



Conflict & Catastrophe: The Impact of Crisis on Child Health

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Disclosures

- Research Support
 - Bristol-Myers Squibb
 - Glaxo-Smith-Kline

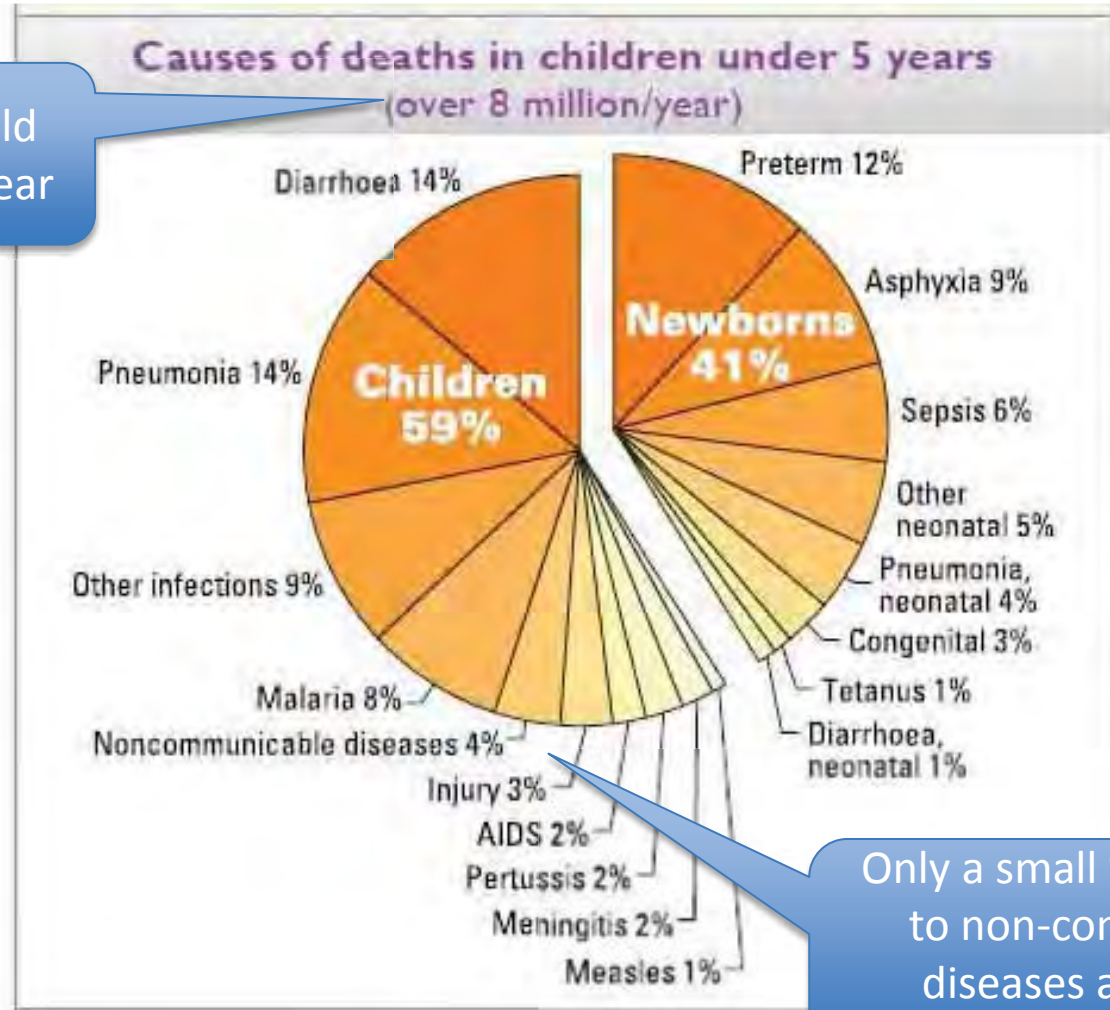
WARNING:
Presentation contains
graphic images

Objectives

- Describe infections causing epidemics in refugee camps
- Recognize at least 3 health complications following natural disasters
- Describe direct impact of crises on child health, and indirect effects related to loss of parent or infrastructure
- Recognize role of crisis situations in child exploitation

Child Deaths (<5 years)

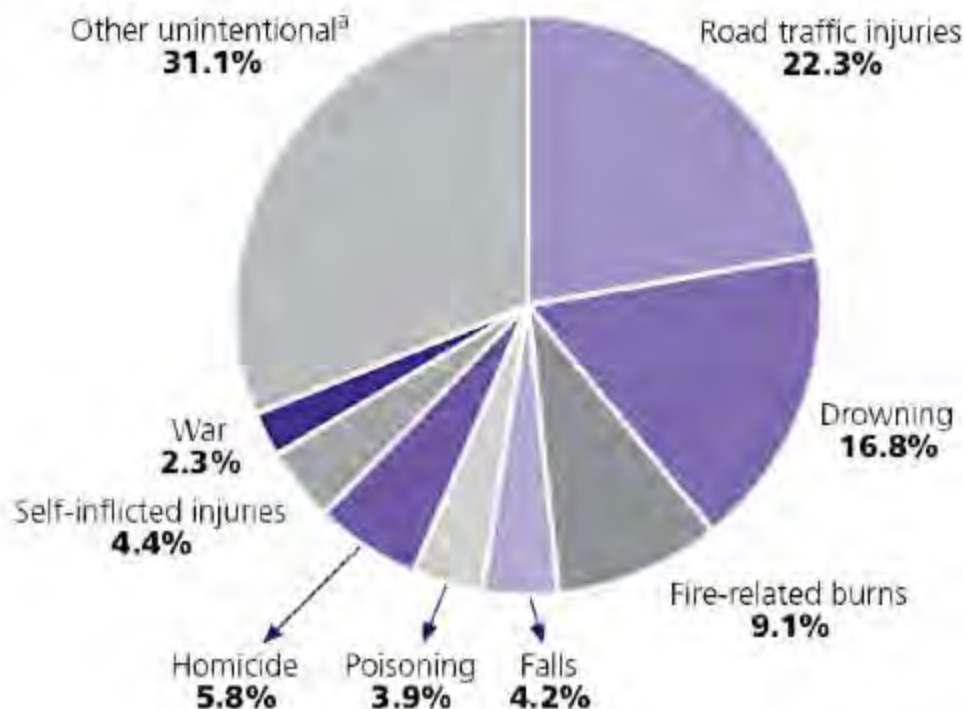
8 million child deaths per year



Only a small % attributable to non-communicable diseases and injuries (7% of 8 million = 560,000)

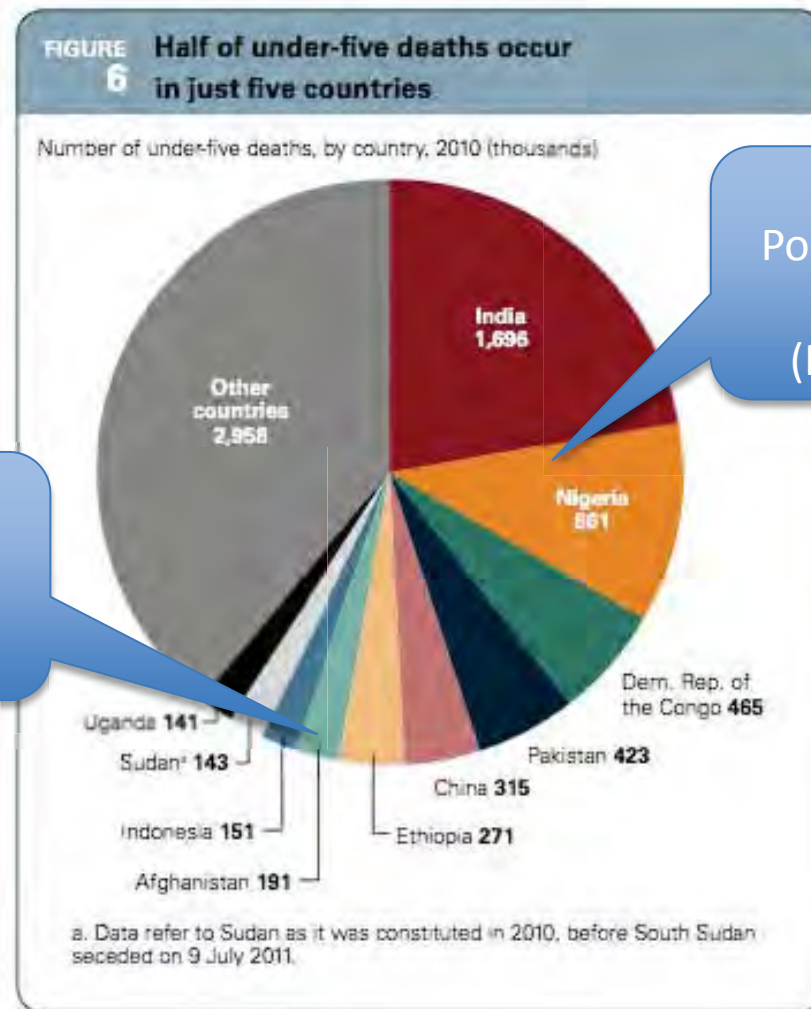
Estimated Child Injury Deaths

Distribution of global child injury deaths by cause, 0–17 years, World, 2004



^a "Other unintentional" includes categories such as smothering, asphyxiation, choking, animal and venomous bites, hypothermia and hyperthermia as well as natural disasters.

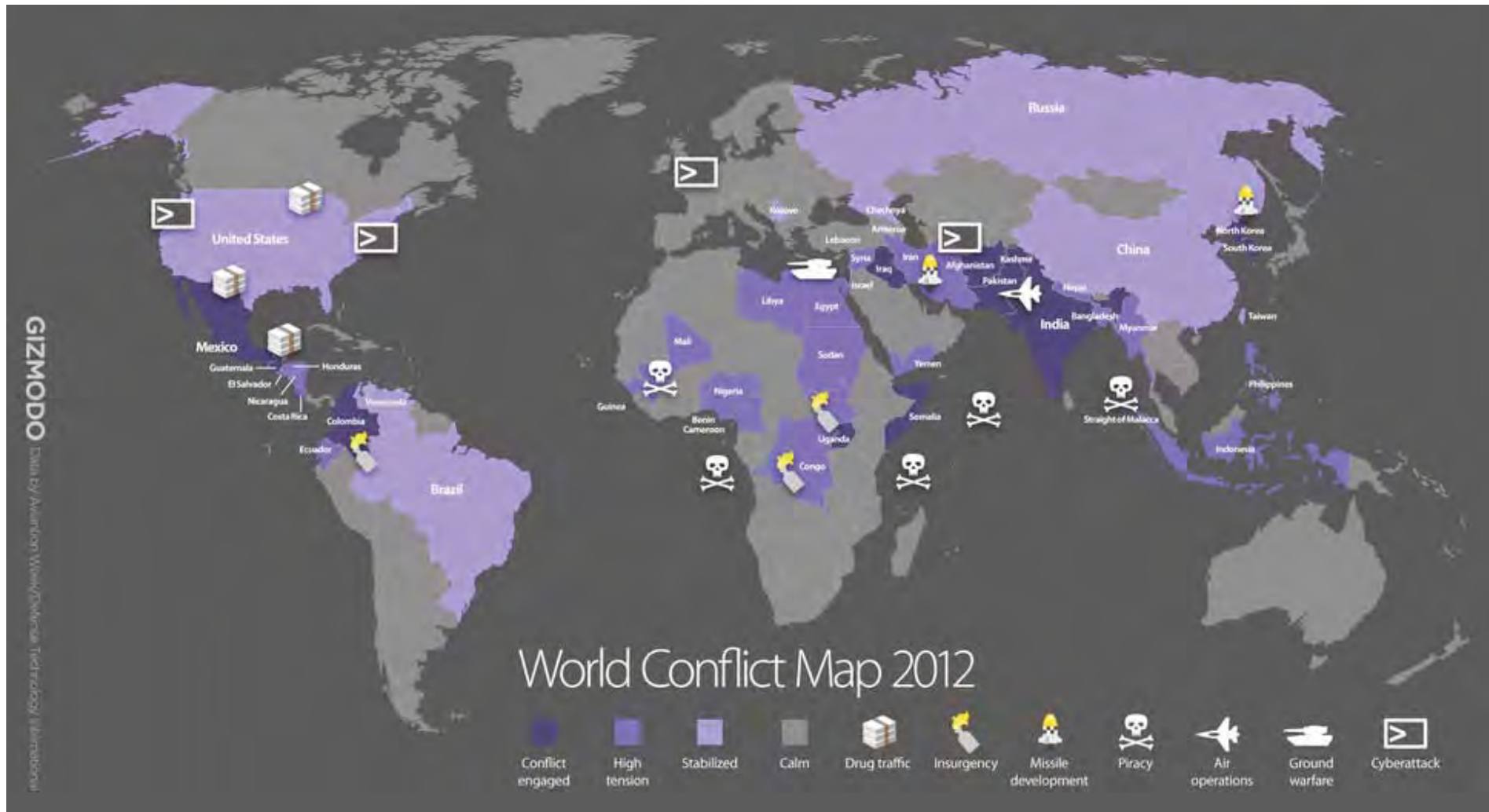
High Mortality Countries



India
Population <14 years =
362,874,979
(Mortality ~5/1000)

