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# Overview of some geographical determinants of health and access to care in the Ngam and Gado-Badzéré sites

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## Résumé

L'objectif de cet article est d'identifier les principaux déterminants du sous-système socio-économique de la santé, qui impactent significativement cette dernière, ainsi que l'accès aux soins de santé des réfugiés centrafricains dans les sites de Ngam et Gado-Badzéré, respectivement situés dans les régions de l'Adamaoua et de l'est du Cameroun. Le cadre conceptuel de l'étude est construit autour des concepts d'espace, de population, de santé, d'humanitaire et du développement. Les données de terrain et celles issues de l'exploitation des rapports de UNUHCR inscrites dans ce cadre conceptuel ont été utilisées pour les analyses. Ces informations ont été collectées tour à tour via une enquête effectuée auprès de 398 ménages de réfugiés, des entretiens, des observations dans les sites étudiés, et des lectures. Il ressort des analyses que le taux de morbidité est de 38% dans les sites étudiés. Il est entretenu par les pathologies liées aux contextes environnemental et socio-économique des réfugiés. Ces mêmes contextes en plus de déterminer la santé des réfugiés, orientent leurs recours aux soins. Il met en exergue le large spectre des déterminants de la santé en général et surtout ceux en relation avec le sous-système socio-économique de santé. Il en ressort la stabilité de la diffusion de certaines pathologies, mais le taux de morbidité général reste élevé malgré les interventions et réalisations d'urgence des humanitaires, dans le domaine de la santé, ainsi que dans ceux qui lui sont connexes. On note en effet un cadre de vie des réfugiés défavorable à leur santé et un risque d'insécurité alimentaire prégnant dans les sites. En outre, 12% seulement de réfugiés de Ngam et Gado-Badzéré ont pu développer leurs propres affaires tandis qu'une forte déperdition scolaire après le cycle primaire est également observée, alors que les ressources des humanitaires pour la prise en charge semblent diminuer. La majorité des réfugiés vit encore dans une pauvreté morale et matérielle qui impacte significativement leur santé. La politique de prise en charge actuelle portée à la fois par les ONG, l'État et les communautés est orientée vers l'autosatisfaction durable des besoins par les réfugiés.


**Mots-clés :** santé, réfugiés, humanitaire, Cameroun, RCA.


## Abstract

The objective of this article is to identify the main determinants of the socio-economic subsystem of health, which have a significant impact on health and access to healthcare for Central African refugees in Ngam and Gado-Badzéré, sites that are respectively located in the Adamawa and Eastern regions of Cameroon. The conceptual framework of the study is built around notions of space, population, health, humanitarian aid and development. The field data and the data drawn from UNHCR reports that are part of this conceptual framework were used for the analysis. Data was collected through a survey of 398 refugee households, alongside interviews, site observations and a literature review. The analyses show that the morbidity rate in the sites under study is 38%. This figure is the result of pathologies related to refugees' environmental and socio-economic contexts. In addition to determining the refugees' health, these same contexts also dictate their choice of healthcare. The study highlights the broad spectrum of health determinants in general and especially those related to the socio-economic subsystem of health. It shows stability in the spread of certain diseases, but the overall morbidity rate remains high despite emergency humanitarian interventions and projects in the field of health, as well as in related fields. The study confirms that the living environment for refugees is unfavorable to their health and that there is a high risk of food insecurity in the sites. In addition, only 12% of refugees from Ngam and Gado-Badzéré have been able to develop their own businesses. A significant drop-out rate after primary school was also observed. Against this backdrop, the resources of humanitarian aid workers seem to be diminishing. The majority of refugees still live in moral and material poverty, which has a significant impact on their health. The current care policy of NGOs, the state and the communities is geared towards sustainable self-satisfaction by refugees.


**Keywords:** health, refugees, humanitarian, Cameroon, CAR.

# Overview of Some Geographical Determinants of Health and Access to Care in the Ngam and Gado-Badzéré Sites

## Introduction

Cameroon is the victim of a complex humanitarian crisis[1] that threatens its security and development. It is faced with waves of immigration and forced displacements caused by conflicts and insecurities perpetrated in neighbouring countries (specifically Chad, Nigeria, and the Central African Republic)[2] on the one hand, and in its own administrative regions (Extreme North, North-West, South-West) on the other hand. For this reason, out of all its central African neighbours, Cameroon is one of the countries that currently hosts the greatest number of victims of humanitarian crises, and is also subjected to their most significant consequences. More than 259 000 Central African refugees are currently hosted in the Eastern, Adamawa and Northern regions, and 20 000 others reside in urban areas[3]. The persistence of socio-political crises and the exponential increase in the numbers of migrants and displaced persons have led researchers[4] to examine the implications of these crises on the country's demographics, socio-economic dynamics, environment, needs and services, etc.

The present article examines the implications of the humanitarian crisis on health and health needs. The already-weakened Cameroonian healthcare system was unprepared to handle additional care for the rapidly increasing numbers of refugees. In 2015, the United Nations High Commissioner for Refugees noted the mediocre state of infrastructures in the sites and villages that hosted Central African refugees. It also mentioned that the sub-centres for health and nutrition were under-equipped and under-staffed.

[1] Danièle Laliberté (2007) notes that "a humanitarian crisis is when emergency situations, triggered by armed conflict, flooding, earthquakes, volcanic eruptions, high tides and/or droughts disrupt collective life in exceptional proportions, constituting a threat to the lives of a large number of people and requiring extraordinary measures to ensure survival, care and protection, because the existing support mechanisms are unable to manage". In the context of a humanitarian crisis, victims are forced to move to seek survival in more secure environments.

[2] Nana Ngassam Rodrigue, 2014. « Insécurité aux frontières du Cameroun », Études 2014/3 (March), p. 7-16.

[3] UNHCR, 2016. SENS survey report, off-site Central African refugees, Eastern regions.

