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An Environmental Health Assessment of the New Migrant Camp in Calais

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FOREWORD

“

This welcome new study – the first of its kind – starkly presents the unarguable reality about the conditions that men, women and children are enduring in the Calais camps. It highlights that this issue is worthy of the public uproar that has been growing increasingly loud since the beginning of summer 2015.

As a medical charity who has been working in the camps in Calais for many months, we see the impact of these conditions every day. Vulnerable people present at our clinic with stomach complaints, respiratory problems, and debilitating skin diseases.

Too many people, including vulnerable children, have no choice but to eat food and drink water contaminated with unsafe and infective levels of bacteria. Access to washing facilities is, in practice, non-existent and people are left without the means to properly clean themselves or to wash their clothes and bedding.

Since July, we have been forced to deploy an emergency field clinic, of the same scale and type that we would normally deploy to recognised humanitarian disasters in Syria, Mali or Yemen.

Internationally agreed standards for the provision of aid and protection in refugee situations are nowhere to be found in Calais. Humanitarian ratios for the provision of the basics in emergency conditions, like the number of toilets per person, are being blatantly disregarded. This is a blight on Europe, who should and can do better.

This report, and the evidence within, adds to the growing number of voices crying out that we can no longer turn a blind eye to the dreadful humanitarian disaster on our doorstep.

”

I hope it provokes action as well as debate.

Leigh Daynes
Executive Director
Doctors of the World



EXECUTIVE SUMMARY

This study constitutes the first independent scientific study of the new Calais migrant camp. The findings confirm that migrants in the informal camp are living in perilous conditions, which are significantly contributing to their ill-health and injury. Furthermore, the shortcomings in shelter, food and water safety, personal hygiene, sanitation and security are likely to have detrimental *long-term* health consequences for the camp's residents over their lifecourse. It is our assessment that the situation in Calais amounts to a **humanitarian crisis** and requires far greater resource than has been provided to date by state agencies to protect migrants in the camp. Conditions in the camp do not meet standards recommended by UNHCR, WHO or the Sphere project.

Key findings

FOOD AND WATER

Migrant residents of the camp routinely report hunger as they are only provided one meal a day.

Food kept by migrants cannot be prepared or stored safely in the camp. Pathogenic bacteria are present at infective doses in food and this is likely to be causing the vomiting and diarrhoea suffered by camp residents.

Several inappropriate water storage containers, some previously used for corrosive chemical storage and which cannot be effectively cleaned, have levels of bacteria above permitted EU safety standards. In addition, one piped water

supply sample revealed bacteria indicative of faecal contamination.

HYGIENE

The number of usable toilets (no more than 40) is extremely low for a population of up to 3000, and far below any minimum standards for refugee camps. There is estimated to be one toilet per 75 residents of the camp. The UNHCR recommend a minimum of one per 20 people.

Resultant use of outdoor spaces for toileting presents further health hazards.

The lack of ability to wash and dry bedding and clothes is preventing the effective treatment of scabies, bedbugs and lice.

PHYSICAL INJURY AND MENTAL TRAUMA

Physical injuries within the camp as a result of attempted border crossings, dangerous living conditions, and alleged physical abuse are common.

There are consistent reports by migrants and medical practitioners that injured migrants are receiving insufficient treatment at French medical facilities.

Many migrants and refugees are suffering with mental health issues; insufficient provision exists for psychological trauma and other mental health conditions to be assessed and treated adequately.

POOR LIVING STRUCTURES

Living spaces have condensation and are cold at night and prone to overheating during sunlight hours.

Many informal living quarters examined are fragile and leak rainwater, soaking bedding and clothes.

Tents and structures used for sleeping are frequently overcrowded, which facilitates the spread of communicable diseases, pests such as lice, and parasites. Scabies is reported by migrants and is considered a

significant problem by medical professionals working in the camp.

Structures in close proximity, constructed of flammable materials, heated and lit with naked flames, and with no means of fighting fire or raising the alarm, constitute a significant hazard.

Extremely high levels of particulates associated with burning were found in air within the camp and are a risk factor for respiratory infections, lung cancer and cardiovascular disease. Some residents also reported that smoke inhalation from fires was causing throat irritation and breathing difficulties.

SAFETY AND SECURITY

There are reports of migrants being physically assaulted by police officers in Calais and also by other groups along the camp periphery at night.

There is fear of sexual violence towards women in the camp and women subsequently seek safety by remaining within their family or kinship groups.

Although some lighting has been installed through the centre of the camp, most areas are unlit and many residents reported feeling very vulnerable at night.

1. Introduction



This report provides preliminary results from an environmental and public health survey of the informal Calais migrant camp in April and July 2015. Testimony and reportage from NGOs and journalists have raised grave concerns around the living conditions of migrants in the camp. Responding to anecdotal reports of acute illness, injury and conditions detrimental to the health of migrants, the research provides the first independent scientific study of living conditions in the migrant camp and their likely impacts on health.

The importance of environmental and public health lies in its potential to identify hazards and risks within living and working environments, which can then lead to illness or injury. Understanding the risks environments can pose allows policy-makers and residents to provide protection and mitigation, therefore **preventing both immediate and long-term physical and mental harm**. In turn, this limits the impacts on health services responding to preventable conditions, and prevents avoidable suffering.

There are a number of structural barriers to improving living conditions for residents of the Calais camp. The involvement of French and EU governing authorities in alleviating public and environmental health-related problems has been limited, and the political tension and discourses around the Calais camp and wider migration issues are undoubtedly slowing institutional responses to the problems being encountered.