Afghanistan
Population <14 years =
12,613,538
(Mortality ~15/1000)

Conflicts Around the World



Jesus Diaz (gizmodo.com), based on data published by Aviation Week's Defense Technology International

Child Mortality Due to Conflict

- Approximately 500-600,000 under-five-year-olds die as a result of armed conflicts each year
- In Chechnya, between February and May 1995, children made up 40% of all civilian casualties
 - Red cross workers reported children's bodies with marks of execution with a bullet through the temple
- In Sarajevo in Bosnia and Herzegovina, almost one child in four were wounded
- Most contemporary conflicts are not between States, but within them
 - Struggles between the military and civilians, or between contending groups of armed civilians
 - Distinctions between combatant and non-combatant melt away

Modern Warfare



Battle of Agincourt, 1415
(15th Century painting)



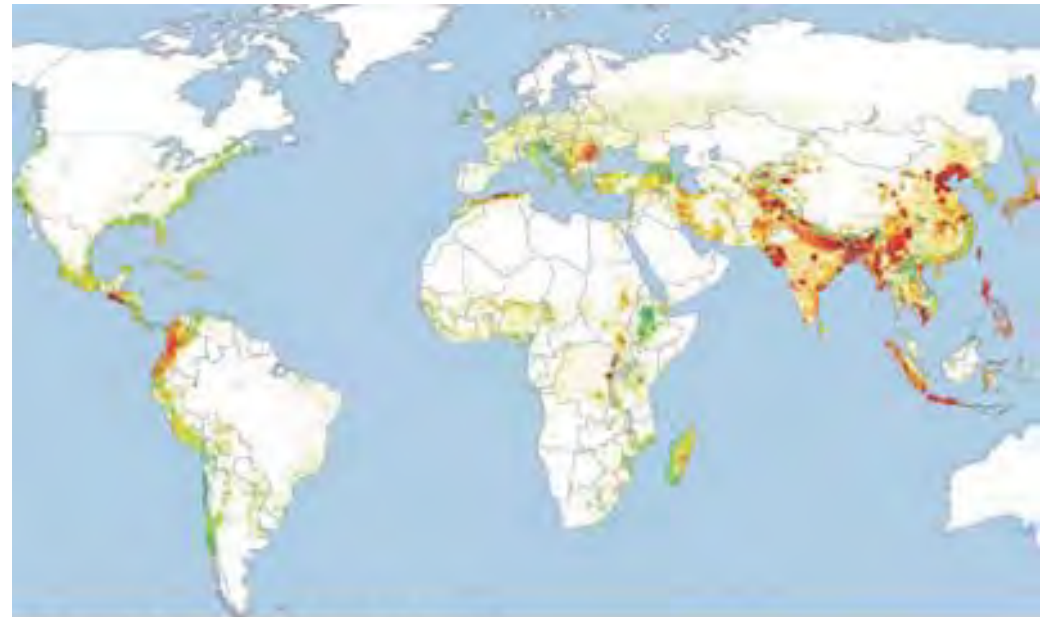
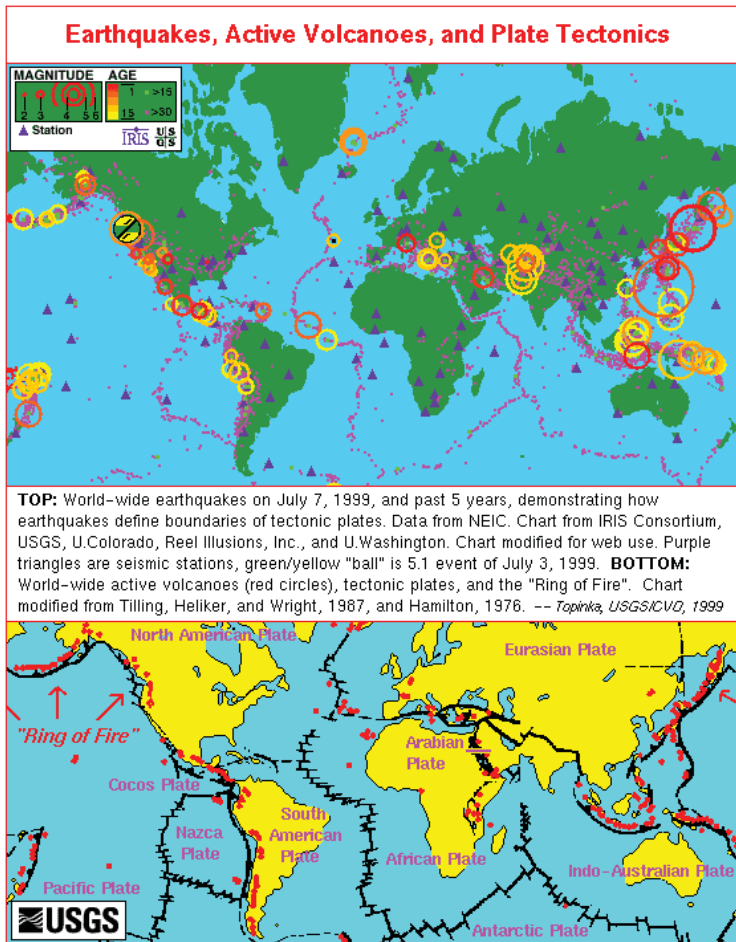
Deir al-Zour, Syria
(Khalil Ashawi/Reuters)

Ongoing Conflict



- Longstanding conflicts: Afghanistan for 35 years, Sri Lanka (1983-2009), Somalia for 22 years, Sudan for 10 years
- Angola civil war 1975-2002
 - UN estimates (2003)
 - 80% of Angolans lacked access to basic medical care
 - 60% lacked access to water
 - 30% of Angolan children would die before the age of five
 - Overall national life expectancy of less than 40 years of age

