

California Industrial Hygiene Council Conference  
Case Studies – Learning from Experience  
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## **H&S in Challenging Environments: Afghanistan and Djibouti**

**Carole Fried, CIH, CSP  
Corporate Director, H&S**

## Overview

1. **Illnesses/Diseases**
2. **Accidents/Incidents**
3. **Cultural Incentives**
4. **Novel Hazards**



## Where is Djibouti?



## Illnesses & Diseases

### Can Happen Anywhere

- ▶ Heart attacks
- ▶ Hernia
- ▶ Slips, trips, falls
- ▶ Lyme disease (on R&R?)



### Unique to Location

- ▶ H. Pylori & other gastrointestinal illnesses
- ▶ Respiratory Diseases
  - Air quality (Kabul, sand storms, etc.)
  - MERS (Middle East Respiratory Syndrome)
- ▶ Proximity to Improvised Explosive Device (IED)
  - Physical & psychological


## H. Pylori

- ▶ Helicobacter pylori bacteria
- ▶ May be passed from person to person through direct contact with saliva, vomit or fecal matter
- ▶ May also be spread through **contaminated food or water**
- ▶ Present in more than 1/2 world population
- ▶ Most people don't realize they have it, because they never get sick from it
- ▶ A common cause of ulcers
- ▶ Belching, bloating, abdominal pain, diarrhea

WICC		Water Testing Laboratories	
Client	1951	Request No.	WLT 039.3
Prefect	Villa water testing	Contract Number	
Source Location	Indian Well	Source Type	
Report Issued on	3-May-13	Scripted by	
<b>Microbiology</b>			
Parameter Tested	Result		
<b>Microbiological analysis Count Method</b>			
Total Coli form	0.0		
E-coli	0.0		
Chlorine	0.08		
***			
# Coli form Count Plate			

## Biotech

Medical Laboratory



## بيوتيك

طبي لابراتوار

### Clinical Laboratory Report

Summary: WL 039.3

Age: Yes Sex: Specimen: WATER

Test Required: H. PYLORI

Lab No: 2365 Address: Kabul

Date of Sampling & Testing: 20-Apr-13

Referring Physician: CONTAINER NO 15 VILVA

### Serology

Test	Result
H. Pylori	Negative (-ive)

**Note:**  
 Helicobacter pylori is a small, spiral-shaped bacterium that live in the surface of the stomach and duodenum. It is implicated in the aetiology of a variety of gastrointestinal diseases including duodenal and gastric ulcer, non-ulcer dyspepsia and acute and chronic gastritis. Detection of H. pylori antigen in stool has sensitivity and specificity of over 90% positive test is indicative of active infection.

## Respiratory Diseases- Air Quality

### A PRELIMINARY ASSESSMENT OF AIR QUALITY IN KABUL

By Atiq Sediqi, Ph. D, MPH, PG, ISO 14001/Environmental Management Systems

Lead Auditor

Advisor to the Afghan Ministry of Mines, PMU Deputy Director

The city of Kabul suffers from **poor air quality** and overcrowding. In recent years, the ambient air quality in the city has deteriorated so much that it can be ranked among the dirtiest cities in the world. ....

There are **numerous carcinogenic compounds that are emitted to the air** as a result of burning tires, plastic, used motor oil, and other substances.

Calculations show dangerous levels of **PM 2.5, PM10, Pb, and other pollutants**

## Memo: Afghan 'Burn Pit' Could Wreck Hearts, Lungs Stars and Stripes May 22, 2012/Military.com

An 8-year assessment of the air quality at one of the largest military bases in Afghanistan reveals that servicemembers' and civilians' exposure to air contaminants from the "burn pits," used for disposing of trash, could pose long-term respiratory problems,...indicates there is a **potential that long-term exposure** at these levels **may increase the risk** for developing chronic health conditions such as **reduced lung function or exacerbated chronic bronchitis, chronic obstructive pulmonary disease (COPD), asthma, atherosclerosis, or other cardiopulmonary diseases,**"

Findings and the memo's summary **contradict years of government assertions** that there was **no direct scientific link between poor health issues and exposure to smoke from burn pits...**