This report is not intended to analyse the wider set of problems; instead it aims to provide an objective assessment of migrant living conditions. As such, the findings of the research and associated recommendations emphasise the humanitarian and health-related challenges that camp living conditions are producing.



2. Context

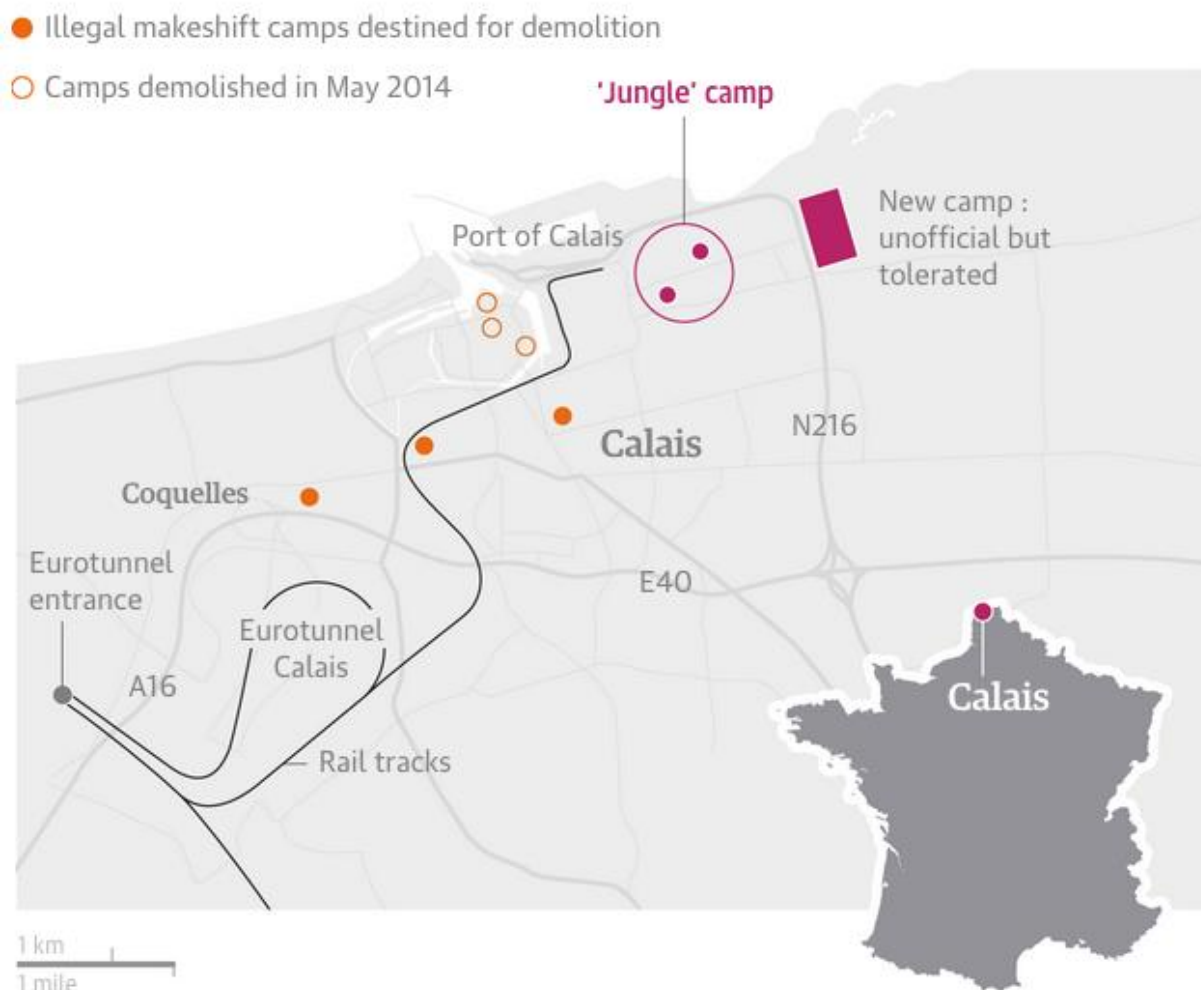
Prior to April 2015, migrants in Calais were residing on a number of outdoor sites throughout Calais. During the first week of April 2015, French authorities began a process of removing migrants from those sites, known collectively as the 'old Jungle'. Migrants were subsequently forcibly relocated onto the new site which lies parallel to the Jules Ferry Centre, on the north-eastern edge of the town, to the east of the N216 motorway. There is evidence to suggest the site of the camp was previously used for ad hoc waste dumping. The camp measures approximately 1.5 km x 0.5km (see map in section 3).

In April 2015 during the preliminary research visit, migrant residents numbered approximately 1000-1500. The research for this report was conducted in July 2015 when the population had increased to approximately 3000, though the number is prone to fluctuate within very short periods of time. It is difficult to estimate numbers of residents due to the constant arrivals and departures from the informal camp.

Migrants stay in the camp for variable lengths of time, with some reporting to have lived in the area for over a year. Therefore **conditions in the camp are vital for both the short and long-term health of the residents**. Though the population is mainly

male, **a growing number of women and girls are also living alongside the men** in the camp. This report focuses on the conditions in the informal camp, rather than in the Jules Ferry Centre, where access was not permitted to the researchers. The majority of women and children are housed in the Jules Ferry Centre.