Natural Disaster Risk



Combined risk of death

From cyclones, floods,
earthquakes and landslides

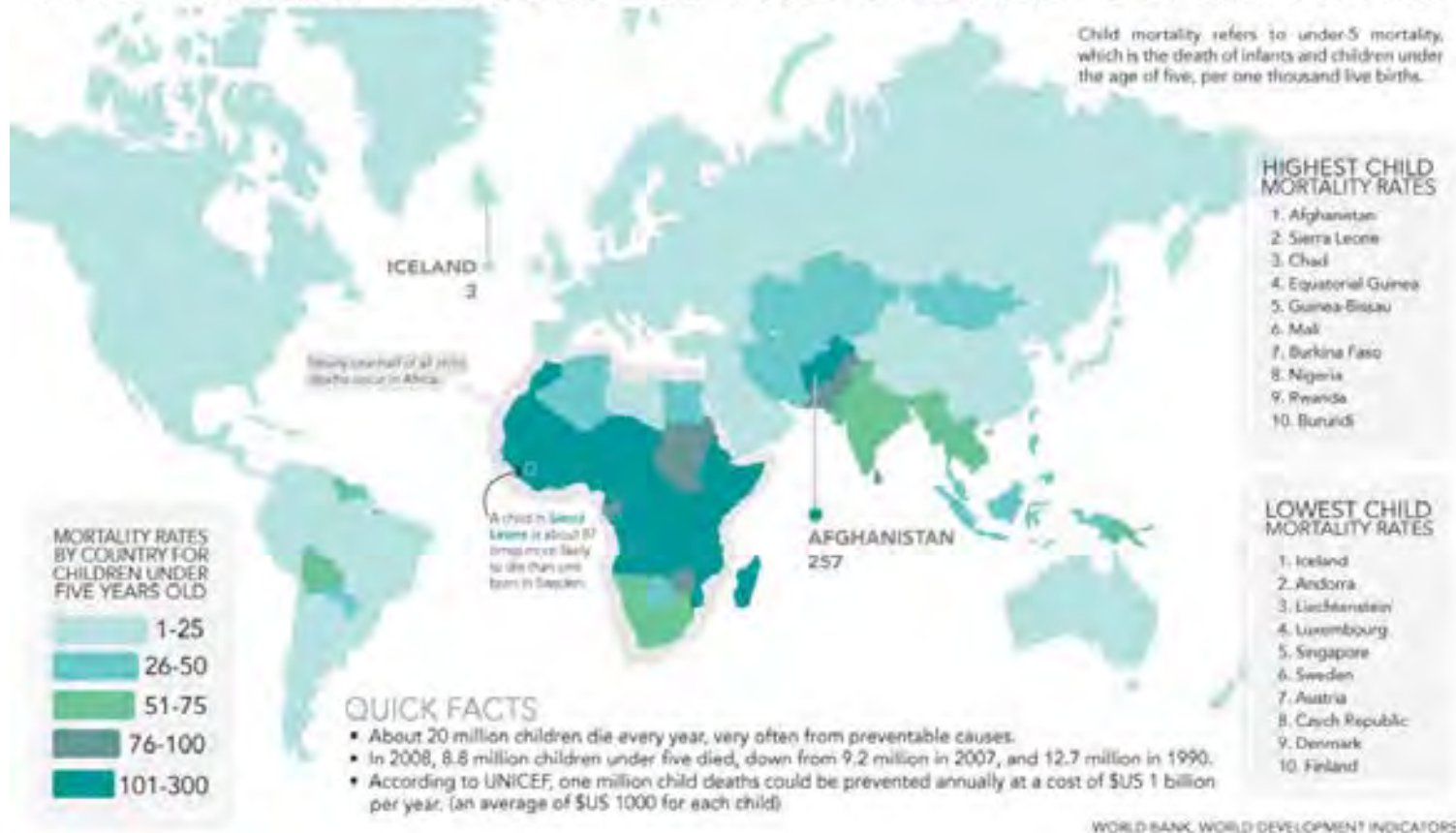
Low High Unknown



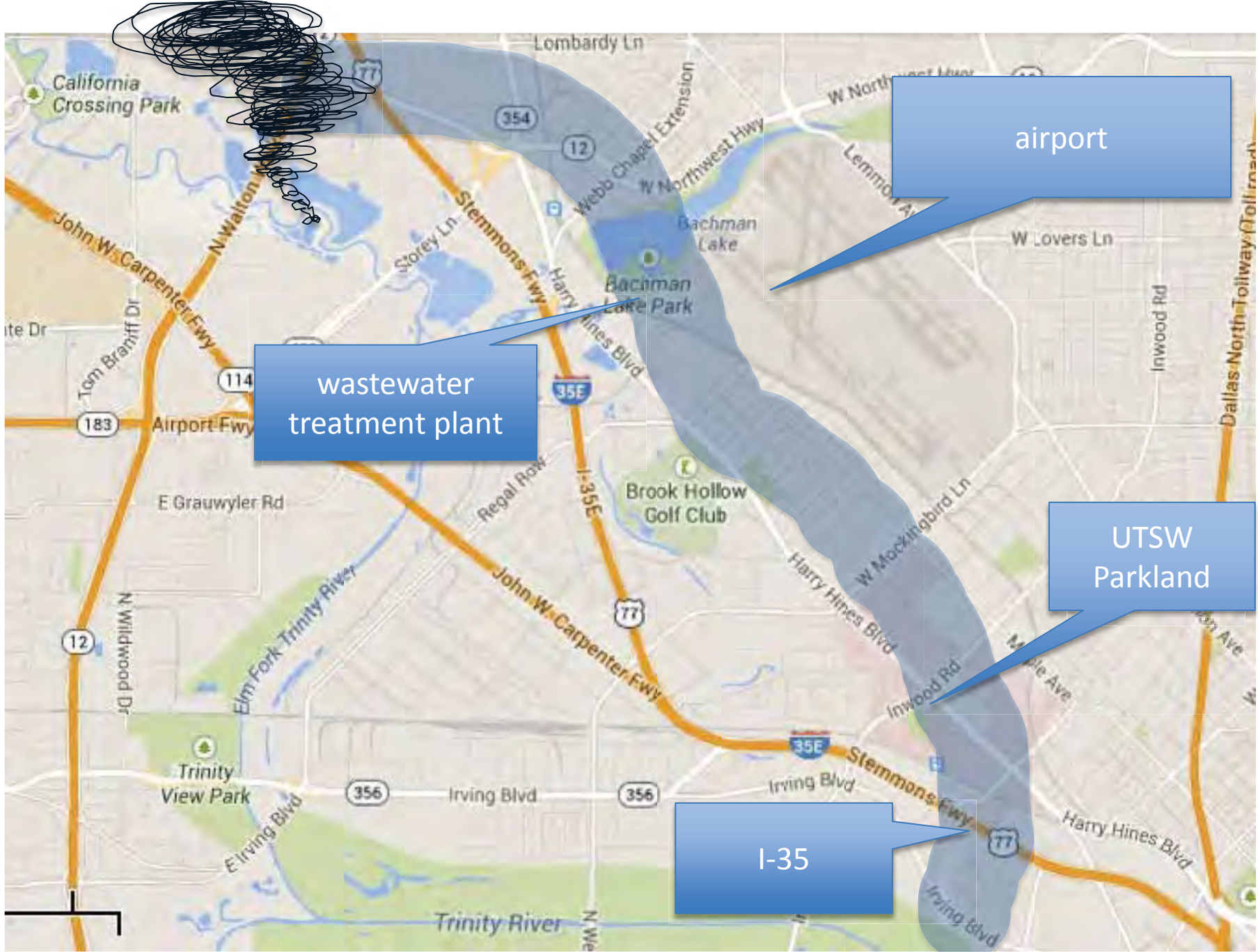
Source: United Nations

Child Mortality Worldwide

THE WORST PLACES IN THE WORLD TO BE A KID



<http://filipsagnoli.files.wordpress.com/2008/10/world-child-mortality-rate.jpg>



airport

wastewater
treatment plant

I-35

UTSW
Parkland

UTSW Tornado Scenario

- How are you getting out?
Will you be rescued?
- Where is your family?
- Who is picking up your kids?
- Where are they staying tonight?
- What will they drink? Eat?
- How will they get money?
- How will they get out of Dallas?
- Where will they go if they are injured?



UTSW Tornado Scenario

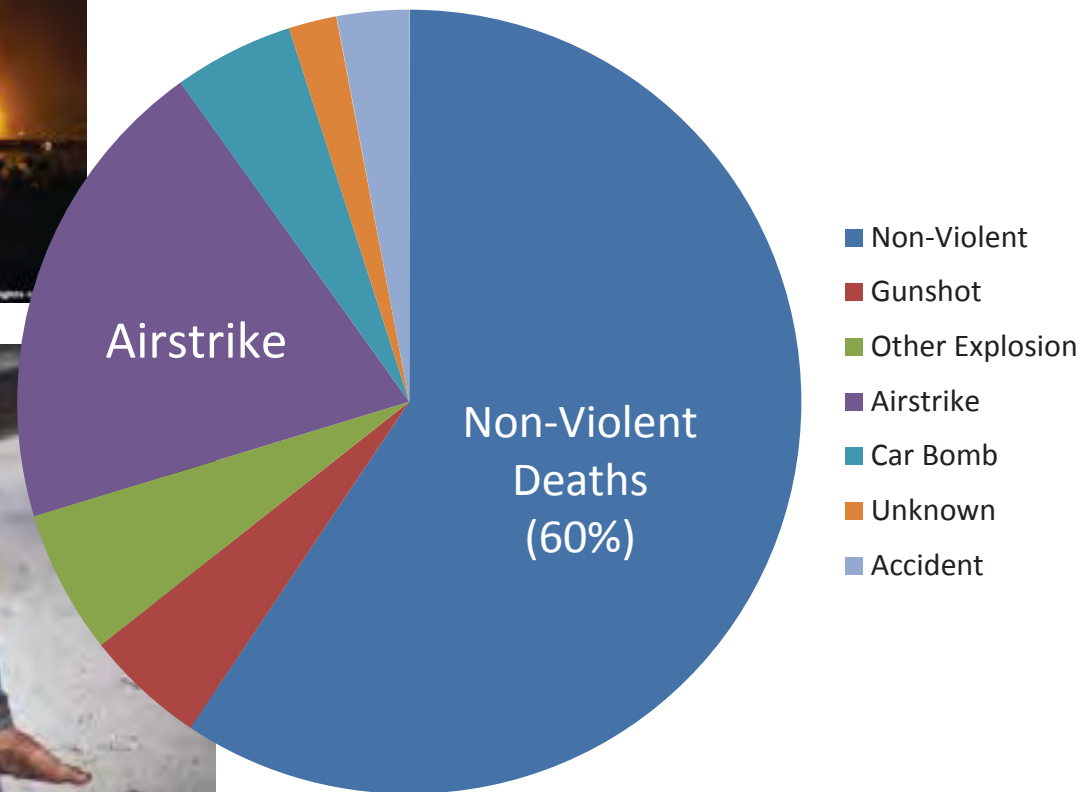
- How are you getting out?
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- Who is picking up your kids?
- Where are they staying tonight?
- What will they drink? Eat?
- How will they get money?
- How will they get out of Dallas?
- Where will they go if they are injured?
- How long will it take to restore clean water?
- Where will your family stay until then?
- Who will support them for the next few weeks/months?
- Will you finish your medical training? Where?
- Will UTSW reimburse your tuition?

Phases of Crisis



Violent Death

Causes of Death Among Children <15 Years
in Iraq , March 2003 - September, 2004



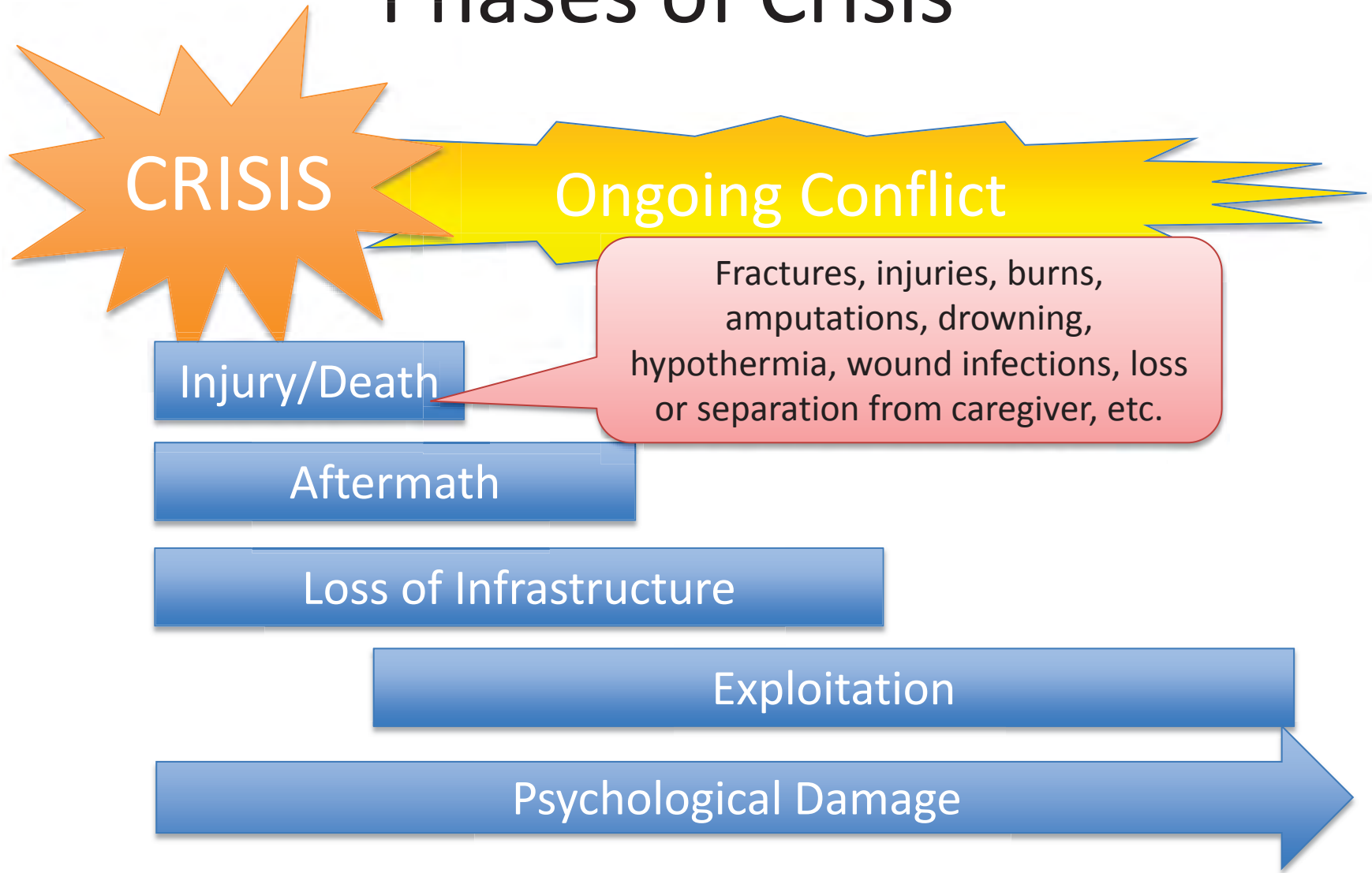
Adapted from: Burnham, et al. Lancet. October, 2006

(AP Photo/Manu Brabo, File)

Lasting Injuries & Disability



Phases of Crisis



Finding Safety



Finding Safety



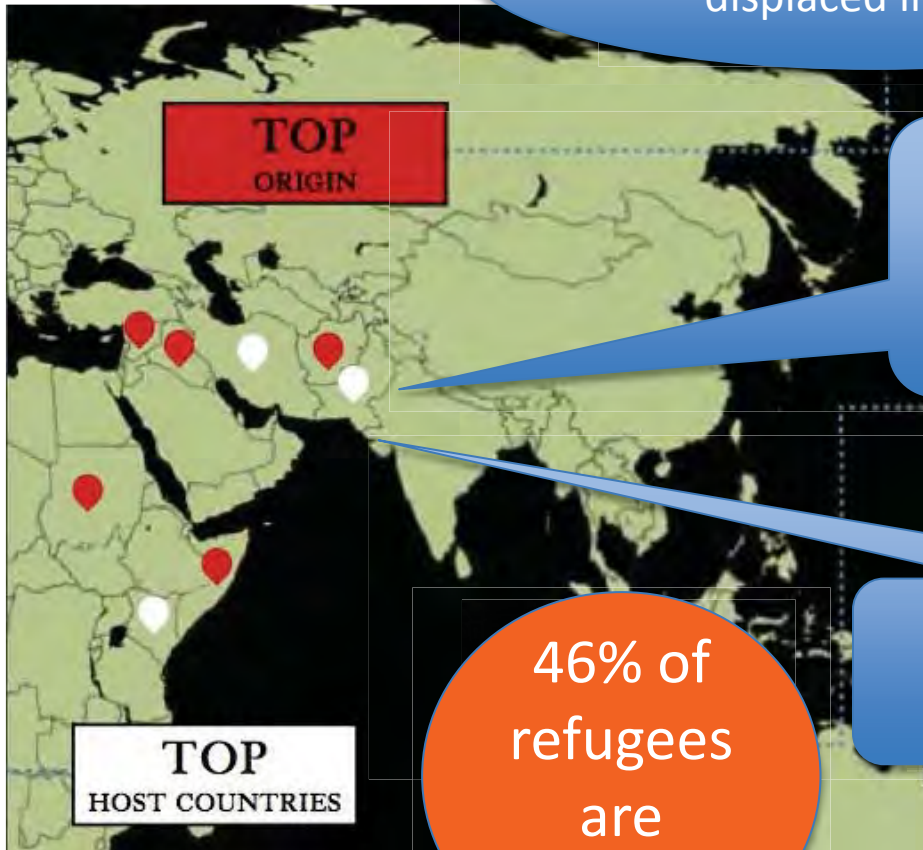
What do you take with you?

