., 1993). In 1985–88, an anthropometric survey covering 18,211 under-fives in the health districts of Goma, Kirotshu and Masisi found that the average prevalence of stunted children (height-for-age Z-score  $<-2$ ) ranged from 50 to 70 per cent, according to the area of origin, whereas the average prevalence of weight growth retardation (weight-for-age Z-score  $<-2$ ) was about 30 per cent (Tonglet et al., 1991).

The region is divided into 19 health districts. Each of them is the cornerstone of a two-tier health system, consisting of one general hospital and several catchment health areas in which health centres are located (Tonglet et al., 1992b). Since 1985, the three health districts of Kirotshu, Masisi and Rutshuru, which are located close to Goma, have been implementing a comprehensive primary health care programme in collaboration with the Centre Scientifique et Médical de l'Université Libre de Bruxelles pour ses Activités de Coopération (CEMUBAC) and other organisations. For the present study we selected the Rutshuru Health District (RHD), which is located to the north of Goma along the main road crossing through the camps of Kibumba and Katale, because it was supposed to be one of the most important areas of settlement outside the camps. Data regarding the Rwandan refugees settled outside the camps in the RHD were collected from

several sources, as follows. First, we made use of the local health information system which was able to provide the data needed for the implementation and monitoring of the health programme at the local level, as we have demonstrated elsewhere (Reynders et al., 1992). Next, we analysed the weekly epidemiologic reports produced by the staff of the RHD according to the guidelines defined by the WHO. Finally, four of us (DP, EMS, TEL and JNP) made a one-month field visit to gather additional information.

#### FINDINGS

In July 94, the number of Rwandan refugees recently arrived in the North Kivu Region and settled outside the camps was estimated to be 250,000 (UNHCR, personal communication). Between July and September 1994, in the RHD, the number of refugees outside the camps was estimated to have grown by between 35,000 and 80,000. Rwandan refugees had settled in small groups in 12 of the 14 health areas of the RHD. Depending on the health area in question, this led to an increase in population which ranged from 1.9 to 70 per cent (RHD Medical Officer, personal communication).

The Rwandan refugees gave rise to a work overload which was a real burden on the Zairian health services. According to the health centres reports, the workload linked to the treatment of diseases affecting Zairian people remained approximately the same between July and September 1994 as it had been during the first six months of the year. In the meantime, Rwandan refugees were urged to seek help from the local hospital and health centres. Considering the RHD as a whole, the average increase in the number of curative consultations was close to 300 per cent. The range was between 0 per cent in the Vitshumbi health centre (located in the