3. Map of new camp location



(Map Source: [Guardian Newspaper](#) 31/07/2015)

4. Methods



4. METHODS

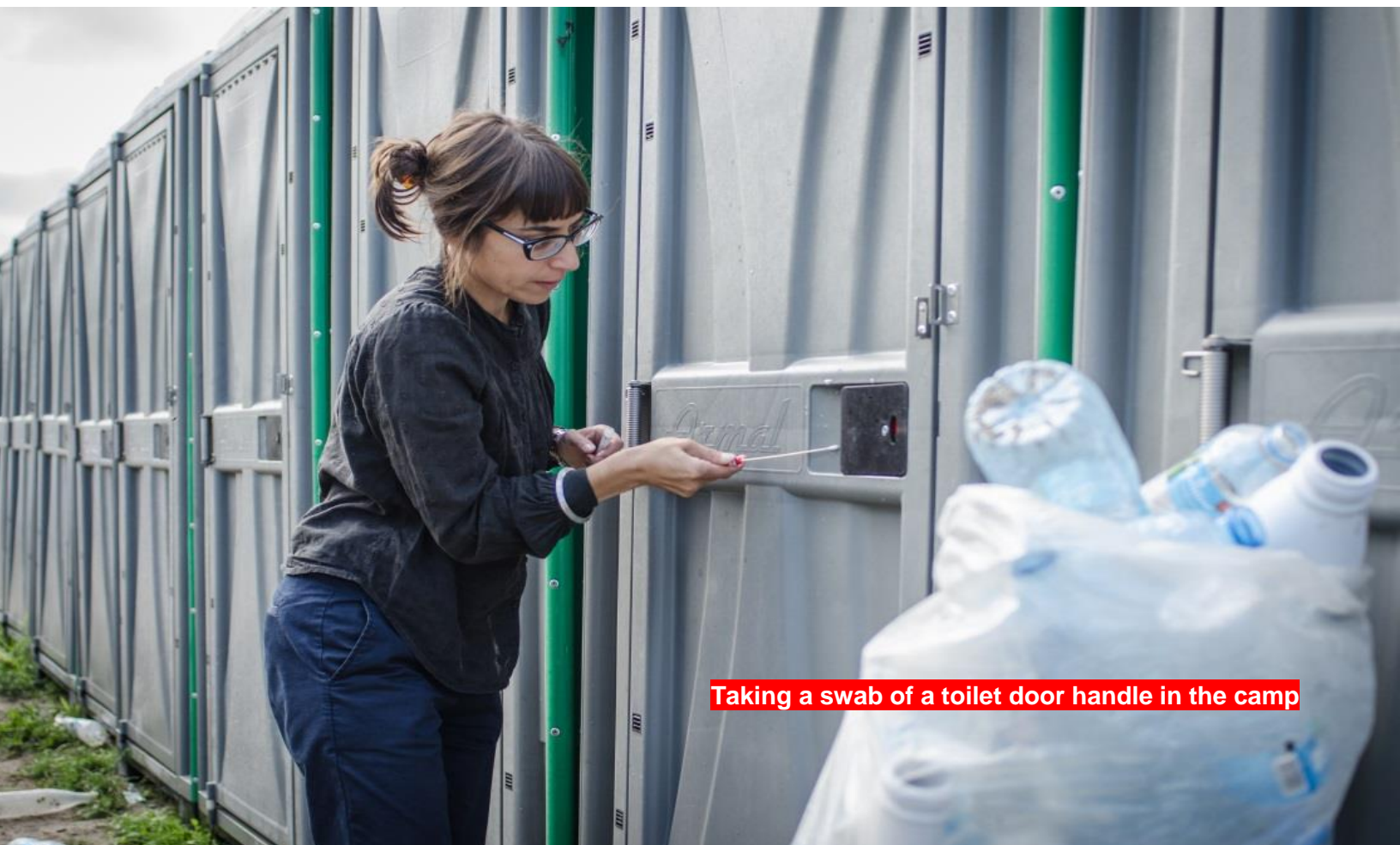
The research for this report was carried out in July 2015. The research team conducted in-depth studies on 11 sites distributed throughout the new camp or 'New Jungle' area. The sites are self-organised by migrants, generally of the same national identity and language. The countries of origin of migrants in this study included Sudan, Eritrea, Syria, Iraq, Afghanistan, Ethiopia, Egypt and Pakistan. Over fifteen different nationalities were noted in the camp.

Mixed methods, both qualitative and quantitative, were used to establish as full and accurate picture as possible of public and environmental health issues within the camp. At each site, samples of stored food and stored water were collected to analyse for disease-causing pathogenic bacteria. Environmental swabs were taken from cooking surfaces, similarly to check for disease-causing agents and bacteria indicative of faecal contamination. Swabs were also taken from the door handles and

toilet handles of some of the limited toilets facilities on site. Finally, samples were also taken from several of the piped water points. Equipment was also used to monitor levels of air pollution, including particulates at the site and samples of ground dust were collected. All samples were kept securely, frozen for storage and transport, and analysed at the University of Birmingham laboratories.

In-depth semi-structured interviews were conducted with camp residents at each site; these centred around camp living conditions, personal hygiene, injury, illness, access to and storage and preparation of food and water, access to healthcare, and sightings of pests.

Observational data was also collected from each site, including the nature and stability of structures, disrepair, evidence of overcrowding and any fire hazards. Additional observations of the wider site from time spent within the camp and testimony from volunteers working for NGOs within the camp have also been used.