Where do you go?

Panic as the Khmer Rouge attack Phnom Penh, 1975. <http://peteralanlloyd.com>

Refugees (Internally Displaced Persons)

7.6 million people newly displaced in 2011



More than half (55%) of all refugees worldwide came from five countries: Afghanistan, Somalia, Iraq, Syria, Sudan.

Top hosting countries (per GDP): Pakistan, Ethiopia, Kenya

46% of refugees are children

Refugee Camps



Dadaab Refugee Camp, Kenya (population ~450,000)



Refugee Camps

Crowding

Poor sanitation

Limited or poor water supply

Disruption of vaccination systems
in home country

Inadequate food supply



Leading causes of death among
refugees (IDPs) = Communicable
diseases

Acute respiratory infections

Diarrheal diseases

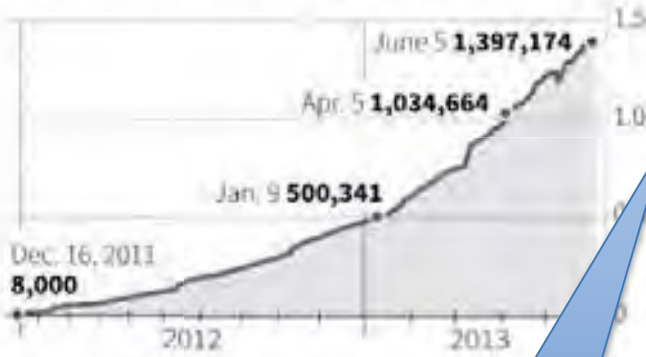
Measles

Other major causes of morbidity:
protein-energy malnutrition,
tuberculosis, cholera, malaria,
homicide/suicide, depression

Refugees, Syria

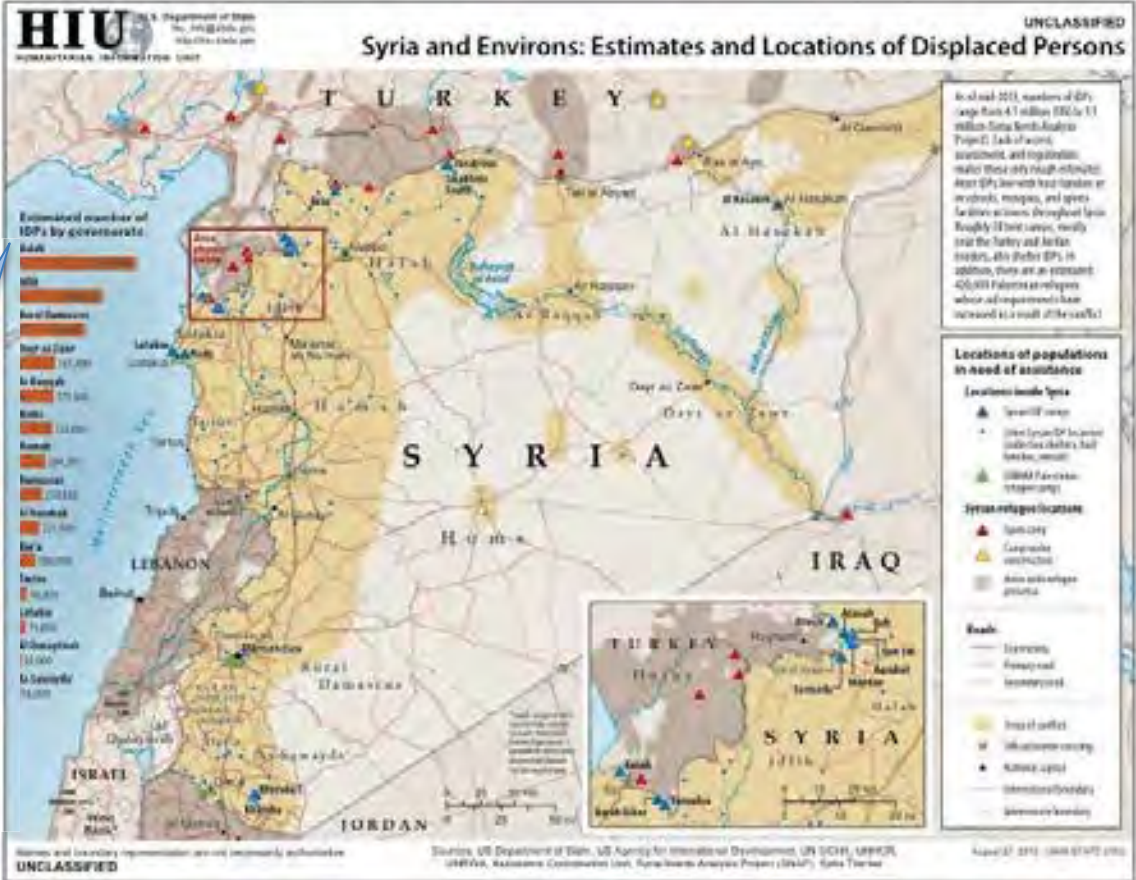
REGISTERED REFUGEES

Excludes those awaiting registration, in millions



Refugees (UNHCR), U.S. Dept of State, news reports

5,099,050 IDPs as of 8/27/13

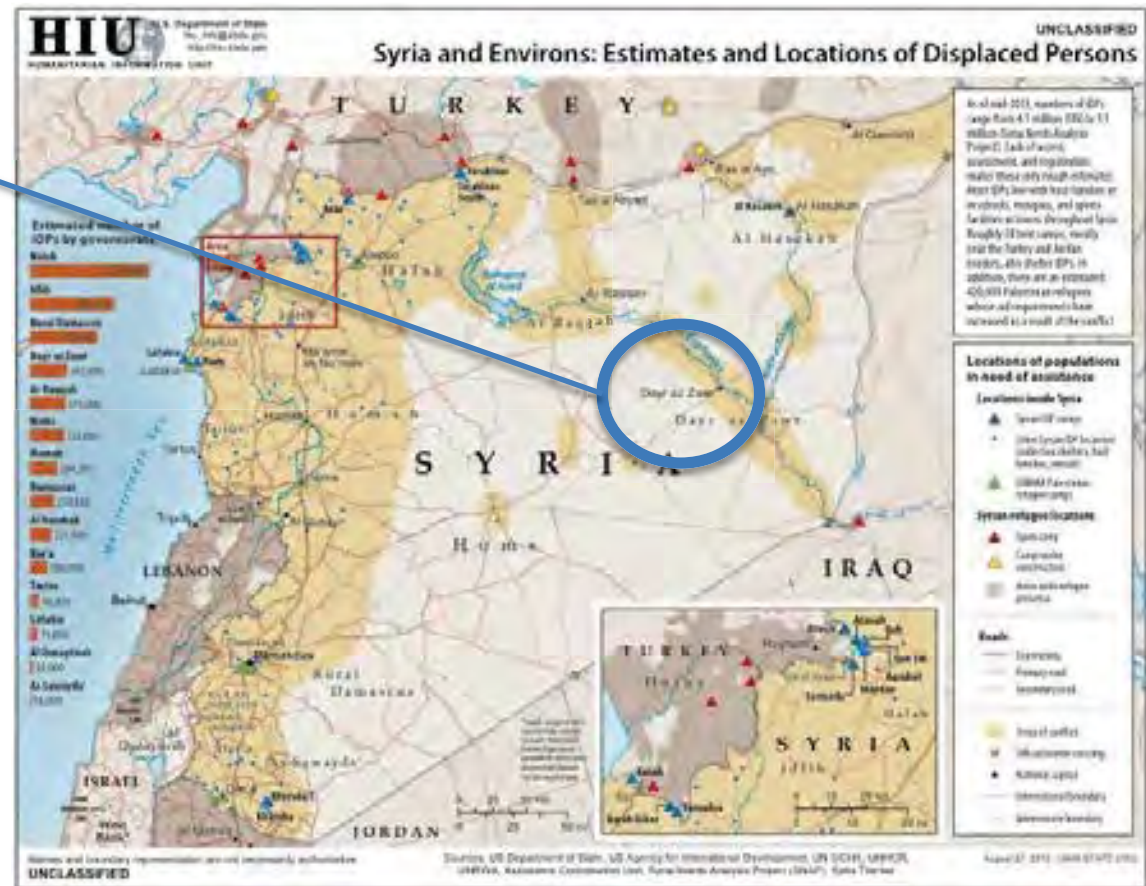


Polio Outbreak, Syria – October, 2013

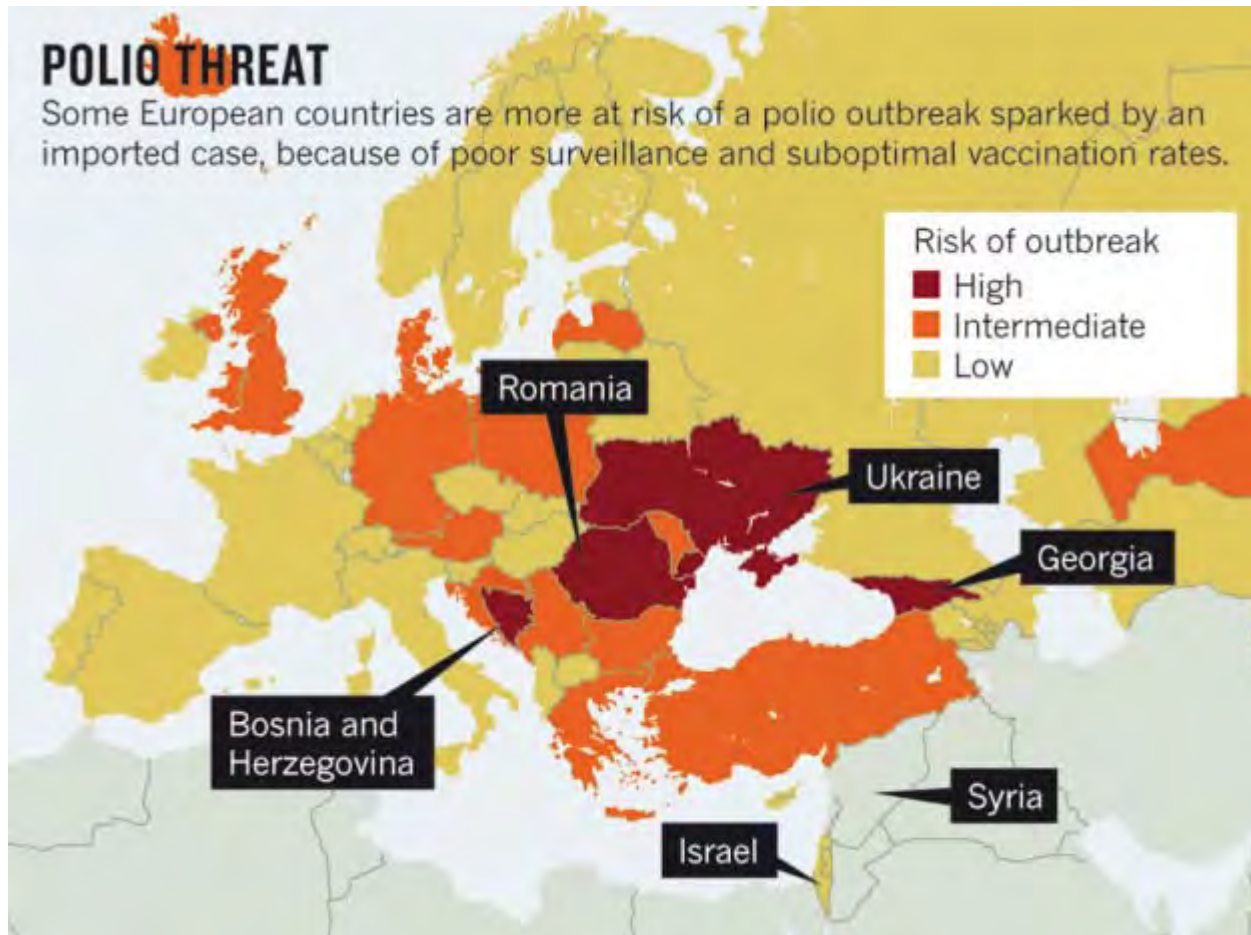
October 17, 2013 – 22 children reported with paralysis (confirmed polio type 1)