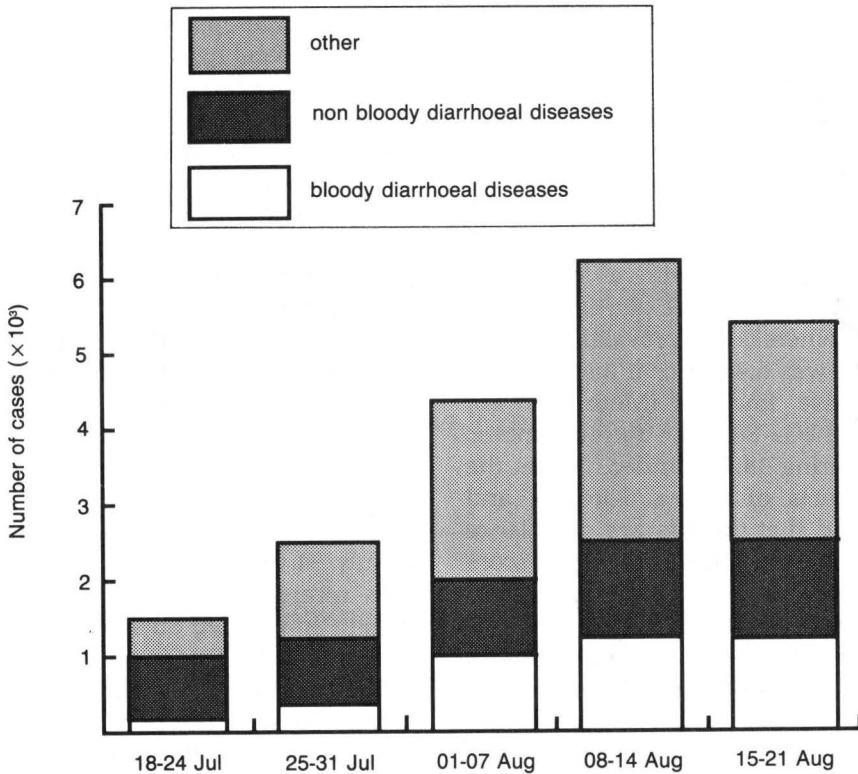


FIGURE 1 Reported cases of diarrhoeal and other diseases among Rwandan refugees settled outside the camps, Rutshuru Health District Zaire, 18 July–21 August 1994

Virunga National Park, in the north of Rutshuru) and 750 per cent in the Rutshuru health centre. Between 1 August and 30 September the general hospital — where the mean occupation rate was 56.1 per cent in 1993 — registered an increase of close to 140 per cent in the average monthly use of services. The increase reached 48.7, 121.1 and 482.1 per cent in the maternity, surgical and medical ward, respectively.

The weekly epidemiological reports showed that between 18 July and 21 August, 8,910 cases of diarrhoea (including 4,111 cases of bloody diarrhoea) and 10,797 cases of other pathological conditions were registered among the Rwandan refugees in the health centres and hospital of the RHD (Figure 1). During the same period, 210 deaths among the Rwan-

dan refugees were reported by these health facilities (Figure 2). The shape of these distributions was similar to that observed in the main camps (Paquet & Van Soest, 1994). Because death registration was not exhaustive, we were not able to compute crude mortality rates but it seems reasonable to suppose that recorded deaths accounted for only a small part of the total.

For the Rwandan refugees, the services were completely free of charge but each episode had its own cost. At the health centre level, the cost of one episode of disease was estimated at around US\$1.5, including drugs. The cost of one episode of hospitalisation was estimated at between US\$25 and 50, including drugs and depending on the type of disease. Only part of these costs were retrieved through the support of the UNHCR.

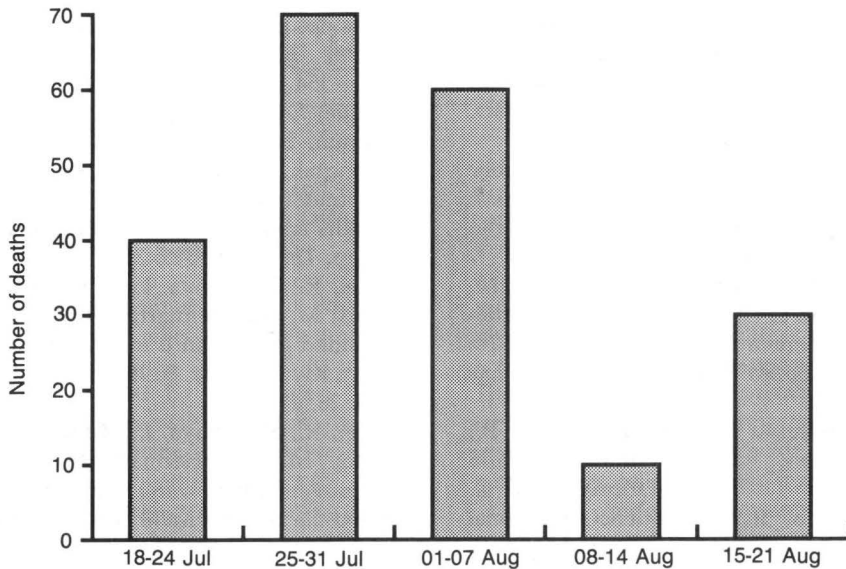


FIGURE 2 Weekly distribution of recorded deaths among Rwandan refugees, Rutshuru Health District Zaire, 18 July–21 August 1994

#### COMMENTS

Our findings support the view, that in analysing the Rwandan refugee crisis in Goma and its neighborhood, the response capacity of the host health services should not be overlooked. Although they were overwhelmed, the local hospitals and health centers contributed significantly to the disaster response. This should be borne in mind by relief organisations operating in the field. Among the factors which explain the resilience of the RHD in the management of the disaster are the district-based organisation of the local health system, the capacities of its trained medical, paramedical and administrative staff, the process of collegial decision-making which has been encouraged since 1985 as an integral part of the comprehensive primary health care strategy and the active collaboration of RHD staff members with the relief organisations.