Taking a swab of a toilet door handle in the camp



5.1 Food

Preliminary results from the food sample analysis indicate that **there are pathogenic bacteria present at infective doses**. For example, a food sample from one site was highly contaminated with *Clostridium perfringens* which causes abdominal pain and diarrhoea and is associated with inadequate refrigeration of cooked foods. Samples of food from 3 sites also revealed contamination with *Bacillus cereus* at infective doses of 10^5 - 10^7 (cfu/gr). There were no food samples with levels of *Bacillus*

cereus below 10^3 (cfu/gr); the presence of this spore-forming bacteria in large numbers is indicative of poor temperature control during cooking and storage. The symptoms of infection with *Bacillus cereus* include abdominal cramps and profuse watery diarrhoea.

Residents of the camp are provided with one meal a day at the Jules Ferry Centre between 5-7pm, although some residents reported that it was not always possible to

collect a meal due to extremely long queues (up to 3 hour long waiting times).

A lack of hygienic and refrigerated food storage presents a major public health issue, as leftover meals are often retained in order to sustain residents through the following day. Reported cases of diarrhoea, stomach cramps, fever and vomiting can be strongly linked to the lack of hygienic food preparation and storage facilities and the inability to effectively clean food preparation areas and equipment.

There were large piles of waste, including food debris, throughout the camp, which provided food and harbourage to pests, including rats and mice, which were widely reported by residents. Rats can carry *Leptospira*, *Salmonella* and other pathogenic bacteria and their presence in the camp, along with inadequate food preparation, storage and cleaning facilities poses an imminent risk to human health. Symptoms of infection with *Salmonella* include fever, abdominal pain and diarrhoea and Weils Disease which is associated with *Leptospira* can cause organ failure.

Because of limited food provision and persistent hunger, groups of migrants often pool together their finite food resources to make one meal last longer than 24 hours. The single provided meal is often supplemented with other food that residents

of the camp have accumulated either from local food donations or from the nearest food shop (Lidl), which is 2 mile walk away from the camp.

Some **residents complained of hunger**, and poor nutrition is highly likely for long-term residents of the camp, who have limited access to fresh fruit and vegetables. There were several reports of constipation amongst residents. Migrants living on the edges of the camp are more likely to receive sporadic donation of food and clothes from *ad hoc* charity donations than those living in more isolated locations within the camp.

Many migrants **lack soap or detergent to wash their cooking equipment**, and this is often carried out with only cold water. This is highly likely to be contributing to the recorded levels of pathogens found in the camp food, water and surfaces. In April, the lack of easy access to running water resulted in some residents washing crockery and utensils with sand or dirt from the ground combined with small quantities of stored water.

5.2 Drinking Water

Water supplies are up to a ten minute walk away for residents. Shopping trolleys, bicycles and wheelbarrows are sometimes commandeered to help transport large containers of water over sandy surfaces to informal lodgings. Water is often stored for long periods of time in containers that do not have lids and are not covered to protect from pests or other contaminants.

Residents of the camp source their drinking and cooking water from five different piped water points in the camp. One of the pipes to a water point had a leak at the time of research, which presents an increased risk of contamination of the supply.

Around several of the water points are accumulations of rubbish, including old water bottles, shavers, and other waste including food which will attract pests.

The piped water from the tap nearest to the Jules Ferry Centre had *E coli* and *Coliform* bacteria present [above safe standards](#), based on European Commission Regulation (EC) 2073/2005 on microbiological criteria for foodstuff. These bacteria are indicative of faecal contamination.

Water containers are also key carriers of pathogenic bacteria. For example all samples from water containers contained harmful levels of *Enterobacter Spp*, most



**Chemical
container used
for water storage**

had levels of *E coli* present [above safe standards](#). For example one container that had been left in the sun had 200 (cfu/30ml) of *E coli* which can cause diarrhoea

Five of the samples also had levels of 10-39 (cfu/30ml) of *Klebsiella pneumoniae* present. This bacteria can cause pneumonia and other respiratory infections. A large number of residents reported coughs and wheezing, and this was corroborated by medical staff who are seeing frequent chest infections in their onsite clinic.

Of key concern is the widespread use of [old chemical containers](#) for transporting water, which presents a potential health hazard as these are not designed to carry drinking water and may also be contaminated with residues of their previous contents. There were several containers in use with 'corrosive' labels intact. There is also no way of effectively cleaning and disinfecting the containers that the residents are using.



A resident of the 'new Jungle' fills his water bottle at one of the five water points.



Food from the Jules Ferry centre is often stored by residents of the camp for later use without adequate refrigeration. This poses a high risk of causing illness.

6. Hygiene



A resident from Pakistan washes his hands from water stored in an old chemical container.

6. HYGIENE

6.1 Toilet and hand-washing facilities

Toilet facilities are inadequate. In April 2015 the toilet facilities in the informal camp consisted of four rudimentary cubicles for the 1500 residents at the time. Sewage containers were overflowing, and hygiene conditions were subsequently extremely poor. In addition there were 12 toilet cubicles with access to running water inside the Jules Ferry Centre, open for several hours each day.

By July 2015 more toilets had been installed, yet the population of the camp has increased vastly. 24 portaloos have been installed by French governing bodies on the eastern and western edges of the camp, which are cleaned on a daily basis through local state agencies. Cleaners reported that the western bank of toilets were full each day.

Four other locations within the camp contained wooden cubicle structures which were being erected to provide additional toilet facilities, and were in various stages of development. One such facility was 'out of order' due to sewage containers being full. Residents reported being concerned at the risk of disease from these facilities due to 'splashing' with untreated effluent during use. There were significant numbers of flies living in the sewage containers; these flies have the potential to land on food and present a risk of contamination and source of food poisoning bacteria.