Last case of polio in Syria was 1999 (eradicated)

3/2011 – 91% children vaccinated against polio; now estimated to be 68% (WHO)



Polio Risk



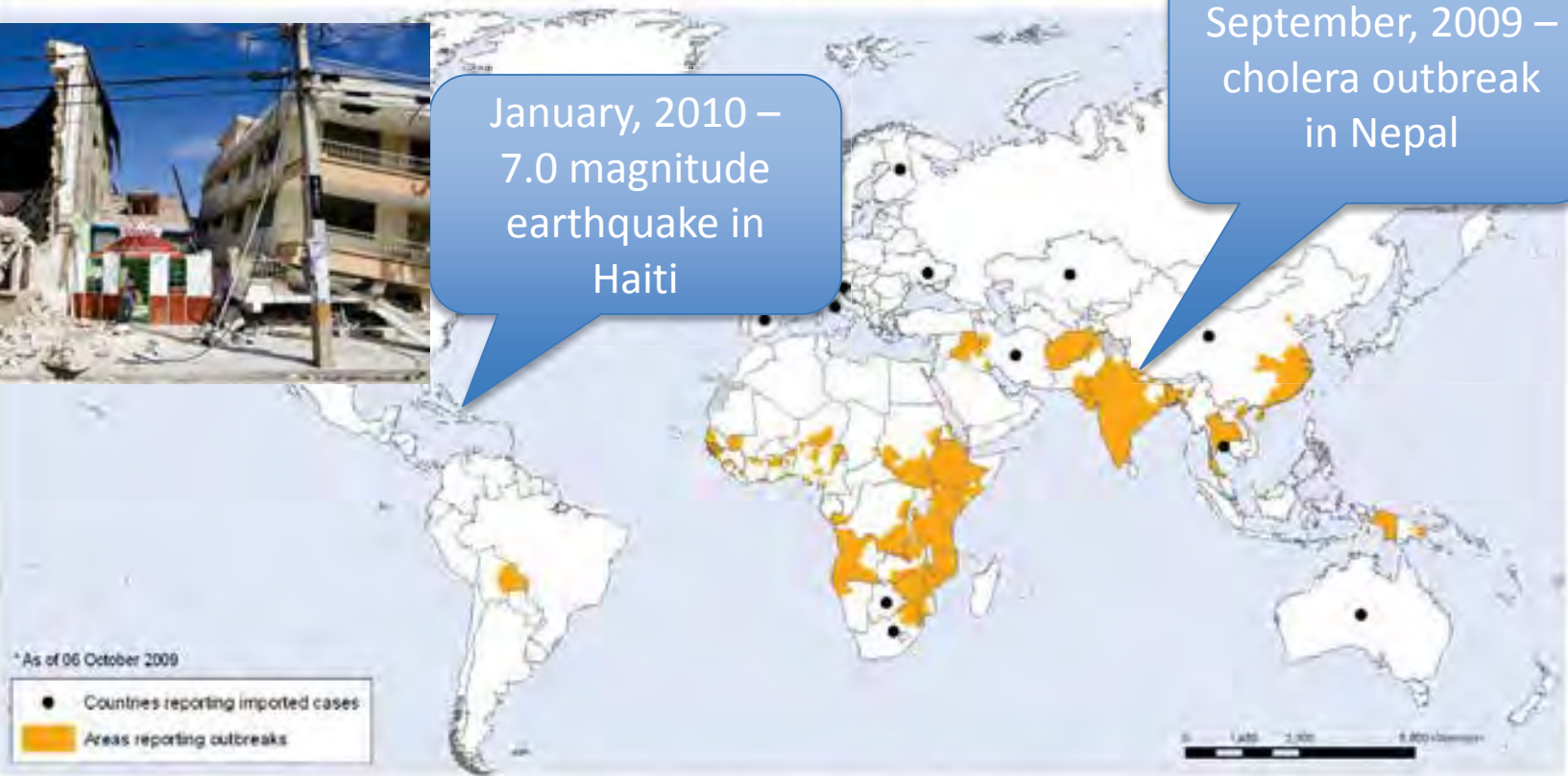
Cholera

Cholera, areas reporting outbreaks, 2007–2009*



January, 2010 –
7.0 magnitude
earthquake in
Haiti

September, 2009 –
cholera outbreak
in Nepal



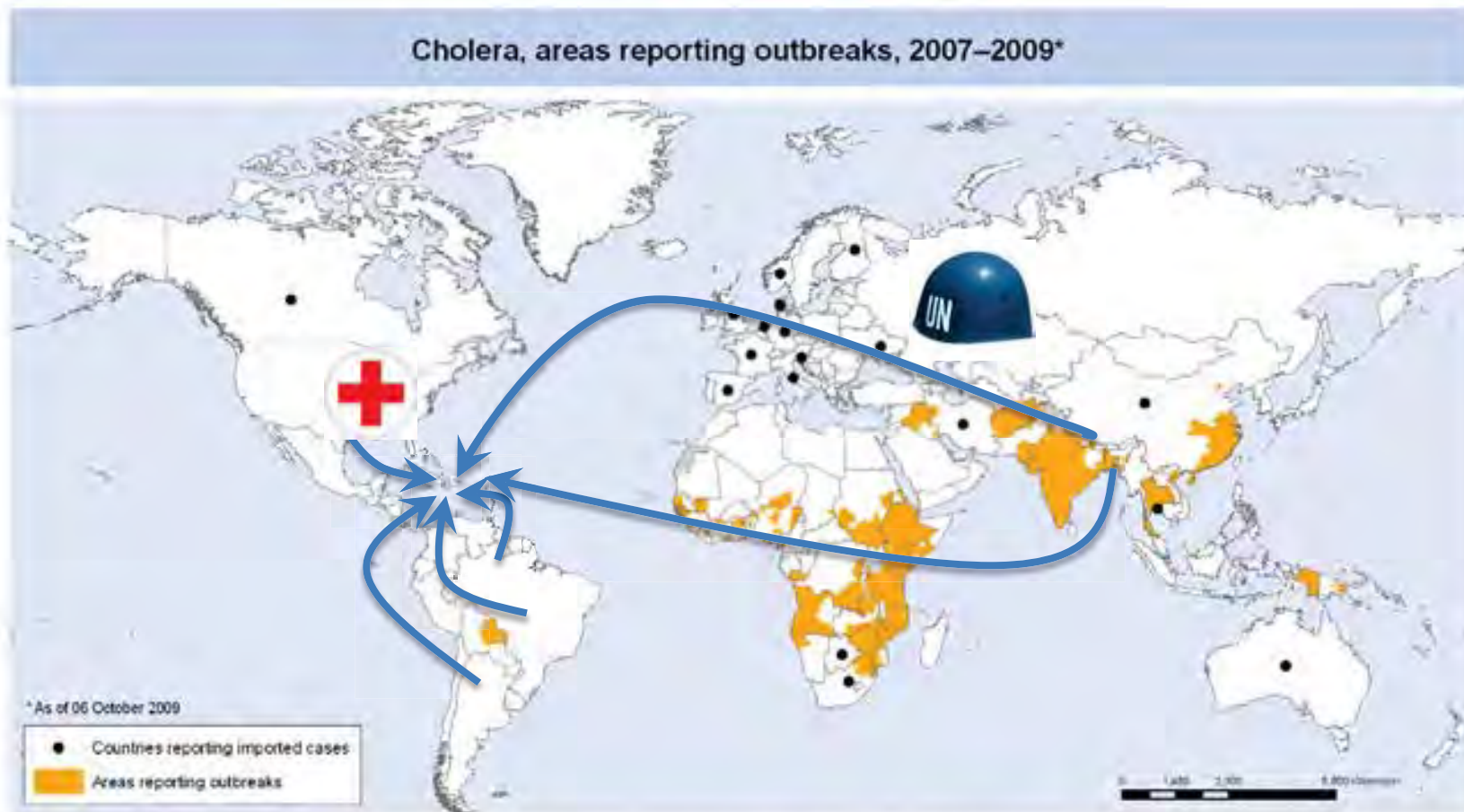
* As of 06 October 2009

- Countries reporting imported cases
- Areas reporting outbreaks

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information
and Geographic Information Systems (GIS)
World Health Organization

Cholera



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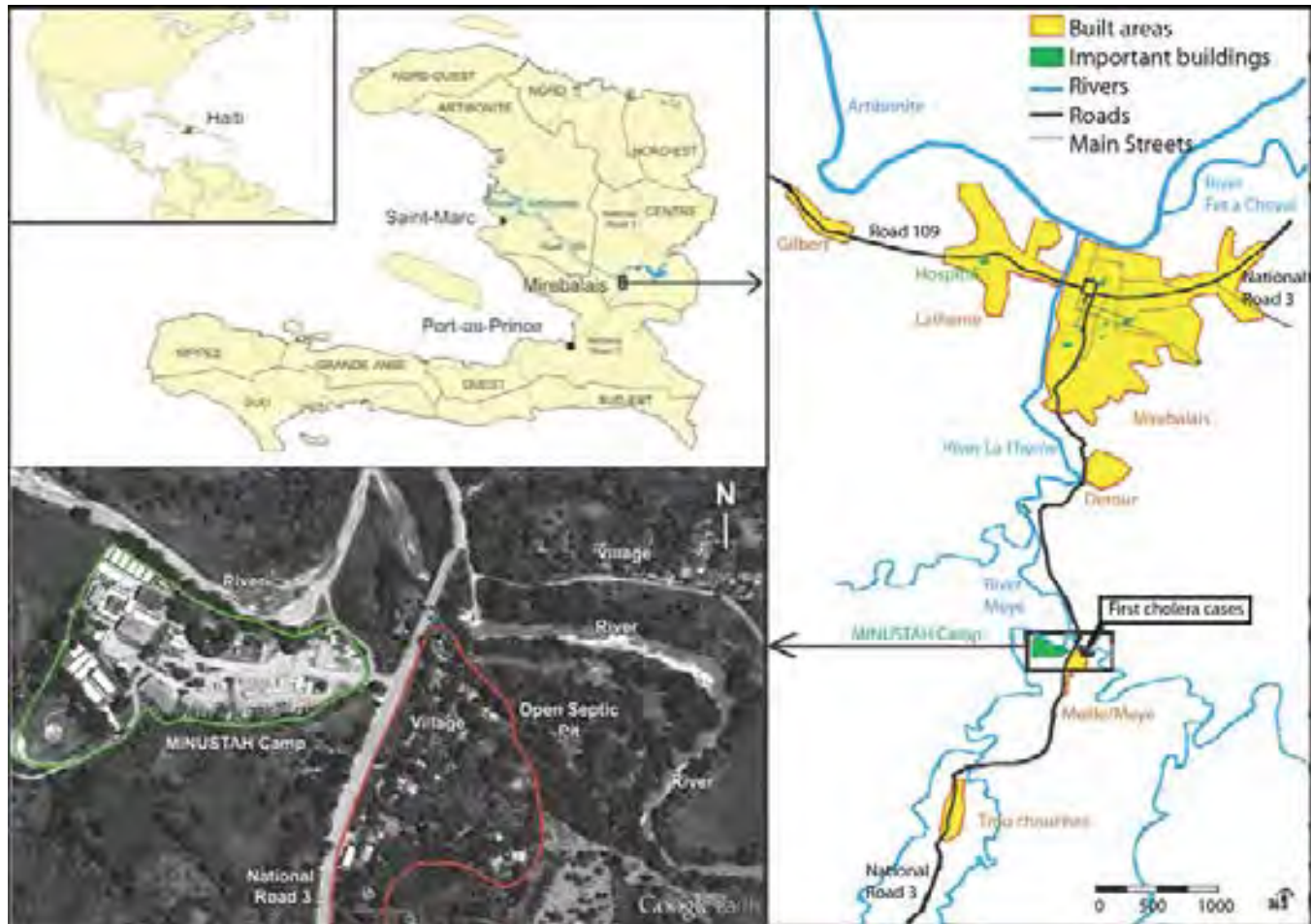