[4] Emmanuel Chauvin and Christian Seignobos, « L'imbroglio centrafricain. État, rebelles et bandits », *Afrique contemporaine*, 2013/4, n° 248, p. 119-148 ; Wassouni François and Gwoda Adder Abel, *Boko Haram au Cameroun : dynamiques plurielles*, Éditions Peter Lang, 2017 ; François Wassouni and Adder Abel Gwoda (dir.), *Regards croisés sur le phénomène Boko Haram*, Yaoundé, Éditions du Schabel, 2017 ; Magrin Géraud and Marc-Antoine Pérouse de Montclos, *Crise et développement. La région du lac Tchad à l'épreuve de Boko Haram*, Agence française de développement (AFD), 2018 ; Ahidjo Paul, 2015. Migration tchadienne et centrafricaine au nord Cameroun: enjeux humanitaires et problématique de la dégradation de l'environnement. Public Administration & Regional Studies 8th Year, n°. 2 (16) – 2016. Kamdem Pierre, 2016, Scolarisation et vulnérabilité : les enfants réfugiés centrafricains dans la région de l'Est-Cameroun », *Espace populations sociétés* ; Sadjo labe Solange et *al.*, 2018. Évaluation de l'impact de l'afflux des réfugiés centrafricains sur le couvert végétal entre 2002 et 2017 dans les localités de Borgop et de Ngam. Rev. int. géomat. aménage. gest. ressour. Vol. 3. 2018. Lémouogué et *al.*, 2019. Cameroun : les zones d'accueil des personnes déplacées, entre recomposition sociodémographique et gestion des personnes à besoins spécifiques. In *Humanitarian Alternatives* n°12.

Since the arrival of the refugees, humanitarian workers have been present at their bedsides for treatment, and emergency conditions have been stabilised. However, in 2018 and 2019, the sites of Gado-Badzéré and Ngam still presented a number of as-yet unmet priority needs. These can be summarised as: "monitoring of children in secondary school, response for adolescents between 14 and 17 who are not in school, the promotion of programmes for the empowerment of refugees, the redynamisation of the promotion of hygiene and sanitation, the provision of arable and grazing land for refugee farmers and herders, and shelter provision"[5]. These needs belong to sectors that are connected to the sector of health, and consequently continue to affect the latter[6]. They illustrate the various vulnerabilities faced by refugee populations in the sites, with women and children being the first victims[7].

This article is part of the vast field of health sciences, which includes the geography of health. Given the complexity of issues relating to health, a combination of a wide variety of disciplinary approaches, from both the "hard" and "soft" sciences, is necessary in order to understand health problems in given socio-spatial contexts. The article therefore examines the main socio-economic determinants of the health system, which characterise health and access to care, in two host sites for Central African refugees in the East and Adamawa regions in Cameroon. Specifically, the article proceeds to identify the main determinants of the socio-economic subsystem of health, which also have a significant impact on the system and on access to care for Central African refugees in Ngam (Adamawa region) and Gado-Badzéré (Eastern region).

# Methodology

## *The main features of the Ngam and Gado-Badzéré sites*

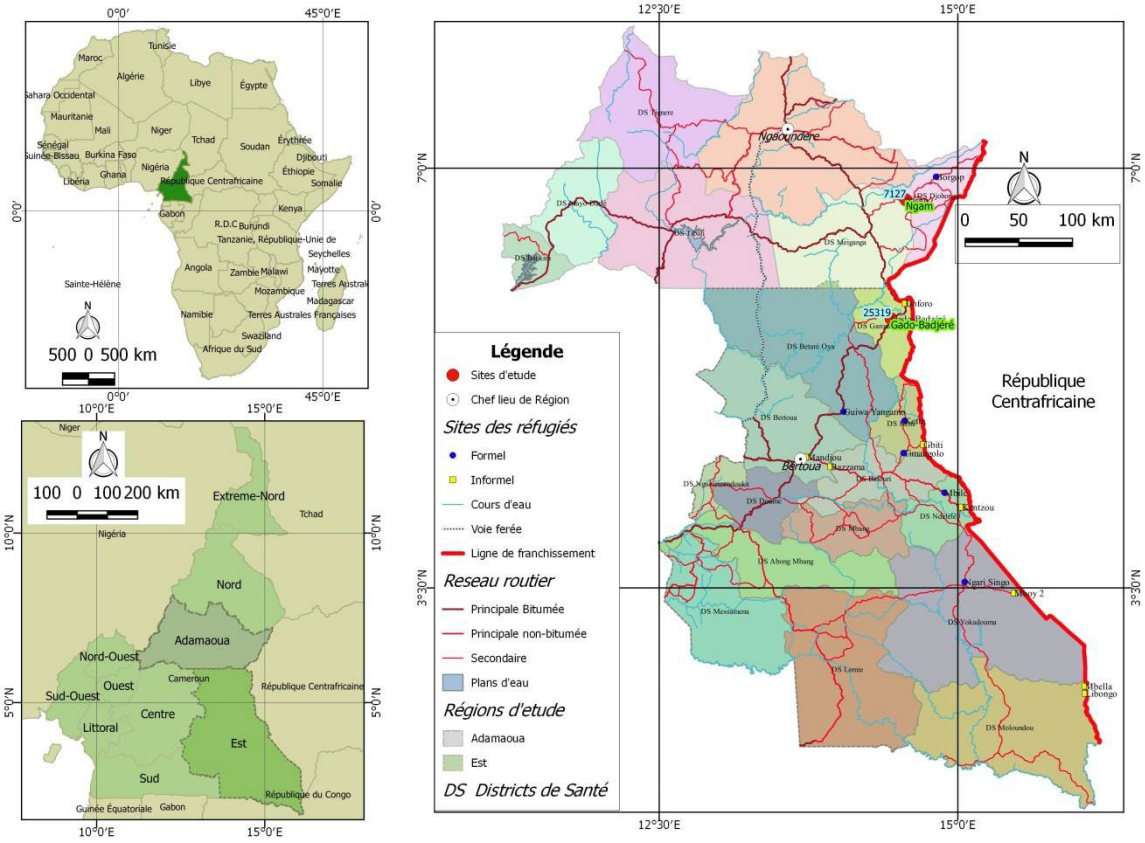
The sites under study, Ngam and Gado-Badzéré, are respectively located in the Adamawa region and in the Eastern region. These are two regions in Cameroon that share a border of nearly 800 kilometres with the Central African Republic. This border is the crossing point for refugees (Map 1).

[5] UNHCR, Profile report on the Gado-Badzéré site, 2018.

[6] Sectors connected to the health sector are those that indirectly influence health. See Pampalon Robert, 2007, Un indice de défavorisation matérielle et sociale pour l'étude des inégalités de santé. In Fleuret Sébastien and Thouez Jean-Pierre (dir), Géographie de la santé ; un panorama. Editions Economica, Paris. Pp. 37-44 ; Fleuret Sébastien, 2010. Territoire et santé : l'utilité de la géographie de la santé. In Richoz Simon, Boulianne Louis-M and Ruegg Jean (dir), santé et développement territorial, Enjeux et opportunités. Editions Presses polytechniques et universitaires romandes ; Lausanne, pp. 25-48 ; Zeneidi Djemilia et Fleuret Sébastien, 2007. Sans-abris et santé. Enjeux de visibilité et d'appropriation au prisme d'une approche qualitative. In Fleuret Sébastien and Thouez Jean-Pierre (dir), Géographie de la santé ; un panorama. Editions Economica, Paris. Pp. 45-58.