A generous estimate of 40 usable toilets at any point in time within the camp would still equate to one toilet per 75 residents. This is far **below the standards set by the UNHCR** for refugee camps, which recommend one per family unit (6-10 people) or in worst-case scenarios, [one per 20 in emergency situations](#). One toilet per twenty persons is also the minimum standard set by the internationally recognised [Sphere project](#).

Moreover **no hand hygiene facilities could be found in any toilet facilities**. The impossibility of adequate hand-hygiene for residents is very likely to be linked with *Coliform* and *Escherichia coli* bacteria found in stored water and food in the camp, which indicates faecal contamination. Faecal contamination of food and water poses a significant health risk.

Due to the extremely poor hygiene conditions of all toilets outside the Jules Ferry Centre, migrants commonly reported being forced to use vacant areas of the camp or surrounding fields and wasteland.

Human faeces can be found at short distances from living quarters, and this too poses a significant risk to health particularly given the inadequate washing and disinfection facilities.

"We haven't washed for months"

Kurdish resident talking about limited access to washing facilities

6.2 Washing Bodies and Clothes

Camp residents consistently reported difficulties with washing themselves, their clothes and their bedding.

Hot showers are available in the Jules Ferry Centre, however there are reports that these are limited to 12.00-3.00 daily and are allocated via a ticket system for which residents are required to queue in the mornings. **There are insufficient showers for all residents to clean themselves daily.**

Reports were received that there are around 400 daily shower places for 3000 residents;

however this could not be confirmed as access to the Jules Ferry Centre was restricted.

Whilst there are some laundry facilities within the Jules Ferry Centre which are open from 12.30-3.00 daily, these appeared to be used only by a minority of residents. Many residents reported washing their clothes in cold water from the piped site facilities, and this was also observed during the visit. There were reported difficulties in procuring washing liquid to adequately clean clothes. All residents who took part in the research described their inability to keeping bedding



A resident's clothes hanging to dry in the 'new Jungle'. Keeping clothes clean presents a real challenge for many residents.

clean, mainly due to the inability to dry large and heavy items such as blankets and sleeping bags.

The inadequacy of the shower and laundry facilities severely restricts the ability of medical staff on site to treat scabies, the symptoms of which were reported to be prevalent residents in all eleven sites. The prevalence of scabies is also confirmed by Doctors of the World (Médecins du Monde 2015). Other public health issues exacerbated by the poor washing facilities were the presence of bedbugs and lice which were widely reported and could not be effectively treated and controlled. In addition, the lack of washing and laundry facilities

help facilitate secondary cases of foodborne illness, and the transmission of other infections from person to person within the camp.

Due to the lack of formal provision for washing and sanitation, some residents have constructed makeshift structures for privacy and accessibility.

An informal washing structure made by residents of the new camp due to lack of sufficient available formal washing facilities.



A resident of the 'new Jungle' took this photograph with a disposable camera.

7. Physical injury and Mental Trauma



7. PHYSICAL INJURY AND MENTAL TRAUMA

7.1 Physical Injury

Many people living in the camp have suffered injuries caused by attempts to informally cross the border into the UK. In addition, nine migrant fatalities have occurred around the French-UK border at Calais between June and July 2015. As well as broken limbs and major physical trauma, the everyday minor injuries such as cuts, scrapes and burns that residents of the

camp suffer pose a significant health threat due to the conditions in the camp creating very high risks of infection. Minor injuries such as burns are often the result of having to light fires manually for cooking and heating, and this was observed by researchers during the July visit.

Police brutality is a widely reported allegation made by migrants in the Calais camp. This involves injuries from being hit by police and other security forces as well as suffering from the results of being sprayed with

tear gas. Interviewees also reported individuals thought to be French residents assaulting migrants along the peripheral roads of the camp during the night.

Furthermore, not only are migrants unaware about what rights they may have to access healthcare, they also report being provided with insufficient medical treatment in local hospitals when treatment is sought. For example, there are reports that painkillers are often not provided for fractures, causing significant discomfort and the inability to sleep. Testimonies from medical professionals working for NGOs have indicated that crutches have been refused to migrant patients suffering from leg fractures.

7.2 Mental Health

The World Health Organisation estimates that for a population of 3000 people who are in an emergency situation, we can expect that 120 have severe mental health disorders (such as psychosis, severe depression, severely disabling forms of anxiety disorders) – and 600 would have moderate mental health disorders (WHO 2012).

In our research Mental health was cited by interviewees consistently as a major impediment to the health and wellbeing of Calais residents. This is corroborated by

Doctors of the World who have found significant prevalence of psychological and psychiatric suffering in the migrant population of Calais, including post-traumatic stress disorder, addictions, stress, anxiety, sleep disturbance and somatisation.

The majority of migrants reported fleeing from war or other violent or oppressive situations where friends and relatives had lost their lives. This also reflects the wider picture of forced migration into Europe, with the [UN estimating that over 85% of refugees](#) entering Greece are fleeing conflict in countries such as Syria, Afghanistan, Iraq and Somalia.

Some provided photographic and video evidence of dangerous land and sea journeys where they had been exposed to the deaths of fellow travellers. To illustrate, a young migrant in his 20s described being the last to be pulled from the water by the Italian Navy when the overcrowded boat he was travelling on sank in the Mediterranean, killing many of his fellow travellers. Most migrants who have made journeys through the Libyan desert report fellow passengers in smuggler's vehicles perishing through heat exhaustion or dehydration. Migrants travelling through Iran regularly report being the target of gunfire from soldiers or similar state security agents.