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Haiti Emergency Response



Nepalese MINUSTAH Camp

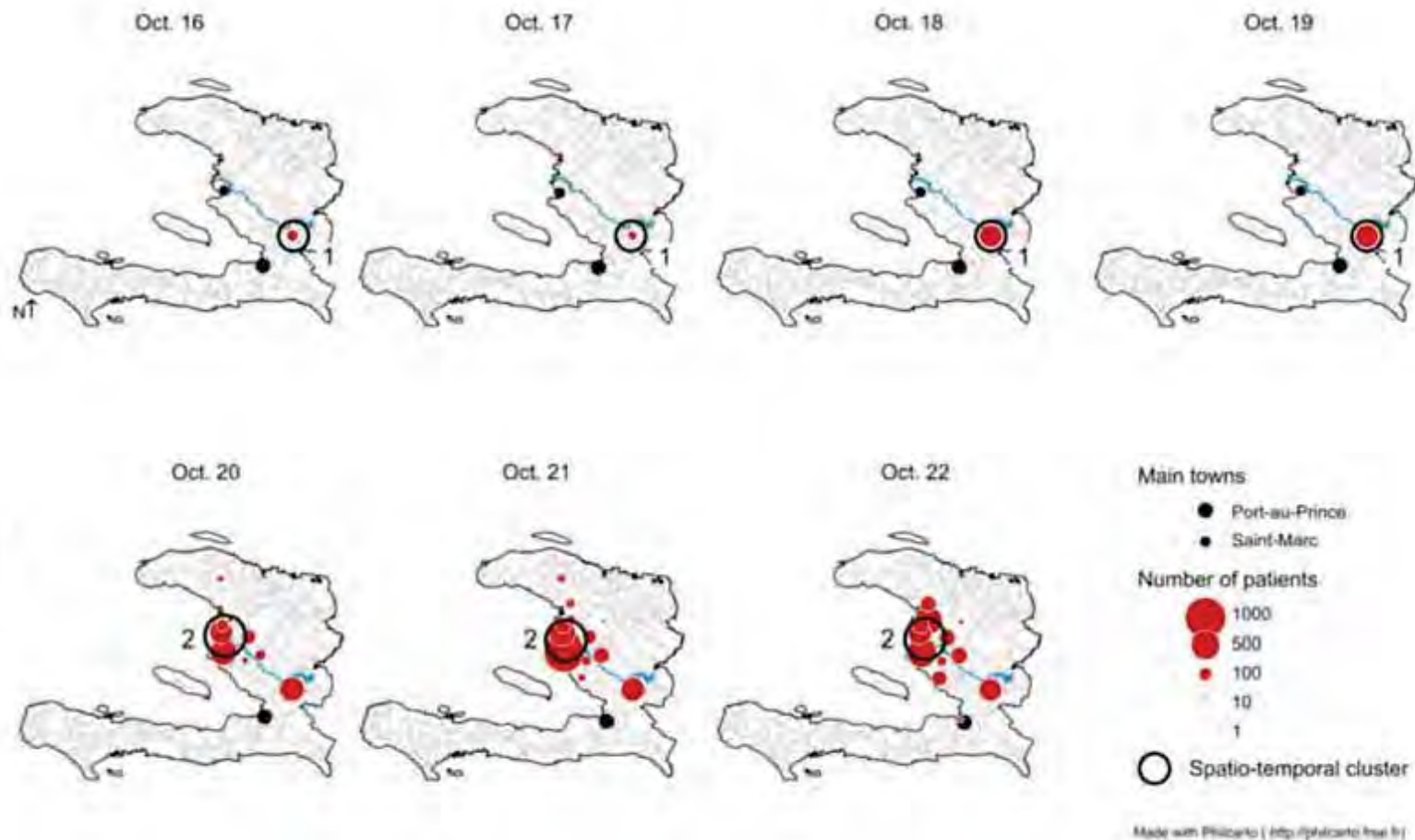


Waste water?



Tanker truck deposits excrement from Nepalese UN base 400 meters away from the base in Mirebalais, Haiti on Oct. 27, 2010 (Photo credit: AP/Ramon Espinosa).

Cholera, Haiti, 2010



Natural Forces + Poor Infrastructure



Get involved. Sign up at www.pih.org/fightcholera

SPRING RAINS WILL FLOOD HAITI WITH CHOLERA

"The Haitian cholera epidemic is the largest the world has seen in recent history. Haiti deserves nothing less than a comprehensive integrated response using all of the tools at our disposal." — PAUL FARMER



Without modern sanitation, rains carry contaminated human waste into the river

Lacking access to clean water, people use water from rivers and canals to bathe, clean, and cook

Cholera bacteria are ingested and people become severely ill

BEFORE RAINY SEASON

1.6 inches (Average Rainfall, March)



18,908 Cholera Infections (April, 2011)



DURING RAINY SEASON

5.6 inches (Average Rainfall, May)



50,405 Cholera Infections (June, 2011)



CHOLERA BACTERIA

Malnutrition

Mali Refugee Camp (2012)

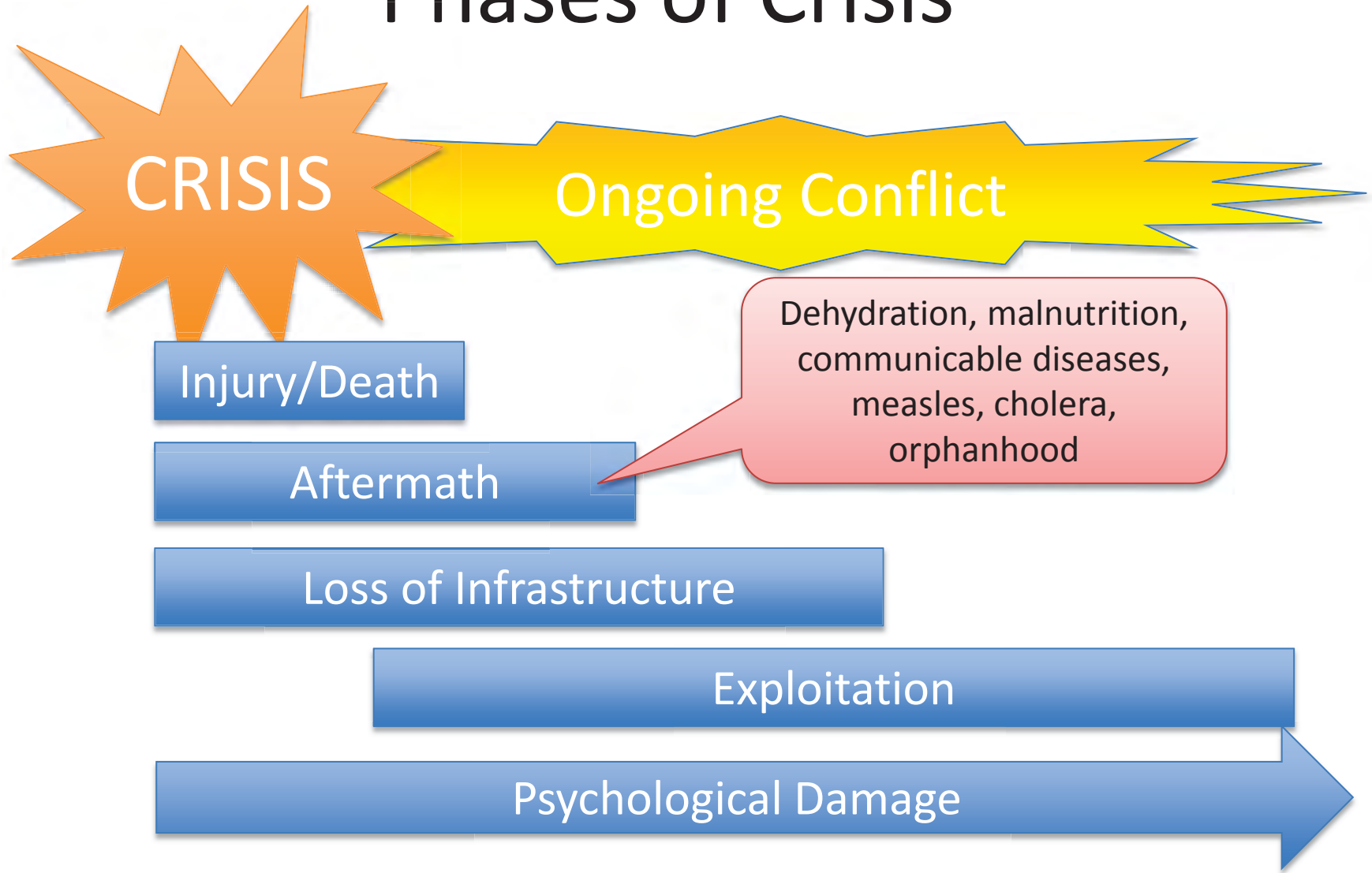
21% malnutrition (14% in remainder of Mali)

7% severe acute malnutrition (3% in remainder of Mali)



The Western Sahara. Camp at Tindouf. 1976. © Christine Spengler

Phases of Crisis

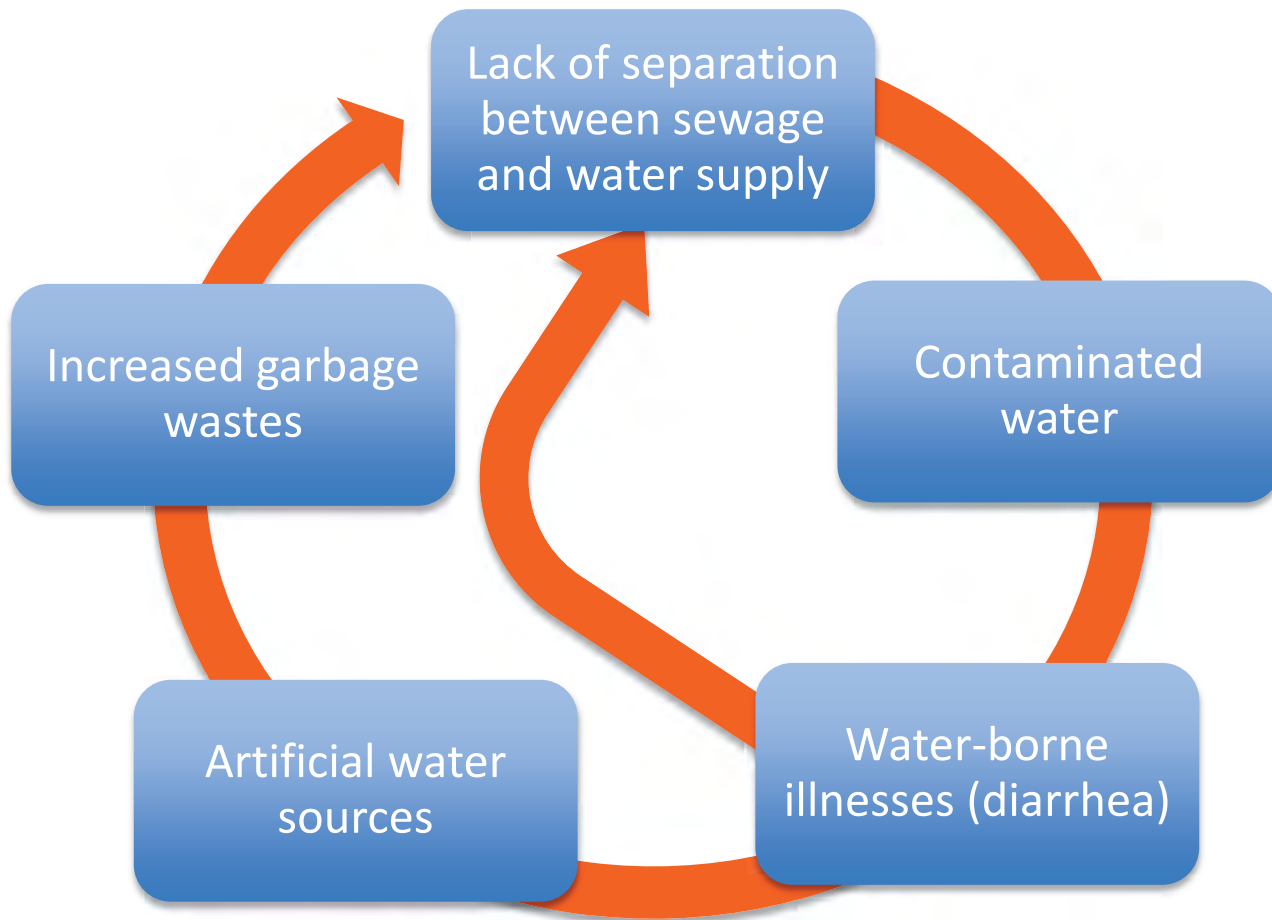


Loss of Infrastructure

- Water
- Electricity
- Roads
- Internet? 😊
- Financial Services
- Food supply
- Sources of medical care
- Economic collapse