In October 2001, researchers studying troops' respiratory problems released findings that suggested poor air quality in Iraq and Afghanistan might pose a bigger threat to servicemembers' long-term health than exposure to toxic smoke from burn pits. **But they caution that their work still leaves many questions unanswered.**



## Despite a Whiff of Unpleasant Exaggeration, a City's Pollution Is Real

By ROD NORDLAND, NY Times Published: Jan. 21, 2013

“United Nations Environment Program did a study that included air sampling, in 2008, it found plenty to worry about, but mostly what would be expected of a traffic-congested city: a **lot of sulfur dioxide** and **nitrous oxides**. Plus a **very high concentration** of particulates, known in the trade as **PM 10** ... small enough to penetrate deeply into the lungs, and an important indicator of air pollution — but no specific fecal bits.”

“A study by the Asian Development Bank and the Afghan government's environment agency in 2007 similarly found the atmosphere thick with the usual suspects...especially in an underdeveloped country where fuel quality is very poor, but it made no mention of flying feces — although **toxic levels of cadmium were noted**....(The) report calculated that such a level of air pollution — even without feces on the fly — would result in **600,000 additional asthma attacks** annually and lead to an **“excess annual mortality” of 2,287** in Kabul.”

## Respiratory Illnesses- **MERS**

- ▶ Coronavirus referred to as *MERS-CoV*. Not same CoV as SARS
- ▶ 1st reported in Saudi Arabia (KSA) in 2012
- ▶ ~ 30% of confirmed cases have died
- ▶ 05/02/14, 1st U.S. imported case was confirmed. Traveler from KSA to the U.S.
- ▶ 05/11/14- 2<sup>nd</sup> case
- ▶ Spread through close contact with infected person
- ▶ Camels, other animals



## Proximity to Improvised Explosive Device (IED) &/or Attacks

### Physical & Psychological Considerations

- ▶ Treatment of injuries
- ▶ Hearing loss
- ▶ Psychological
  - Fatalities of others (loss, survivor's guilt)
  - Stress
  - Anxiety
  - Loss of belongings/temporary home
  - Communicating feelings to family members

## Accidents & Incidents



**Cook received a laceration to the back of his leg.**



**Propane tank(s) explodes in the kitchen.  
10 fire extinguishers used.**

## Accidents- Falls



Electrician was sitting on the guard rail and the “guard rail joint clamp” broke causing him to fall approximately 6’. Bruising but no serious injuries.

## Finger Amputation- Reaching Around Guard

Experienced concrete mixer operator stood on a CMU block to reach around the machine guard to lubricate/grease a chain. Hand was grabbed by moving belts. Tops of 3 fingers amputated, 2 re-attached but middle finger upper joint amputated. Had been trained in LOTO/Guarding



### SIGNATURES

Employee: \_\_\_\_\_

Supervisor: \_\_\_\_\_

H&S Staff: \_\_\_\_\_

Handwritten signatures and a blue ink stamp are present on the signature lines.