Because of the recent traumatic events from which they are fleeing, and the often violent journeys from Africa and Asia, many people are likely to be suffering post-traumatic stress disorder (PTSD).

All migrants asked about their mental health reported feeling sad, anxious or depressed. Two interviewees reported feeling suicidal and another had visible injuries and scars from self-harming. It is likely that a proportion

of the residents are suffering from mental health conditions. There is limited specialist provision for people suffering from mental health conditions, though this is now an area of focus for Doctors of the World who have a team running psychosocial activities with some residents.

There is also evidence of alcohol misuse within the camp.

“Some people have medical problems, some people have headaches, bad headaches, some people with problems. Some people say their life is a lot worse here than in Afghanistan... [Here] is one old man who was banker in Afghanistan; he has come here, to live in the Jungle. Its crazy! You know?”

- Afghan migrant talking about life in the camp.

8. Structures



Many informal structures give little protection from the elements.

8. STRUCTURES

8.1 Shelter from the Elements

There are a variety of structures used for shelter. Some residents have received building materials from Secours Catholique and other charities. Tents have been provided to some migrants by Doctors of the World and other private donors. Many residents however have built informal shelters from locally available materials such as tree branches, timbers and tarpaulin. Several of the shelters are visibly fragile or

unstable; others have torn or inadequate coverings and are leaking in wet conditions.

The majority of sleeping accommodation is overcrowded and some residents are sleeping in the open air. On one occasion a Kurdish resident was found to be sleeping in the rain, as there was insufficient shelter.

Overcrowded and inadequate living accommodation facilitates the transmission of infectious diseases such as Tuberculosis, which has been identified by medical practitioners working within the camp.

Residents reported their shelters being uncomfortably hot during the day and very cold at night, often preventing them sleeping; several requested blankets to protect against the cold. Temperature readings taken in sleeping tents during the day regularly exceeded 30 degrees Celsius. All residents interviewed reported issues with condensation during the night, making bedding cold and damp, and difficulties in drying bedding and clothes in inclement weather.

8.2 Fire

Some residents of the camp use plastic to start their camp fires, for example by burning plastic cups. The smoke from burning these materials contains toxins that can be extremely harmful to health and exacerbate conditions such as asthma and bronchitis. Though a few residents have fashioned oil drums and metal tubing into improvised chimneys, smoke inhalation presents a threat to long-term health and an immediate issue for residents with pre-existing conditions such as asthma. Medical practitioners within the camp reported seeing many chest and throat irritations amongst residents who attended the centre.

Air quality monitoring revealed particulate matter at significantly high concentrations. Two episodes were recorded; one with

average concentrations above 2,000 $\mu\text{g}/\text{m}^3$ and transient peaks of 10,000 $\mu\text{g}/\text{m}^3$, and the second with average concentrations circa of 12000 $\mu\text{g}/\text{m}^3$ and transient peaks reaching $\mu\text{g}/\text{m}^3$. The World Health Organisation (WHO) recommends a guideline for PM2.5 not to exceed 15 $\mu\text{g}/\text{m}^3$ as an average over 24-h. Exposure to pollutants from combustion of solid fuels on open fires or traditional stoves increases the risk of acute lower respiratory infections and associated mortality among young children; and it is also a major risk factor for cardiovascular disease, chronic obstructive pulmonary disease and lung cancer among adults (WHO 2014).

As there is very limited waste disposal on the camp, some residents have also taken to burning piles of rubbish, including plastics, which is again a health risk. Due to the lack of electricity in the camp, many people burn candles during the night which is a fire risk within shelters which are highly flammable. There have been instances of arson and accidental fires in the camp, with traces of burnt dwellings visible in several locations. Overcrowding, no spaces between some structures, flammable building materials, and a lack of clear fire lanes or breaks mean that uncontrolled fires pose a significant danger to camp residents. Only two fire extinguishers were observed in the entire camp, with no mechanism for raising alarm.

8.3 Geography of the Camp

Due to the informal way the camp has been established, some areas of the camp are much better provided for than others. Migrants who live in areas near to access roads have an increased chance of receiving *ad hoc* donations from local charities, whereas other areas of the camp remain

relatively isolated. The residents who live in these areas are often more in need of basic provisions. Whilst hunger is experienced across the camp as whole, southern sections of the camp in particular, groups were more likely to be **severely short of food** - and this observation was consistent between site-visits in April and July 2015.



Rubbish being burnt in the camp

9. Safety and Security



A view of the camp with new security fencing placed along the N216 motorway

9. SAFETY AND SECURITY

Qualitative data suggests that the atmosphere in the camp changes during the hours of darkness, with concerns about safety and security during the night. There were reports of residents living adjacent to the road being beaten in the night by unknown persons, who arrive and depart by cars. Others reported being beaten and sprayed with gas by local police when attempting to travel into the UK.