Water



Contaminated Waterways



Water-borne illnesses

Estimated 4.1% of the total DALY global burden of disease
1.8 million human deaths annually

88% attributable to unsafe water supply, sanitation and hygiene

Cholera, E. coli diarrhea, typhoid, parasites, hepatitis A, heavy metal poisoning

Contaminated Water



Beyondthebottle.org



Water Supply



New York State State Agencies

Department of Health
Information for a Healthy New York

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Drinking Water Advisories Following Hurricane Sandy

Hurricane Sandy impacted many public drinking water systems, and many of these drinking water systems had notified their customers that they should boil water to ensure that it is safe to drink. Most of the boil water notices following Hurricane Sandy have since been rescinded.

- Table of systems with boil water notices that have been rescinded.

If your water system was impacted and is not on the list of the water systems that had a boil water notice rescinded or if you are unsure about the status of the water system in your area, please contact your [water supplier](#) or [local health department](#). It is possible that conditions at your water system have changed since this list was last updated.

What you need to do if your drinking water system is under a boil water notice:

Bring tap water to a rolling boil, boil for one minute, and cool before using. Or use bottled water certified for sale by the New York State Department of Health. Boiled or bottled water should be used for drinking, making ice, washing dishes, brushing teeth, and preparing food until further notice.

Much more information on how to protect your family during a boil water notice may be found at [Boiling Water and Emergency Disinfection](#).

If you have further questions about specifics of your water system, please contact your [water supplier](#) or [local health department](#).

Boil Water Notices Rescinded

Customers Of These Systems No Longer Need to Boil Water

County	PWS ID#	System Name	Advisory Status	Advisory Notice Date
Nassau	NY2902834	Long Beach	Rescinded on 11/8/2012	10/30/2012
Nassau	NY2902835	Hill Neck Estates	Rescinded on 11/21/2012	11/16/2012
Orange	NY3503033	Lamplight Village	Rescinded on 11/7/2012	10/31/2012
Orange	NY3503577	Deerpark manor	Rescinded	10/31/2012
Orange	NY3510680	Green Acres Park	Rescinded	11/1/2012

Disrupted Food Supply

A young Hutu boy and returns to Biaro refugee camp in the Democratic Republic of Congo weeks after fleeing when the camp came under attack by Rwandan and DRC military. The refugees that weren't killed returned emaciated and with terrible injuries. (May 1997)



<http://www.mariellafurrer.com>

Food Insecurity

"I was nine years old when the Khmer Rouge took over my country... We were half-starved. In the wildness of those moments, I did not realize what it meant when children would go out into burial grounds seeking food. It was worse than a nightmare."

Excerpts from a speech by Arn Chorn Pond at an Amnesty International Human Rights Day, December 1987.



Getty Images

“Scorched Earth” Campaigns



Renewed Gimir-Beni Halba clashes in South Darfur, eight dead

KATAYLA (22 May.) -At least eight people have died and dozens more have been injured as

Economic warfare

- “Scorched earth” methods date back at least to ancient Romans
- Destroy source of livelihood of the enemy
- Crops, oil refineries, pipelines, water supply, electrical grid, cyber-warfare

4 killed in attack on Iraq's largest oil refinery

From **Mohammed Tawfeeq**, CNN
February 26, 2011 4:34 a.m. EST



The Baiji oil refinery, north of Baghdad, is Iraq's largest fuel facility, producing 140,000 barrels a day.

Baghdad (CNN) — Gunmen attacked Iraq's largest oil refinery Saturday, killing four workers and forcing the facility north of Baghdad to shut down completely, authorities said.

A crew of at least four attackers entered the Baiji oil refinery at about 4:30 a.m., killed two engineers and two technicians and planted about 10 bombs around one of the production units, police said.

The explosion caused a large fire, and technicians at the refinery said it could take two years to fix the damage caused by the attack.

STORY HIGHLIGHTS

— **NEW:** The refinery's five units produce gasoline, benzene and kerosene

— **NEW:** Oil pipelines and have been the target of in past attacks

— Attackers plant 10 bombs at refinery, police say

— Two engineers and two technicians are killed

Children particularly vulnerable since they rely on others for their livelihood

Genocide



Rio Negro Massacre, Guatemala,
<http://www.ghrc-usa.org>

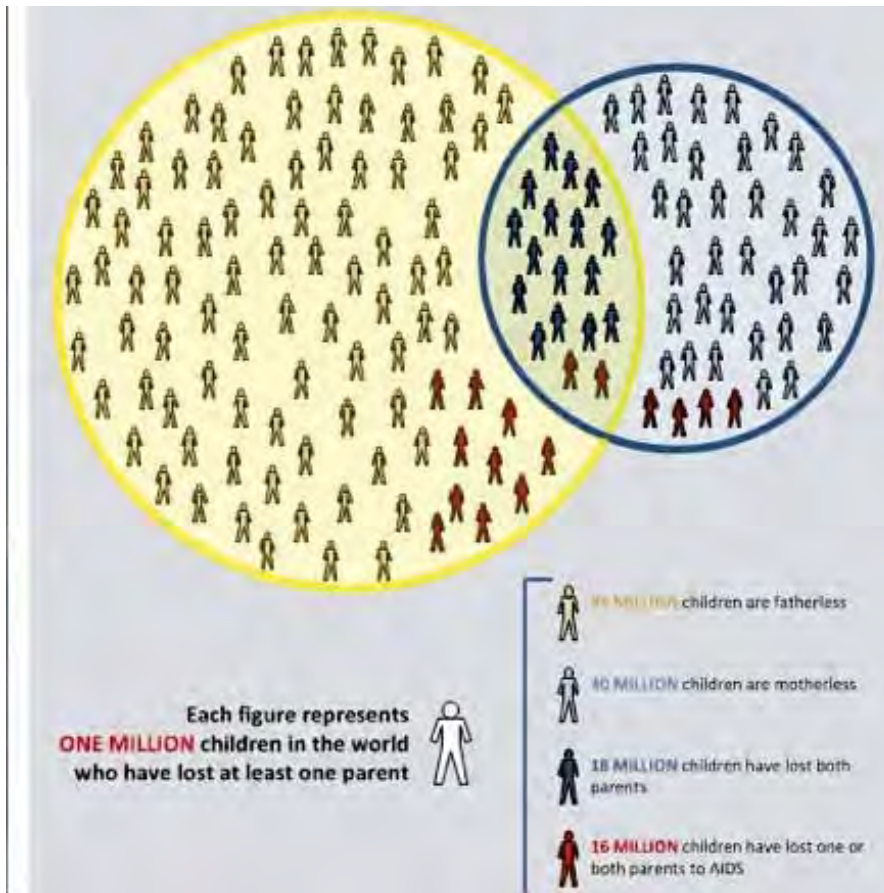
- 1994 radio broadcast before violence erupted in Rwanda, "To kill the big rats, you have to kill the little rats."

Orphanhood



Cambodia. Hospital in Phnom-Penh. 1975. © Christine Spengler

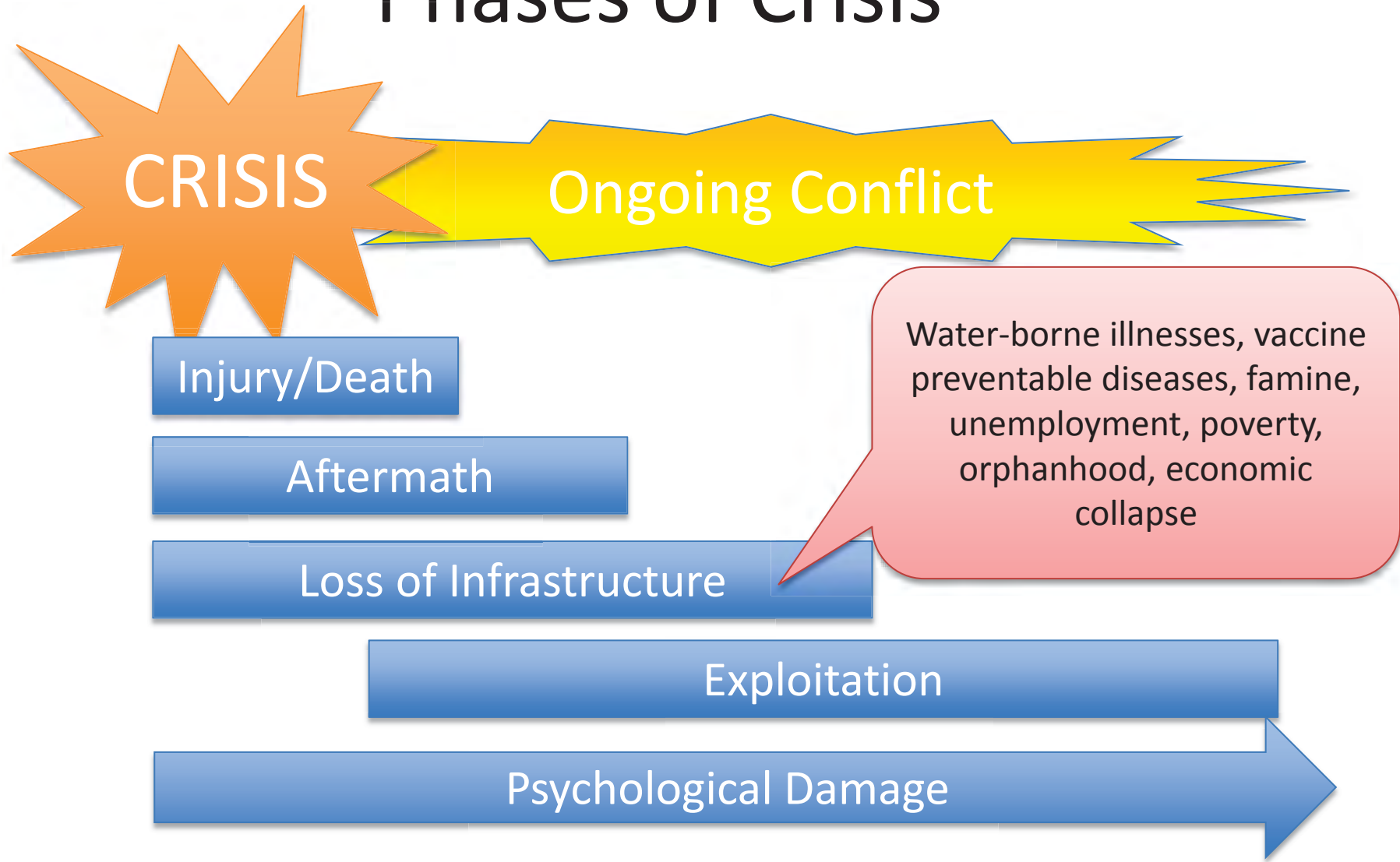
Orphans & Vulnerable Children



<http://riverofthoughts.com>

- Factors affecting child vulnerability
 - family's ownership of property
 - poverty level
 - child's relationship to the head of the household
 - education level of the child's caregivers