[7] Lémouogué J., 2019. La vulnérabilité des réfugiés centrafricains au Cameroun et au Tchad. In Sariette and Paul Batibonak dir, *Conjoncture autour des margilités*. Editions Monange ; Lémouogué et *al.*, 2019, *Idem*.

Map 1: Localisation of the area of study




Source: Administrative map of Cameroon, UNHCR reports, 2016, 2018 and 2019, fieldwork 2019.

The sites of Ngam and Gado-Badzéré are two of seven formal sites that were set up, alongside more than 160 host villages and informal sites created in the area under study. The Ngam site is located in the Adamawa region, in the department of Mbéré, in the Health District of Meiganga, between latitude N 6°44'1.4994" and longitude E 14°34'12.504", 80 kilometres from the border between Cameroon and the CAR (Map 1). It was opened on July 14th 2014 and covers a surface area of 37 hectares. On February 28th 2019, the total population of Central African refugees hosted at the site was 7127 people, grouped into 2089 households, with an average of three people per household[8]. The refugees were mainly ethnically Fulani (94.8%), Baya (4.9%), Hausa (0.2%) and other (0.2%). Their main religions were Islam (95.2% of households) and Christianity (4.8% of households).

The refugee site at Gado-Badzéré, which is 35 kilometres from the Cameroon-CAR border, was created on March 1st 2014 in the department of Lom-et-Djérem, Health District of Garoua Boulai, in the Eastern region, between latitude N 5°45'15.9114" and longitude E 14°26'0.6" (Map 1). It covers a surface area of 55 hectares and is divided into 11 sectors[9]. According to the same source, it has a population of 25 319 Central African refugees, grouped into 8101 households, with an average of three people per household (data from October 30th 2018).

[8] UNHCR, Profile report on the Ngam site, 2019.
[9] UNHCR, Profile report on the Gado-Badzéré site, 2018

A total of 57% of this population is under 16 years old, with the remaining 43% made up of people over 18 years old. 53% of the population are women/girls, and 47% are men.

The refugees' main religions in this site are Islam, practiced by 98.8% of refugees, Christianity, practiced by 0.8% of refugees, and other religions, practiced by 0.4% of refugees. Their main ethnic groups are Fulani (92.9%), Hausa (2.6%), and other (4.5%°).

Plate 1: Indicative signs in the Ngam and Gado-Badzéré sites



Photograph: Lemouogué J., November 2018.

In the photographs in Plate 1, we can see the names of the sites, the flags of the countries and the logos of the organisations that financed or made donations for the creation and operation of the sites. These signs are to be found at the sites' main entrances.

## *Research tools and data*

In order to achieve the objective of this article, we used a multidisciplinary methodology as part of a theoretical framework for the analysis of the relationships between migration, health and development. The conceptual framework was built around notions of space, forced migration, humanitarian aid and development.

Secondary data, used for certain analyses and discussions, was collected from readings of registers, decentralised state service reports (Delegation of the Ministry of the Economy, of Planning and Regional Development, Health Districts, health centres, etc), the National Institute for Statistics (INS), organisations in charge of migrants (UNHCR and its partners), as well as from scientific work on conflicts and political instability, migration, health risks, refugee management, and health systems and underdevelopment. Field data was collected in the two regions under study by means of a questionnaire, a GPS and a camera. This data collection included observation and surveys carried out amongst 398 refugee households in the Gado-Bedzéré and Ngam sites. Interview guides were also used for data collection.

They focused on the households' general conditions of vulnerability, that were likely to affect their health and access to care and health services in the two refugee sites. Interviews were carried out with individual refugees and groups, administrative and traditional authorities, heads of refugee and autochthonous communities, healthcare personnel, and heads of NGOs and international organisations in charge of refugees.

The data was analysed using both quantitative and qualitative methods. The results were organised around the health situation in the refugee sites, the socio-economic determinants of health and access to care, and the future of health in refugee hosting areas.

# Results

## *Characteristics of morbidity in the refugee sites of Ngam and Gado-Badzéré*

Morbidity in the refugee sites was strongly characterised by malaria, malnutrition and acute respiratory infections. Diarrhoeic diseases, gastroenteritis, skin diseases, etc, were also recurrent amongst refugees (Table 1). A study of morbidity during the month of the study (March 2019) revealed a 39% general morbidity rate amongst the sample groups in the two sites. Children under five represented 37.41% of the monthly morbidity rate, whereas people over 60 and children between six and 17 respectively represented 18.70% and 18.06% (Table 1)

Table 1: Distribution of households' main health problems according to demographic categories

| Households' main health problems | Monthly morbidity according to demographic categories | | | | | | |
|---|---|---|---|---|---|---|---|
| | Children (0-5 years) | Children (6-17 years) | Adults (18-59 years) | Seniors (59 years and above) | All categories | Total cases | % |
| Malaria | 29 | 10 | 13 | **7** | 8 | **67** | ***43.22*** |
| Malnutrition | 9 | 6 | 4 | **2** | 4 | **25** | ***16.12*** |
| Respiratory infections | 8 | 6 | 2 | **2** | 3 | **21** | ***13.54*** |
| Diarrhoea/AGE | 10 | 5 | 2 | **0** | 0 | **17** | ***10.96*** |
| Typhoid | 0 | 0 | 2 | **1** | 2 | **5** | ***3.22*** |
| Skin diseases | 2 | 1 | 0 | **1** | 0 | **4** | ***2.58*** |
| Diabetes | 0 | 0 | 0 | **2** | 0 | **2** | ***1.29*** |
| Rheumatism | 0 | 0 | 0 | **3** | 0 | **3** | ***1.93*** |
| Tuberculosis | | 0 | | **1** | 0 | **1** | ***0.64*** |
| Back trouble | 0 | 0 | 0 | **3** | 0 | **3** | ***1.93*** |
| Heart problems | 0 | 0 | 0 | **3** | 0 | **3** | ***1.93*** |
| Toothache | 0 | 0 | 0 | **2** | 0 | **2** | ***1.29*** |
| Stomach ache | 0 | 0 | 0 | **2** | 0 | **2** | ***1.29*** |
| **Total *(%)*** | **58 *(37.41)*** | **28 *(18.06)*** | **23 *(14.88)*** | **29 *(18.70)*** | **17 *(10.96)*** | **155** | ***100*** |

Source: Fieldwork, March 2019.