Many residents reported rowdiness during the night from some of their neighbours

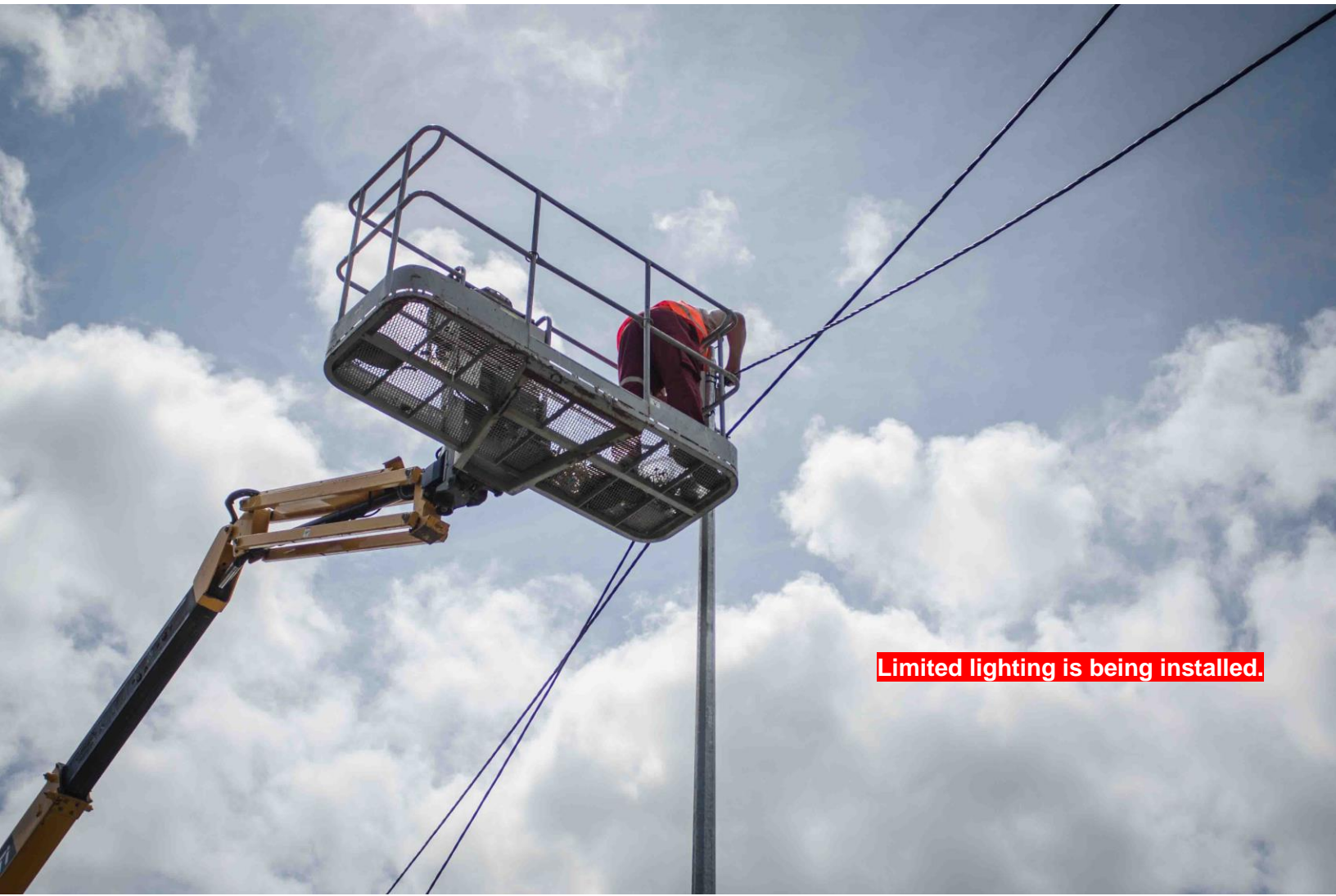
within the camp, which prevents them from sleeping. There is fear of sexual violence in the camp and women tend to group together or to stay within their family groups to ensure safety.

Whilst no tension between groups was detected first-hand during our visits, migrants report that on a few occasions there has been conflict and argument. On one such occasion the conflict led to a prolonged fight between two sets of migrants groups, resulting in the relocation of some groups to new areas of the camp.

Lighting has been installed through the centre of the camp, which provides some illumination during the night, and at the time of writing streetlights are being placed along the Western edge of the camp (Chemin des Dunes). However, the majority of the camp is unlit.

*I don't need money. I need
security"*

- Pakistani resident



Limited lighting is being installed.

10. RECOMMENDATIONS

Introduction to recommendations:

Public health conditions in the camp are causing suffering and ill health for many residents. Given the scale of the camp and the rate of turnover of populations, the authors of this report contend that long-term solutions to public health problems found in the camp can only be comprehensively resolved through political agreements between EU member states on formal housing and resettlement of asylum seekers. Only this type of broad solution can ensure the long-term health and security of residents of the Calais refugee camp.

However the specific recommendations in this academic report are written within the context of the existing realities of the camp. By addressing the structural issues witnessed in the camp, a number of critical environmental and public health shortcomings can be addressed. Investment in public and environmental health will help to reduce the impacts on healthcare services in the short, medium and long-term.

1) Nutrition and water

a.) Provision of adequate nutrition

The current allocation of one meal a day results in hunger in the camp, tensions over scarce resources, frequent use of open fires for cooking, and also encourages the keeping of high risk foods in inappropriate conditions (see section 5.1). The scientific analysis of samples taken from the camp revealed instances of pathogenic bacteria at significant levels, including several instances of *Bacillus cereus* at infective

doses, and *Clostridium perfringens*. This contributes to repeatedly reported instances of diarrhoea, stomach cramps fever, and vomiting.

Currently the one-meal-a-day policy is forcing residents to store and supplement scarce food resources in highly risky food preparation conditions. The provision of more than one adequately nutritious meal a day from the central Jules Ferry kitchens would positively impact the camp by addressing all the above.