# Gilbane

## Kitchen Hygiene



**Potatoes stored on floor next to sandals**



**Unsanitary practice for washing dishes**

## Working Conditions



**Propane bottles being used inside kitchen without a regulator & not secured**



**Improper job built ladder**



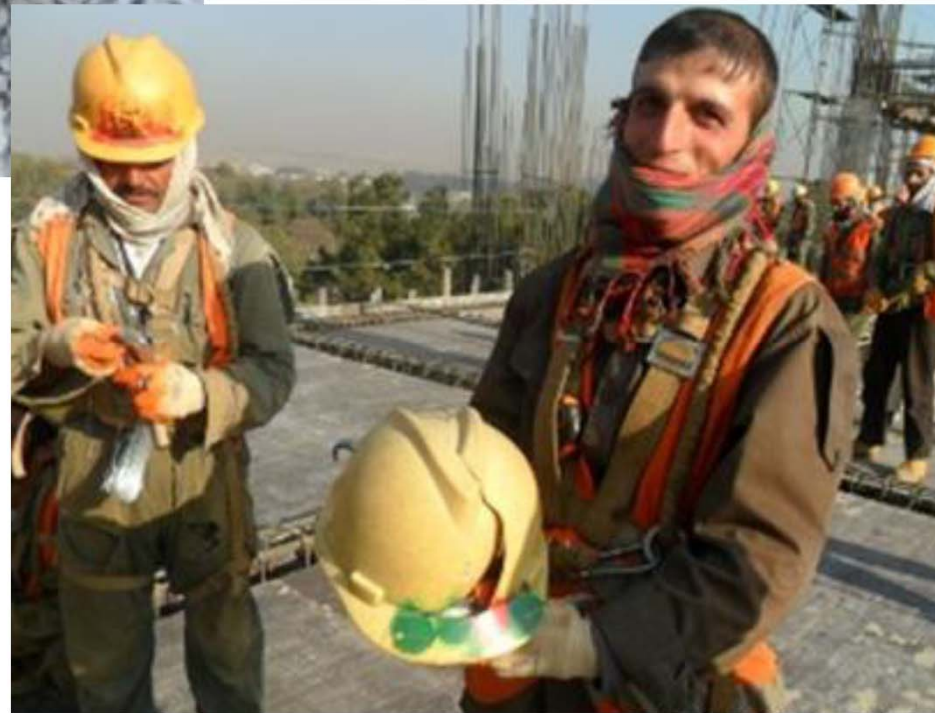
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## Concrete Work- Force Protection Wall Foundation



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## PPE- Issues



# Rebar Caps in Afghanistan



Unprotected  
edge



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## Culturally Based Incentives



You will be rewarded if  
you are wearing  
complete PPE

شما قابل جایزه هستید در صورتیکه  
ملبس با تجهیزات  
ایمنی باشید

**ITSI** Innovative  
Technical  
Solutions, Inc.  
A Gilbane Company

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**Truss Manufacture and Installation:  
Weight = 28 tons, Welds = 3,937' (1200 meters)**



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## Truss fabrication & construction welders being recognized for their accomplishments



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## SIP & Employee Appreciation

Employees received certificates and a new pair of steel-toe work boots



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## Other Incentives



Rice awarded

Sewing machines awarded

Group or individual photos with project management staff-  
Polaroid Cameras used.





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## Rice and Cooking Oil Winners



## Djibouti Incentive Program



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## Djibouti Incentive Program



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Training

**Discussing Proper Scaffold Installation with Scaffold Workers**



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## Training - Scaffold



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## TRAINING - PFAS



### Ramadan

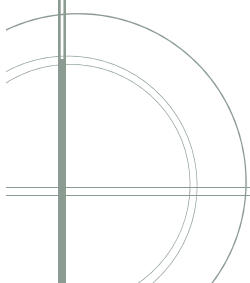
- ▶ Occurs 9th month of the Islamic lunar calendar
- ▶ Every day during this month, Muslims around the world spend the daylight hours in a complete fast.
  - fasting + working in very hot weather = high hazard

**Accident Report:** *Carpenter falls after working 5+ hours without food/drink during a hot day. Fortunately he was using PFAS.*

## Excavation Activity in Helmand Province

### Unexploded Ordnance

*Initially, 4x120mm rounds found.  
Demining Team later removed 62 live rounds.*







**KHAT**  
("qat")

- ▶ Stimulant drug
    - derived from a shrub
  - ▶ Leaves of the shrub are chewed & held in the cheek, like chewing tobacco
  - ▶ Chewing induces a state of euphoria/elation, alertness & arousal
  - ▶ Native to East Africa & southern Arabia.
- ▶ Cathinone, a Schedule I drug is found in Khat
  - ▶ US Government/DoD considers Khat use illegal. Banned from US jobsites.
  - ▶ Been used for centuries as part of an established cultural tradition.
  - ▶ ~10M people worldwide chew khat. Legal in Djibouti

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# QUESTIONS

Carole Fried

[Cfried@Gilbaneco.com](mailto:Cfried@Gilbaneco.com)

925-946-3326