The results of the data collected in the refugee sites illustrate the extreme vulnerability of the refugees. Seniors displayed the most unfavourable health indicators after children under five. Elderly refugees suffered from infectious diseases and specifically from chronic diseases, whereas the youngest children suffered much more from malnutrition, diarrhoea and acute gastroenteritis (AGE), alongside infectious diseases.

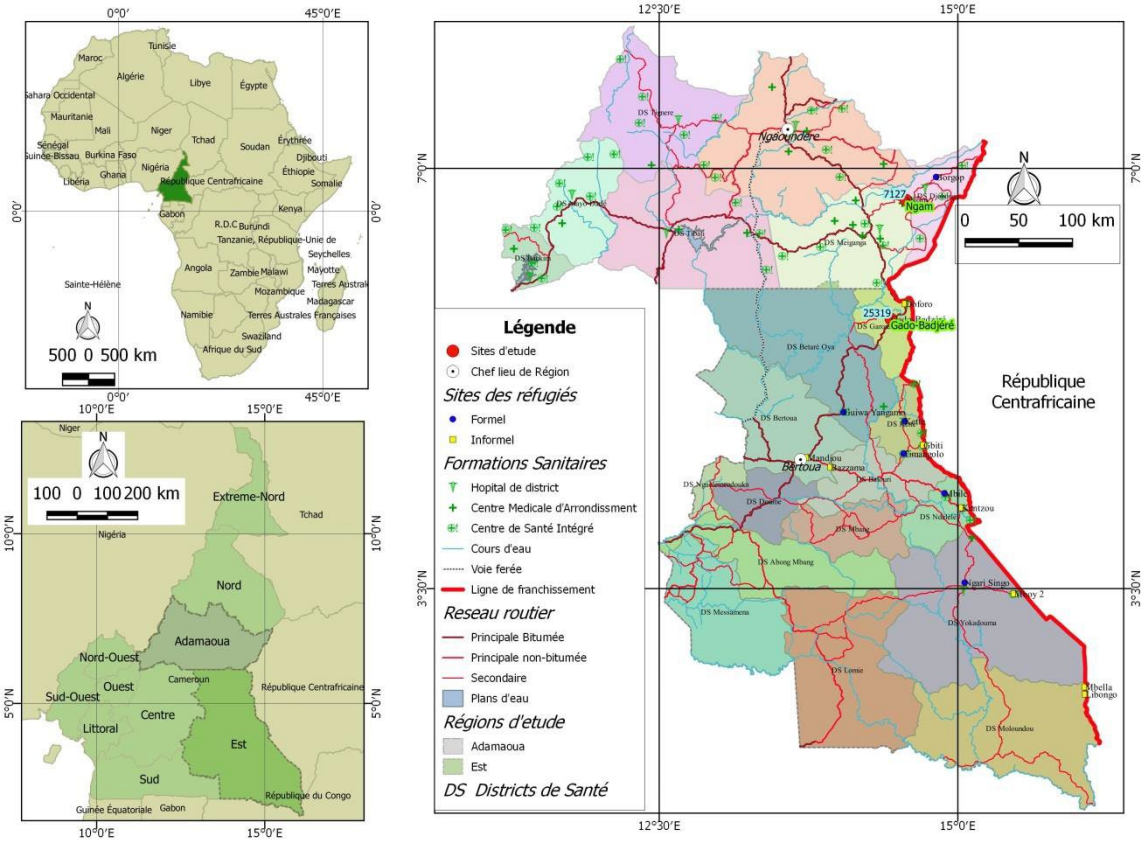
Malaria, the main cause of morbidity in the areas under study, represented 42.22% of the households' health problems. Next came malnutrition, which affected 16.12% of households at the time of the study. Respiratory diseases affected 13.54% of households. According to UNHCR reports[10], the global rate of malnutrition in the Ngam site was 9.4%, and that of Acute Severe Malnutrition was 1.3%. In the Gado-Badzéré site, these rates were 9.1% and 0.9% respectively.

Out of the 398 households under study, 38.9% declared having lost a member to disease or violence. The crude mortality rate recorded by the UNHCR and its partners working in the health sector in 2018 was 0.4/10000/day and 0.6/10000/day respectively for the Ngam and Gado-Badzéré sites, compared to a standard of less than 0.75/10000/day. The mortality rate amongst children under five was 0.9/10000/day and 1.22/10000/day respectively for the Ngam and Gado-Badzéré sites, compared to a standard of less than 1.5/10000/day. These standards are very close to the recommended norms, hence the permanent alert, because the situation could worsen at any moment. In light of the health problems we have presented and correlative to the high number of refugees concerned, together with the awareness raising measures taken around health treatment, the demand for modern care and services is exploding in refugee areas. This is in addition to the medical care that is practiced culturally in parallel.

The demand for healthcare and services has increased as a result of growing populations in each Health District. Each District has a District Hospital, at least one Neighbourhood Medical Centre and a number of Integrated Health Centres (Map 2). Nevertheless, the service offer and access to healthcare remain limited in the refugee host areas, despite the facilities' arrangements and equipment. Reduced amounts of equipment, a lack of qualified human resources, low provision of medicines and other consumables and non-consumables, limited reception capacity, the lack of a laboratory for routine examinations, the lack of lighting in the health centres and non-functional Health Committees are the main indicators of the limits of the care and services offer in the refugee areas.

[10] UNHCR 2019 Op. cit. and UNHCR 2018 Op. cit.

Map 2: Health Map of the Eastern and Adamawa Regions




Source: Administrative map of Cameroon, UNHCR Reports, 2016, 2018 and 2019, fieldwork 2019.

The Adamawa region has 9 operational Health Districts and 97 Health Areas, of which 87 are functional, including 176 health facilities (134 public and 42 private). The Eastern region has 14 Health Districts, 109 Health Areas and 203 health facilities. These health facilities are unevenly distributed and their physical accessibility is very limited for the majority of the population due to the state of the roads, which are almost impassable, especially during the rainy season.

Nearly 50% of refugee households frequented modern health facilities in the case of disease, whereas 25.15% resorted to traditional medicine. These practices were not mutually exclusive, however, with 24.85% seeking mixed care. Since treatment by humanitarian workers has become selective, we observed increasing cases of abstention from modern care.

## *Unfavourable geographical determinants of health in the Central African refugee sites of Ngam and Gado-Badzéré in Cameroon*

Geographical determinants of health are factors that protect health or, on the contrary, compromise or threaten it[11].

[11] Picheral, H., 2001. Dictionnaire raisonné de géographie de la santé ; GEOS, Montpellier, Université Montpellier III-Paul Valéry.

They are distinct from the causal factors responsible for the appearance of diseases. In nature, they are environmental (physical, economic and social environment) and genetic (genetic heritage).