If a regime is not already in place, we recommend that these kitchens are also regularly inspected by French authorities to ensure standards are in accordance with (EC) No 853/2004, and the outcome of inspections made publically available.

b.) Provision of suitable water containers

The provision of lidded containers suitable for the safe storage of potable water would help to protect the residents drinking water supply from contamination. Currently many residents use former chemical containers and other inappropriate containers that pose a health risk, and are not effectively cleaned (see section 5.2).

c.) Cleaning of water taps and areas

We recommend that a regime of regular tap head disinfection is implemented, and also that water leaks are promptly fixed. This study revealed E coli and Coliform present in at least one water point, which is indicative of faecal contamination. These steps would help to protect the drinking water supply from contamination, thus reducing the incidence of diarrhoeal disease (see section 5.2).

d.) Drinking water testing

If a regime is not currently in place, we recommend that the mains water is regularly tested for microbial contamination, and also that the results of those tests be made publically available (see section 5.2).

2) Hygiene

a.) Provision of handwashing facilities for people using toilets

There are currently no handwashing facilities associated with the toilets. Provision of suitably located facilities, equipped with hot water and soap, would help to reduce the incidence of diarrhoeal disease in the camp (see section 6.1).

b.) Provision of separate taps for drinking and toilet bottle use

At present, the same taps are used for drinking water containers and toilet bottles. The allocation of separate tap facilities will reduce the risk of cross contamination between toilet water bottles and drinking water bottles. It is likely that the laboratory tests that indicate faecal contamination at one of the water points is caused in this way (see section 6.1). Again, this will help to

reduce the incidence of diarrhoeal disease.

c.) Provision of toilet facilities which are clean, well lit, suitably located and of sufficient number

Toilet facilities have several shortcomings; in accordance with the [UNHCR standard for emergencies of one toilet per 20 people](#), there should be clean and sufficient provision for the number of residents. Currently in the camp there is one toilet for approximately 75 people (see section 6.1). This may necessitate additional areas of hardstanding to be provided within the camp to allow frequent cleaning and emptying. Suitable, clean facilities will reduce the use of open ground areas for toileting.

d.) Evaluation of the acceptability and use of the wooden toilet blocks

The wooden blocks appear to be unacceptable to many users, and are difficult to maintain in a clean condition. We recommend either that they are cleaned regularly, and the effluent treated to prevent flies breeding and health concerns from 'splash', or that they are replaced with alternative facilities more acceptable to the

residents, and therefore more likely to be used (see section 6.1).

e.) Provision of additional shower facilities

We recommend that shower facilities be increased to enable all residents to clean themselves daily (see section 6.2). The [UNHCR's minimum standards on provision of showers](#) is 50 persons per shower. The situation in this camp does not meet this standard, and they are only open for three hours a day.

g.) Access to laundry facilities

We recommend that access to laundry facilities is extended, with provision made for the washing and drying of large items such as bedding. This would allow for scabies (see section 6.2) to be prevented and effectively treated

3) Physical and Mental Health

a.) Protection from physical harm and abuse

It is recommended that mechanisms are put into place to ensure that all allegations of assault and other hate-crimes, whether the alleged aggressors are police and security officers, local resident populations or other camp

residents, are investigated thoroughly (see section 7.1).

b.) Independent assessment of quality of healthcare being provided to migrants

This investigation identified concerns regarding the provision of medical healthcare to migrants by French authorities following major injuries (see section 7.1). These require further investigation and verification, and if shortcomings are confirmed, measures should put in place to ensure that the human rights of vulnerable people are maintained.

c.) Increased mental healthcare provision

We recommend that adequate specialist mental health provision, including outreach within the camp, should be available for migrants suffering from PTSD, depression and other mental health disorders (see section 7.2).

4) Structure and Security

a.) Refuse collection

There are significant accumulations of waste on the site, providing food and harbourage for pests including rats and

mice. We strongly recommend that arrangements are put in place to regularly collect refuse on site (see section 8.1). Secure containers for waste and the provision of rubbish bags for residents would also assist in addressing the pest problems. As a first step, the backlog of waste that has accumulated on site should be cleared. In line with [UNHCR recommendations](#), there should be at least one refuse bin per 100 residents of the camp.

b.) Provide adequate shelter

Providing residents with adequate sleeping quarters, which can be secured, have adequate heating, and have sufficient space in between for fire prevention is a key need (see section 8.1). These shelters should ideally allow 4.5-5.5 m² per person (including cooking and bathing areas) in line with [UNHCR minimum standards](#).

c.) Lighting

We recommend that additional lighting should be installed in the camp; this would improve night-time security, reduce the use of candles in flammable structures, and facilitate access to the toilet blocks. In line with [WHO standards](#), toilets in the camp should be easily accessible at night.

d.) Pest control

A pest control programme should be implemented to deal with the rats and mice present in the camp (see section 5.1).

grassroots charity organisations and migrant representatives.

e.) Fire precautions

At present there are extremely limited provisions in the camp for fighting fires, and no means of raising the alarm were found. We strongly recommend that fire points are provided, in addition to the establishing of fire lanes for emergency access and also to prevent fires spreading between flammable structures (see section 8.2).

f.) Service co-ordination

Structured co-ordination of support organisations and their respective services on the ground would allow for (i) More effective communication of emerging threats, issues and provision gaps (ii) Potentially greater efficiency of service provision through jointly agreed priorities (iii) More comprehensive understandings of conditions throughout the whole camp, including zones less accessible to organisations and services on opposite sides of the camp (iii) We strongly recommend that service planning should also involve the relevant

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