Phases of Crisis



Rape as a Weapon



Rape

- Refugee camps
 - Destabilized “community”–
influx of new people, loss
of family protectorate
 - Loss of financial stability
 - Lack of income/work
 - Corruption
 - Blackmail
 - Withholding aid in
exchange for sex
 - Retaliation
 - Taking resources from
hosting country



Rapes, Killings Hit Katrina Refugees In New Orleans

On that first night after the storm, the city had lost power, and she was sleeping in a dark hallway. It was there, she says, that an unknown man with a handgun sexually assaulted her. She insists other women were raped in the same apartment building over the next four nights, but her claim could not be checked out. "Some bad things happened, you know. There was nobody there to protect you." After her rape, Lewis says, there were no clinics open, so she washed herself with bleach. Lewis says that later in the week, national guardsmen forced evacuees out of the building at gunpoint. She says she tried to report the assault at the time, but authorities weren't listening. "The police was stressed out themselves," Lewis says. "They didn't have no food. They didn't have water. They didn't have communication. They didn't have ammunition. The National Guards didn't want to hear it." The police department — reeling from desertions, flooding and the immensity of the disaster — was in a survival mode itself. Civil order had completely broken down. (Source: npr.org)

ne Katrina
two New

Human Trafficking

TRAFFICKING VICTIMS



Countries of origin

Very high no. of people

High no. of people

Countries of destination

Very high no. of people

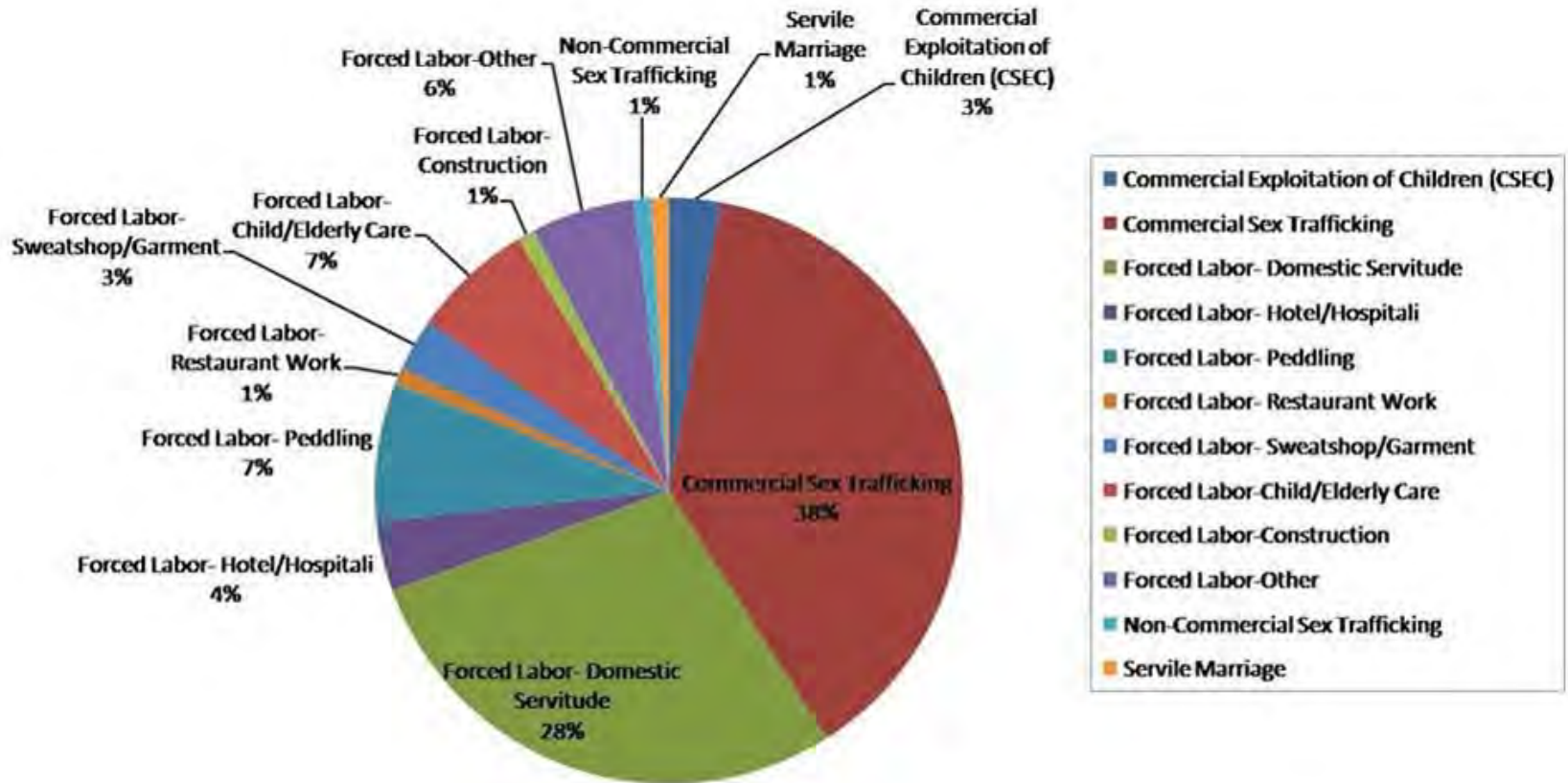
High no. of people

It's estimated that **1.2 MILLION** children are being trafficked each year. Types of child trafficking include:

				
FORCED LABOR	ARMED FORCES	CHILD BEGGING	DRUG TRADES	SEXUAL EXPLOITATION

SOURCE: UNODC

Human Trafficking



Child Soldiers

- "When they came to my village, they asked my older brother whether he was ready to join the militia. He was just 17 and he said no; they shot him in the head. Then they asked me if I was ready to sign, so what could I do - I didn't want to die." *A former child soldier taken when he was 13. (Source: BBC report.)*



[Child Soldiers \(2002\)](#)

Child Soldiers



>300,000 children in
30+ conflicts around
the world

More obedient
Don't question orders
Easier to manipulate
Sometimes kidnapped
Sometimes drugged
Gun = meal ticket
Less empathetic
Recruited as "wives"
Retaliation for family loss

Child Soldiers



>300,000 children in
30+ conflicts around
the world

Risk factors

Separated from family
Displaced from home
Living in combat zone
Limited access to
education
Scarce food resources

Phases of Crisis



Injury/Death

Aftermath

Loss of Infrastructure

Exploitation

Psychological Damage

Rape, abuse, forced labor, trafficking, child soldiers

Acute Loss & Grief



Cambodia. Child crying over his father. 1974. © Christine Spengler

Psychological Stress After Disaster



“After a while, I started forgetting the bodies were once people. I almost tripped over the corpse of a man. You can tell when a building contains bodies because the sharp smell gags you and follows you long after you leave the area.” (Christina Boyle, NY Daily News)

- Widely variable incidence in different studies
- Most common disorders:
 - Post-traumatic stress disorder
 - Major depression
 - Anxiety disorder
 - Substance abuse

Psychological Stress After Disaster

In Sri Lanka, an examination of 296 Tamil school children affected by war, domestic violence, and the 2004 Tsunami showed a PTSD prevalence rate of 30.4%. MD was found in 19.6% and current suicidal ideation in 17.2% of the respondents (Catani, *BMC Psychiatry*, 2008).



Depression & Apathy



Rwandan Genocide Survivors



Survey of orphans of Rwandan genocide, conducted 2007

Mean age 23 years (mean age 10 years at time of genocide)

29% PTSD

34% clinical depression

42% anxiety

39% classified as suicidal

(Schaal S, et al. Eur J Psychotraumatol. 2011)



Minimizing Health Impact of Crisis

Short-Term Assistance

- Water
- Food
- Vaccines
- Relief work
- Medications
- Clean-up
- Short-term emergency shelter
- Surgeons



Rebuild Infrastructure

- Water
- Roads
- Electricity
- Sewage and septic systems
- Local workforce
- Capacity of health system



Economic Development

- Build local workforce
- Work, not aid
- Government stability
- Financing systems

Recovery: Accountability

WANTED FOR GENOCIDE



FELICIEN KABUGA



AUGUSTIN BIZIMANA



ARRESTED

JEAN-BAPTISTE GATETE



ARRESTED

AUGUSTIN BIZIMUNGU



ARRESTED

THARCISSE RENZAHU



ARRESTED

IDELPHONSE HATEGEKIMANA



AUGUSTIN NGIRABATWARE



IDELPHONSE NIZEYIMANA



PROTAIS MPIRANYA



CALLIXTE NZABONIMANA

YUSUF JOHN MUNYAKAZI, RYANDIKAYO, CHARLES SIKUBWABO, ALOYS NDIMBATI

Community & Forgiveness

“Through **Umuganda**, the government has saved billions of Rwandan Francs over the years, and residents have managed to find homegrown solutions to their own local challenges, including constructing neighbourhood roads, bridges, clearing bushes, creating water channels, constructing houses for the vulnerable, building schools, among others. Through Umuganda we have realized that actually we possess so much potential as a nation to address most of the development challenges that we face, especially at the community level. I urge everyone to spare a few hours this morning and join their immediate neighbours to – once again – play their part in the country’s continued development process.”

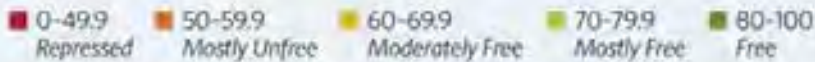
(Jim Gatera, <http://www.newtimes.co.rw>)



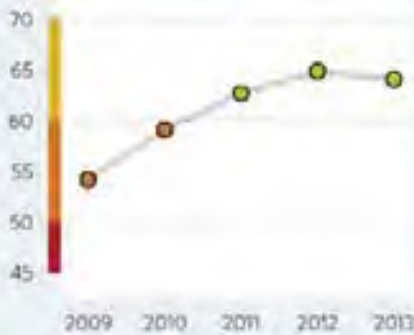
Rwanda Recovery

2013 INDEX OF ECONOMIC FREEDOM

Rwanda



Country Score Over Time



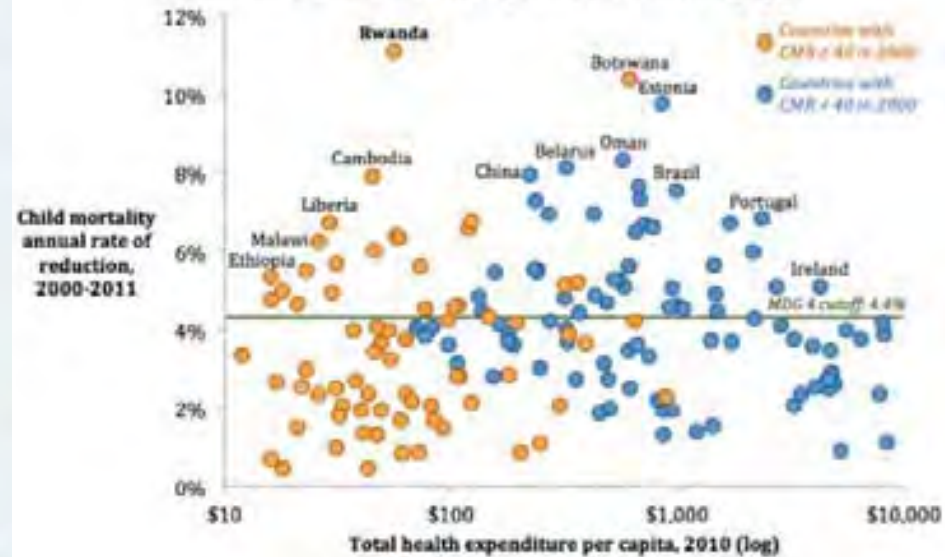
2013 Score Comparison



Sources: Terry Miller, Kim B. Holmes, and Edwin J. Feulner, 2013 Index of Economic Freedom (Washington, D.C.: The Heritage Foundation and Dow Jones & Company, Inc., 2013), <http://www.heritage.org/index>.

heritage.org

Health expenditure and progress against child mortality around the world, 2000 - 2011 (countries >500,000 pop.)



Cameron Nutt/Adapted from "Reduced premature mortality in Rwanda: lessons from success." [BMJ]

Questions?