The first factors are the determinants of collective health in a community, whereas the second factor determines individual health. These determinants illustrate the domains described as being connected to the domain of health, which are part of the health system in a given environment, hence their indirect, but eminently explanatory influence on the vulnerability to certain pathologies and access to healthcare. These different sectors connected to the sector of health include refugees' living environments, social characteristics and livelihoods.

### *Living environment as a negative factor influencing refugees' health?*

Aside from the natural environment, which is held responsible by several authors for the spread of certain diseases, refugees' immediate or living environments (habitats, toilets, latrines) do not always guarantee the best health outcomes. They foster the development of germs, and their transmission, thereby causing certain pathologies.

Specifically, 38% of refugees have access to more or less decent shelters in the Ngam site, compared to a standard of 100%. The situation is similar in Gado-Badzéré, where 55% of refugees live in more or less decent shelters. Only 29% of refugee households live in access sites; the rest live in emergency shelters in Ngam village. We observed a lack of these emergency shelters, many of which were in a state of disrepair, and a low level of autonomy amongst households to participate efficiently in the construction of shelters in the two sites. Aside from Sector 4 in Gado-Badzéré, where there were some houses made of bricks, refugee accommodation was mainly limited to shanty-town emergency shelters, made of straw, old paper or tree leaves (Photo 1). The sleeping arrangements for over 80% of households consisted of mats laid on the floor, or supported by transversal and vertical bars resting on four wooden pegs in the ground. The habitats were made up of one room, which was both the cooking space and the bedroom for adults and children (Photo 2).

Access to water and hygiene and sanitation services remains limited. As an example, there was an average of 40 people per latrine in the Gado-Badzéré site, compared to the required maximum of 20 people per latrine. Similarly, there was an average of 49 people per shower, compared with 20 as originally planned. The latrine and shower infrastructures set up by the UNHCR and its partners were in states of disrepair, and had been vandalised in some places. Worse still, inhabitants of Block 18 in the Ngam site, and those who lived outside of the sites, did not have access to toilets or latrines. Inhabitants used traditional toilets (Photo 3) or vacant areas covered in undergrowth as both toilets and latrines (Photo 4). The photographic Plate 2 below illustrates some of the indicators of the living environment in the refugee sites of Ngam and Gado-Badzéré.

Plate 2: Some characteristics of refugees' living environment in the Ngam and Gado-Badzéré sites


Photograph: Lemouogué J., November 2018 and March 2019.

Photo 1 shows a shelter with walls made of old paper and a roof made half of straw and half of old paper. Photo 2 shows the inside of a shelter with two beds (one for the mother and the other for her two daughters), made of mats on wooden supports. Photo 3 is an illustration of a traditional toilet. We can see a hole surrounded by straw. The letter A in Photo 4 shows a refugee shelter, essentially made of straw. The letters B and C indicate open defecation, owing to the absence of latrines in Block 18 of the Ngam site. Specifically, the letter B indicates a barefoot child defecating in a courtyard (arrow pointing to faeces), whereas the letter D, accompanied by an arrow, shows a multi-use water jug (drink and toilet) on the floor by the defecating child in the courtyard. The letter C accompanied by an arrow indicates the undergrowth, which was the alternative used instead of the latrines in the same block. The state of the traditional toilets in some blocks, or indeed the absence of the latter, was an indicator of the risk of fecal contamination.

## *Unfavourable livelihoods and social characteristics for health and access to care for refugees?*

As well as the living environment, socio-economic indicators and livelihoods, namely education, income, food security, and access to energy and drinking water, also indirectly and negatively impact the health of populations.

After the family, school is the place *par excellence* where children are educated in terms of hygiene and cleanliness in order to promote good health. However, education for refugee children is not always guaranteed to contribute to this objective. Less than 10% of refugee children had started primary school before their arrival in Cameroon (Kamdem P. 2016; UNHCR, 2018). According to data drawn from recent fieldwork, 51% and 69% of children in the Gado-Badzéré and Ngam sites respectively received primary schooling, and 0% and 2% continued to secondary education. Nevertheless, there was persistent absenteeism at the primary school level. UNHCR data (2018) indicated that 392 school-age children (144 girls and 248 boys), or 60% in the Ngam site and 80% in Gado-Badzéré, were enrolled in primary school by PLAN Cameroon, UNICEF, LWF and the UNHCR, compared to a standard of 100%. Only 5% of school-age children were enrolled in secondary school in the Gado-Badzéré site, and 0% in Ngam. These pupils were taught in establishments that had been refurbished, reorganised, extended or built with humanitarian funding. There was a high drop-out rate after primary school. Adolescent drug use increased after this cycle, as well as juvenile delinquency and violence in the areas under study.

The educational situation influenced the professional one. The population in Ngam was made up of 17% of housewives, 7% of cattle herders, 31% of unskilled labourers and pieceworkers, 2% of small traders, 6% of farmers, and 37% of people without any gainful activity. As in the Ngam site, refugees in the Gado-Badzéré site were uneducated and had not had any professional training. 50.4% of adults had never been to school, 37.4% had received an informal education (52% of women and 48% of men), and 0.80% had pursued studies at university. For this reason, the adults did not have professional qualifications. As a result, 18% of the population was made up of housewives, 5% of cattle herders, 19% of unskilled labourers and pieceworkers, 4% of small traders, 4% of farmers, and 50% of people with no employment. Table 2 presents some of the activities and incomes of those who practiced an Income Generating Activity (IGA).

Table 2: Refugee activities and incomes

| | **Monthly income** | | | | | | |
|---|---|---|---|---|---|---|---|
| **Activities** | **No income** | **Less than 10000F** | **10000-20000** | **21000-30000** | **31000-40000** | **41000-50000** | **Total** |
| **Agriculture** | 1 | 4 | 1 | 4 | 2 | 3 | **15** |
| **Farming** | 1 | 0 | 0 | 0 | 0 | 0 | **1** |
| **Sewing** | 0 | 1 | 2 | 0 | 0 | 0 | **3** |
| **Trade** | 0 | 4 | 4 | 2 | 0 | 0 | **10** |
| **Building** | 0 | 0 | 1 | 3 | 0 | 0 | **4** |
| **Shoe repairs** | 0 | 3 | 0 | 1 | 1 | 0 | **5** |
| **Mechanics** | 0 | 0 | 3 | 0 | 0 | 0 | **3** |
| **Hairdressing** | 0 | 1 | 0 | 0 | 0 | 0 | **1** |
| **Total** | **2** | **13** | **11** | **10** | **3** | **3** | **42** |

Source: Fieldwork, March 2019

The fieldwork in Ngam and Gado-Badzéré presented 42 refugees, of whom 10.55% were heads or members of resourceful households, practicing small trades (selling wood, straw, food products), small-scale farming, agriculture, shoe repairs, etc, for a monthly income that varied between 10 000 CFA francs and more than 50 000 CFA francs, whereas nearly 90% of respondents had no professional activity. The latter were therefore entirely dependent on third parties, be they NGOs or physical persons.