The public health consequences of the Rwandan refugee crisis for the host population should be considered an integral

part of the disaster. Among these consequences were a probable decrease in the quality of care, a slowing down or a breakdown of preventive activities and a decrease in self financing capacities which inevitably means wage cuts. This is already an important concern for those who will have to implement and manage the health programmes after the crisis.

#### Note

We would like to thank DG VIII of the European Commission and the Administration Générale de la Coopération au Développement of the Belgian Ministry of Cooperation for financial support given to the CEMUBAC project in North Kivu Region, Zaire.

#### References

- Delacoelette, C., Van der Stuyft, P., Molima, K., Delacoelette-Lebrun, C. and Wery, M. (1989) Etude de la mortalité globale et de la mortalité liée au paludisme dans le Kivu montagneux, Zaïre. *Revue d'Epidémiologie et de Santé Publique* 37, 161–166.

- De Mol, P., Brasseur, D., Hemelhof, W., Tshimpaka Kalala, Butzler, J-P. and Vis, H.L. (1983) Enteropathogenic agents in children with diarrhoea in rural Zaire. *Lancet*, 516–518.
- Goma Epidemiology Group (1995) Public health impact of Rwandan refugee crisis: what happened in Goma, Zaire, in July, 1994? *The Lancet* 345, 339–344.
- Malengreau, M., Gillieaux, M., De Feyter, M. and Wittman, L. (1979) A propos de l'épidémie de cholera à l'est du Zaïre en 1978. *Annales de la Société Belge de Médecine Tropicale* 59, 401–412.
- Meuris, S., Bokumu Bosongo, P., Eerens, P., Vanbellinghen, A-M., Dramaix, M. and Hennart, P. (1993) Gestational malaria: assessment of its consequences on fetal growth. *American Journal of Tropical Medicine and Hygiene* 48, 603–609.
- Paquet, C. and Van Soest, M. (1994) Mortality and malnutrition among Rwandan refugees in Zaire. *The Lancet* 344, 823–824.
- Reynders, D., Tonglet, R., Mahangaiko Lembo, E., Mertens, D., Katulanya Isu, Dramaix, M. and Hennart, P. (1992) Les agents de santé communautaires sont capables de déterminer avec précision la population-cible des programmes de santé. *Annales de la Société Belge de Médecine Tropicale* 75, 145–154.
- Siddique, A.K., Salam, A., Islam, M.S., Akram, K., Majumdar, R.N., Zaman, K., Fronczak, N. and Laston, S. (1995) Why treatment centres failed to prevent cholera deaths among Rwandan refugees in Goma, Zaire. *The Lancet* 345, 359–361.
- Tonglet, R., Katulanya, I., Chiabrera, F., Dramaix, M. and Hennart, P. (1991) Pattern of attained growth in 0 to 5 year-old children from Kivu (Zaire). *Ecology of Food and Nutrition* 26, 215–226.
- Tonglet, R., Katulanya, I., Munkatu, M., Dramaix, M. and Hennart, P. (1992a) Can improvements in water supply reduce childhood diarrhoea? *Health Policy and Planning* 7, 260–268.
- Tonglet, R., Mugisho Soron'Gane, E. and Hennart, P. (1992b) Prevention vs cure in developing countries. *The Lancet* 339, 994.

**Address for correspondence:** Denis Porignon, CEMUBAC, Free University of Brussels, School of Public Health, Route de Lennik 808, B-1070 Brussels, Belgium.