### *Risk of food insecurity in refugee sites*

Lack of income increased the risk of food insecurity, since refugees were unable to feed themselves. A number of refugee households produced neither food resources nor the financial resources to obtain the former. And yet food security was no longer 100% guaranteed in the sites. The general distribution of food was only carried out for beneficiaries targeted by the WFP. The daily nutritional value (Kcal) received per person was 1470 Kcal/day/person in the Gado-Badzéré site and 1575 Kcal/day/person in Ngam. This was a 75% food ration provided by the WFP for 30 days. Owing to the WFP's lack of resources, these values are inferior to the standards of nutritional value, which are 2100 Kcal/person/day.

The distributed food baskets only covered 75% of the needs of the normal monthly ration. Aside from the declining food supply, refugee nutrition and other basic needs were no longer systematically provided for in the sites. Since 2017, only targeted people have benefited from this provision. Targeted refugees receive a Cash Based Transfer (CBT) of 6160 CFA francs per person per month, representing 70% of the monthly ration[12].

## *Sustainable responses that illustrate the dynamic of healthcare management for refugees*

Several actors were mobilised to the bedsides of Central African refugees for their health and for sectors connected to the sector of health (Table 3).

[12] UNHCR, 2018. Op. cit.

Table 3: Distribution of actors by sector of intervention in the two sites under study

| Protection | Food security | Water, Sanitation and Hygiene (WASH) | Health |
|---|---|---|---|
| CICR<br>IMC<br>PLAN- Cameroon<br>UNHCR<br>UNICEF<br>UNWOMEN<br>CRS | IFRC/CRC<br>WFP<br>ADRA<br>UNHCR<br>PLAN- Cameroon | PUI<br>UNHCR<br>SOLIDARITE INTERNATIONAL<br>PUI<br>UNICEF | IMC<br>AHA<br>UNHCR<br>UNICEF |

| Nutrition | Education | Shelter and non-food items | CCCM (Camp Coordination and Camp Management) | Livelihood |
|---|---|---|---|---|
| IMC<br>AHA<br>WFP<br>UNHCR | PLAN<br>CRS<br>UNICEF<br>UNICEF<br>JRS | ADES<br>IFRC/CRC<br>UNHCR<br>WFP<br>UNICEF | UNHCR<br>PUI | LWF<br>UNHCR<br>SOLIDARITES |

Source: UNHCR, 2018, 2019, fieldwork, November 2018.

We identified 13 humanitarian actors in the Ngam site. There was one governmental structure, represented by a site administrator, dependent on the ministerial delegation of land administration, four United Nations Organisations (UNHCR, UNICEF, WFP, ICRC), seven international and national NGOs and one local NGO. As well as the humanitarian actors in the Ngam site, AHA, CRS and JRS were present in Gado-Badzéré, which had representatives from 16 humanitarian NGOs. There were three United Nations Organisations, 11 national and international NGOs, and one local NGO. Amongst the different areas of interest, grouped by sectors of humanitarian intervention in the sites, the analysis of health and livelihoods allowed us to identify the projects that aimed to promote health and wellbeing.

### *Interventions in the health sector: from emergencies to the promotion of health self-management by refugees*

On arrival, the refugees were fragile, wounded, traumatised and starving. It was at this moment that humanitarian workers rushed to assist them, providing emergency intensive care to save their lives. The Central African refugees who arrived in the Eastern region between 2013 and 2016 benefited from medical services in 51 integrated health centres, eight district hospitals and seven therapeutic feeding centres. The UNHCR and its partners built and equipped three new integrated health centres. 47 health posts were built and supplied with essential generic medicines. 2000 treated mosquito nets were distributed and 15 medical waste incinerators were built. Roughly 60% of Central African refugees had access to primary healthcare and 25% of live births took place in the presence of qualified health personnel[13].

[13] Information gathered from the Eastern Regional Health Delegation, in December 2018.

The health sector in the sites under study is currently carried by international NGOs and United Nations Organisations. These humanitarian partners support the State in its duty of managing the health of refugees and host populations. "International organisations with the required skills in the domains of public health (ACF, AHA, IMC and CRF) and mental health (ACF, CARE), supported by the UNHCR, UNICEF, UNFPA, the WHO and other sponsors, intervene to provide primary healthcare for refugees and host populations"[14]. These partners intervene according to their skills, in the domain of health or in parallel domains. All of the existing facilities in the refugee host areas had benefited from renovation, extension, equipment and human resource reinforcement, with the aim of strengthening their capacity to meet the needs of the growing population (Table 4).

Table 4: Some activities carried by the UNHCR and its partners in the domain of health

| PARTNERS | ACTIVITIES |
|---|---|
| **PLAN –UNFPA** | Equipment, mobile clinic, distribution of dignity kits |
| **PLAN-DFAT** | Training for infant and young children feeding practices, cooking demonstrations, screenings |
| **MSF** | Management of malnutrition |
| **AHA** | Medical treatment, reinforcing routine vaccination programmes, referrals and counter-referrals, education, awareness-raising, prenatal care, deliveries, PMTCT (prevention of mother-to-child transmission), promoting infant and young children feeding practices, blanket feeding, equipment provision, building of health facilities, reinforcing human resources, supplying laboratory reagents for testing.... |
| **WFP** | Nutritional support via NGOs |
| **UNICEF** | Training personnel in CLTS (Community-Led Total Sanitation), facilitating campaigns against measles and tetanus, maintaining the cold chain, WASH... |
| **WHO** | Support for vaccination campaigns, ensuring input availability for V. Cholerae... |
| **UNFPA** | Human resource reinforcement, provision of delivery kits... |
| **FAIR MED** | Community-based oversight of epidemic-prone diseases |
| **IMC** | Medico-nutritional management |

Source: Fieldwork, November 2018 and March 2019, Eastern Regional Health Delegation, 2018.

Certain facilities, such as the Integrated Health Centres in Borgop, Garga Pella, Batoua and Meiganga in the Adamawa region, were built from scratch (Photo 1, Plate 3) for the health treatment of refugees in the Adamawa region by humanitarian organisations, and then entrusted to the State for management, via the Ministry of Public Health. IMC focal points were functional in all of the health facilities, from health huts to specialised hospitals. The IRD and the IMC refurbished health facilities and equipped them with microscopes, beds, generators, gas, oxygen, tricycles, fuel, etc.

[14] UNHCR, 2016. SENS study report, off-site Central African refugees, Eastern, Adamawa and Northern regions in Cameroon, August–September 2016, accessed August 22nd 2018 ; 117 P.

Extensions were added to four buildings at the District Hospital in Meiganga: the medical building, the reception building, the psychosocial building and the building housing the Internal Therapeutic Feeding Centre. Plate 3 shows some of the projects that have been carried out in the domain of health.

Plate 3: Health facilities built for refugees' health treatment


Photograph: Lemouogué J., March 2019

Photo 1 is the health facility of Meiganga Publique, entirely built with humanitarian funding in Meiganga, the Health District to which the health centre in Ngam is affiliated. Photo 2 illustrates an IMC focal point, built with temporary materials, in the Gado-Badzéré refugee site.

The buildings of Ngam's Integrated Health Centre in the district of Meiganga had been extended and renovated. It employed nine health personnel, including the head of the centre, who was a government official, two volunteer nurses paid by the health centre as part of PBF (performance-based financing), and six other nurses, recruited and paid for by the IMC. The staff of the health facility was reinforced by two doctors, who worked part-time. We noted improvements in the care offer, such as the operating of this health facility in Ngam at night, thanks to donations of a generator and solar panel by the UNHCR. Patient referrals were made possible thanks to the tricycle and ambulance, which were also provided by the UNHCR.

Nevertheless, emergency interventions by humanitarian workers were a thing of the past by the time of the study, since refugees had been arriving since 2013/2014. They received emergency care and, in parallel, the health facilities were developed and the health personnel was enhanced. This was followed by awareness-raising, education, and training for the practice of Income Generating Activities. These activities were all chronologically organised to ensure the autonomous development of refugees and therefore to prepare them to take over once the humanitarians began to scale down their interventions or left the area. With this goal in mind, the UNHCR and the Ministry of Public Health (MINSANTE) signed a framework convention on August 10th 2016 in Yaoundé, in order to facilitate access to care for Central African refugees. Through this partnership, effective since January 2017, the UNHCR committed to paying 70% of the costs of services linked to health treatment for refugees. MINSANTE, for its part, committed to ensuring the regular supervision of refugee health treatment in competent health centres and to reducing the cost of health services by 30% for the benefit of the patients concerned.

The health cheque procedure is now available and is used by targeted refugees who are the most in need, and those who arrived after 2013. The assumption is that those who arrived before this date and those who have health conditions that are favourable to the practice of an Income Generating Activity have had time to integrate and to develop an IGA that enables them to pay for their own healthcare.

### *Livelihood promotion to ensure the sustainable self-satisfaction of refugee needs*

Projects that aim to promote livelihoods were carried out in the refugee areas. They included children's education, and adult training for jobs and Income Generating Activities (Table 5).

Table 5: Categories of IGA that received or did not receive funding

| **Activity** | **Number of beneficiaries of funding** | **Number of non-beneficiaries of funding** |
|---|---|---|
| Agriculture/Food transformation | 11 | 12 |
| Woodworking | 0 | 2 |
| Sewing/Knitting | 5 | 4 |
| Building work | 3 | 1 |
| Shoe repairs | 0 | 3 |
| Farming | 3 | 2 |
| Shopkeeping | 9 | 3 |
| Hairdressing | 0 | 1 |
| **Total** | **31** | **28** |

Source: Fieldwork, November 2018

As part of livelihood promotion, we identified young carpenters, shopkeepers, seamstresses, farmers, etc. who were currently self-sufficient, having benefited or not from the support of the Lutheran World Federation (LWF) or the NGO Solidarités International. The businesses managed by refugees, sometimes without financial support from humanitarian workers, and the articles found in the sites and in the surrounding markets, attested to the beginnings of economic dynamism amongst the refugees (Photo Plate 4). 12% of people aged between 18 and 59 in Ngam and in Gado-Badzéré, having received funding from the LWF as part of the programme for the promotion of livelihoods, had their own IGAs and had been working independently for more than 12 months[15]. However, some of these activities were hindered by a lack of energy, since no household had access to sustainable or renewable energy. Photo Plate 4 below illustrates the results of refugee activities in Ngam, and the tools for working the land that were delivered to the Gado-Badzéré site.

[15] UNHCR, 2018, 2019 Op. cit.

Plate 4: Support for refugee livelihoods and some of the results achieved


Photograph: Lemouogué J., March 2019.

Photo 1 shows improved dwellings made of wrought iron or earth/clay, knitted clothes for babies, and agricultural products. Photo 2 shows the wheelbarrows, watering cans, rakes, and bags of fertiliser (chicken droppings) that were delivered to the Gado-Badzéré site to be distributed to farmers.

The goal of the humanitarian focus on livelihoods is to accompany households to help them to achieve the sustainable self-satisfaction of the needs of their direct beneficiaries (employees) and their indirect beneficiaries (dependent members of their families), from the resources that they produce. The projects aiming to promote livelihoods were carried both within and outside of the sites. The host populations benefited from 30% of humanitarian investments in the area in terms of drilling sites, and some financial support for agricultural equipment, seeds, etc, whereas 70% of investments accrued to the refugees.

# Conclusion and discussion

The aim of this article was to identify the main determinants of the socio-economic subsystem of health, that significantly impacted the latter as well as access to care for Central African refugees in the Eastern and Adamawa regions in Cameroon. The investigation showed that the health situation of refugees in the Ngam and Gado-Badzéré sites remains troubling, in light of the health indicators and the socio-economic context that is a determinant of health and access to care in the sites. The monthly morbidity rate was 39% in the two refugee sites under study, which is high. We also noted difficulties in access to quality healthcare for refugees and host populations.

Admittedly, the rates of global and severe malnutrition in the sites were inferior to the standard values, which are less than 10% for global malnutrition and less than 2% for severe malnutrition. Nevertheless, it is clear that they are dangerously close to critical levels. Malnutrition is both quantitative and qualitative. Food rations have diminished due to the decrease in resources allocated to the assistance of Central African refugees. Not all refugees receive food aid in the form of food donations or Cash Based Transfers (CBTs). CBTs, which amount to 6160 CFA francs/person/month, represent 70% of the monthly ration for targeted refugees amongst the most vulnerable, generally Persons with Specific Needs (PSNs). Others must find their own food, which is not always feasible given the number of refugees without work who are consequently non-productive and destitute. As indicated in other studies by various authors, the latter groups generally have the most unfavourable health indicators, reflecting their deprivation in terms of goods and commodities, or the breakdown of social, family and community networks[16]. Incidentally, it has been noted that "invariably, there is a link between material comfort (and therefore wealth and standard of living) and the satisfaction of needs"[17]. In light of the above, the increase in the number of beneficiaries of food rations and the introduction of the age range of 24 to 49 months and pregnant/breastfeeding women in the community monitoring programme will be significant in reducing these levels of malnutrition. Community awareness-raising and cooking demonstrations did take place in the communities[18].

Aside from malaria and respiratory diseases (which are more due to the physical environment), we clearly observed that the most recurrent pathologies, namely acute gastroenteritis, malnutrition, diarrhoea, skin diseases, etc, were linked either to the lack of hygiene and sanitation in the refugees' living environments, or to their unfavourable socio-economic context[19].

[16] Pampalon Robert, 2007. Un indice de défavorisation matérielle et sociale pour l'étude des inégalités de santé. In Fleuret Sébastien and Thouez Jean-Pierre (dir), Géographie de la santé ; un panorama. Editions Economica, Paris. Pp. 37-44.

[17] Fleuret Sébastien, 2007. Bien-être, santé et géographie. In Richoz Simon, Boulianne Louis-M and Ruegg Jean (dir), santé et développement territorial, Enjeux et opportunités. Editions Presses polytechniques et universitaires romandes ; Lausanne, pp72-86.

[18] UNHCR, 2019 Op. cit.

[19] Laliberté 2007, Op. cit. ; Fleuret Sébastien, 2010. Territoire et santé : l'utilité de la géographie de la santé. In Richoz Simon, Boulianne Louis-M and Ruegg Jean (dir), santé et développement territorial, Enjeux et opportunités. Editions Presses polytechniques et universitaires romandes ; Lausanne, pp. 25-48. Lussault and Lévy. 2013. *Dictionnaire de la géographie et de l'espace des sociétés*. Paris : Belin, 1128 p.

These disease-fostering conditions highlight the vulnerabilities facing refugee households, which mean that they are permanently exposed to health risks[20]. In reference to these factors of health vulnerability, the WHO noted in 2008 that a person's state of health depends not only on access to healthcare services, but also on a multitude of socio-economic determinants of health. These include the conditions in which people are born, grow up, work and age, and that are primarily responsible for persistent health inequalities within countries and cities, or between different countries and cities. Similarly, it must be noted that these conditions are not at all favourable for fragile and disorientated refugees: very often, they are unable to access healthcare services due to their irregular status in the host country or as a result of linguistic, cultural and economic barriers[21].

Refugees live in conditions of permanent fragility which can develop into full-blown health crises at any moment, given the characteristics of certain determinants of health. This is the case for the physical environment, and the living environment, whose quality and state of disrepair variously expose inhabitants to cold, dust, etc. These conditions foster the development of infectious diseases such as malaria, respiratory diseases, skin diseases... Materially destitute refugees in great numbers are compelled to overexploit the available resources to meet their basic needs. For example, we noted an excessive use of firewood and straw in a perimeter more or less removed from the shelter sites[22]. This contributed to modifying the plant cover, which influenced climate change, which was not without consequences for health in these areas. We noted "an annual degradation rate of 0.44% between 2002 and 2013 and of 2% between 2013 and 2017. This recent dynamic is essentially due to the refugees' human activity"[23]. The kinds of habitations also expose the populations to the permanent risk of fires. There is a pressing need to renovate the emergency shelters made of temporary materials into semi-sustainable shelters. The UNHCR has encouraged refugees to this end and called for community mobilisation for the repairing of their shelters, alongside technical support and rigorous monitoring for self-built accommodation[24].

The objectives of humanitarian workers and host countries in terms of refugee management and livelihood support vary depending on whether the situation is an emergency or not. These objectives have changed in the case of the refugees in the Ngam and Gado-Badzéré sites because most of the refugees have been there since 2013/2014. The emergency period (systematic treatment of all refugees in order to save lives) has therefore passed, giving way to support for refugees for the development of livelihoods with a view to self-sufficiency. The current aim of the host country and humanitarian NGOs is to safeguard the dignity of refugees and make sure that they do not depend indefinitely on aid. This involves the improvement of their living conditions and a contribution to their development over the long-term. Their socio-economic conditions such as literacy/education, employment, food security, access to energy, etc, must therefore be improved.

[20] Lémouogué Joséphine, 2019. La vulnérabilité des réfugiés centrafricains au Cameroun et au Tchad. In Batibonak Sariette and Batibonak Paul (Ed), Conjoncture autour des marginalités. *Les éditions Monange*, www.monange.org;ISBN 978-9956-655-13-7Yaoundé-Cameroun, pp135-154.

[21] Van Puymbroeck, N., 2017. « Vulnérabilités. Vers un traitement juste des réfugiés vulnérables », *Caritas International et Convivial,* Brussels, Caritas.

[22] Ahidjo, P., 2015 Op. cit. ; Kossoumna Liba'a Natali et al. Op. cit. ; Sadjo Labe S. et al. 2018, Op. cit.

[23] Sadjo Labe S. et al., (2018) Op. cit.

[24] UNHCR, 2018 Op. cit.

Actions by the State, the host communities and humanitarian NGOs have been promising, in spite of their dwindling resources and the persistence of the crises that continue to impact health and living conditions in the refugee areas. Understanding the vulnerabilities linked to the different sectors of intervention of the UNHCR's NGO partners would contribute to limiting vulnerabilities in the refugee areas. Only 12% of people between 18 and 59 have their own IGAs, compared to a standard that should be over 95%. Opportunities for self-employment and start-up capital for IGAs are not sufficient. Advocacy work and facilitation to increase access to land is already underway with traditional chiefs and there is support from LWF and the UNHCR to promote self-employment and the development of IGAs.

In light of the above, and with regard to work by certain authors[25], the possible means of responding to the challenges caused by refugees' health vulnerabilities, and those of homeless people, are definitively socio-economic and political. Contributing to reinforcing the socio-economic subsystem of health with a view to fighting against health vulnerabilities and improving access to healthcare and services in host areas for Central African refugees in Cameroon would therefore reinforce their resilience. The objective is to increase their capacity to satisfy their basic needs, namely in terms of shelter, drinking water, sanitary facilities, medical and educational services, etc, in order to guarantee their sustainable development.

[25] Zeneidi Djemilia and Fleuret Sébastien, 2007. Sans-abris et santé. Enjeux de visibilité et d'appropriation au prisme d'une approche qualitative. In Fleuret Sébastien and Thouez Jean-Pierre (dir), Géographie de la santé ; un panorama. Editions Economica, Paris. Pp. 45-58.

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