MASS EVACUTION APPROACHES FOR ADVANCED NOTICED & NO NOTICED EMERGENCIES

«Redefining Mass Evacuation Risks in the New Era»

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II. INTERNATIONAL CBRN CONGRESS
2019 - ANKARA

OUTLINE

- What is mass evacuation? Why does it matter?
- Mass evacuation experiences around the world…
- Definition of advanced noticed & no noticed emergencies…
- Factors affecting mass evacuation…
- Suggestions

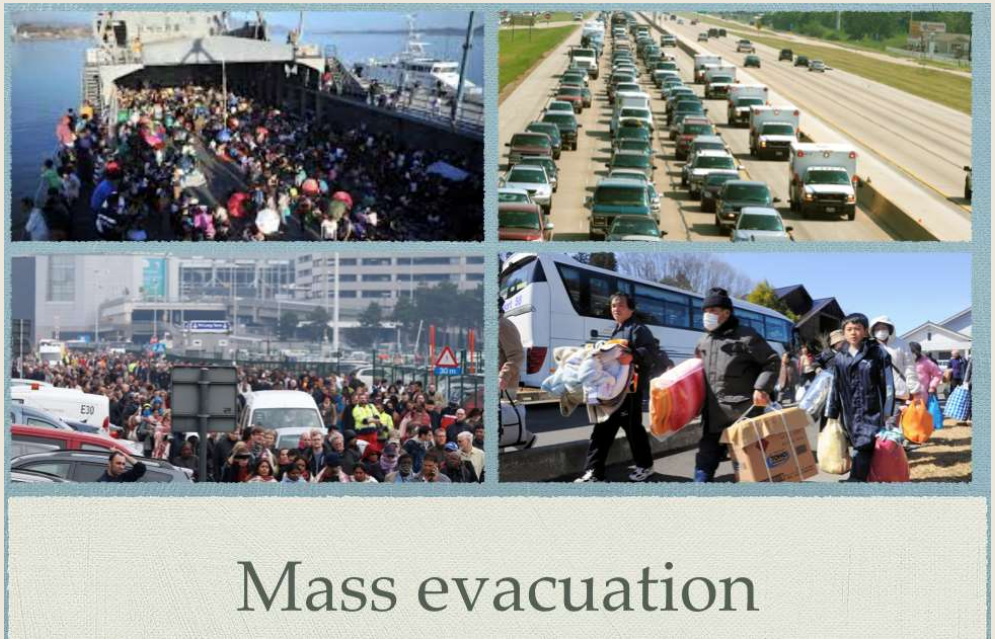
EVACUATION

- “The evacuation of people means instructing them to leave their current dangerous or potentially dangerous location and providing assistance to them (as required) in the form of transport, shelter, and other necessary functions.”

- “Evacuation is the rapid movement of people away from the immediate threat or impact of a disaster to a safer place of shelter. It is commonly characterized by a short time frame, from hours to weeks, within which emergency procedures need to be enacted in order to save lives and minimize exposure to harm.”

MASS EVACUATION

- “Mass evacuation implies the evacuation of whole communities, neighborhoods or geographical areas. The scale and complexity of such evacuations creates the potential for emergency response capacity in a given jurisdiction or country to be overwhelmed and the necessity for coordination across one or more jurisdictions to effect the evacuation and sheltering of evacuees.”



WHEN MASS EVACUATION IS NECESSARY?

- A hazard, be it natural or technological, threatens and puts at risk the safety of those within the area, possibly rendered the area **uninhabitable**
- Evacuation becomes necessary when the benefits of leaving significantly outweigh the risk of ‘sheltering-in-place’.
- Evacuation of whole communities, neighborhoods or geographical areas can be necessary.
- Potential for emergency response capacity in a given jurisdiction or country to be **overwhelmed**

IN MASS EVACUATION....

- **the behaviour is complex,** rather than simple,
- **interactive** rather than individualistic
- **develops along multiple lines** rather than a single path

CLASSIFICATION DUE TO TYPE OF DISASTER/INCIDENT

MANDATORY

- An evacuation ordered and directed by authorities when it is judged that the risk to a population is too great to allow them to remain where they are, and where sheltering in place would likely entail a higher level of risk.
- This places a duty of responsibility on authorities to ensure that people have the information and assistance needed for safe and timely evacuation and that evacuees are cared for.

CLASSIFICATION DUE TO TYPE OF DISASTER/INCIDENT

ADVISED

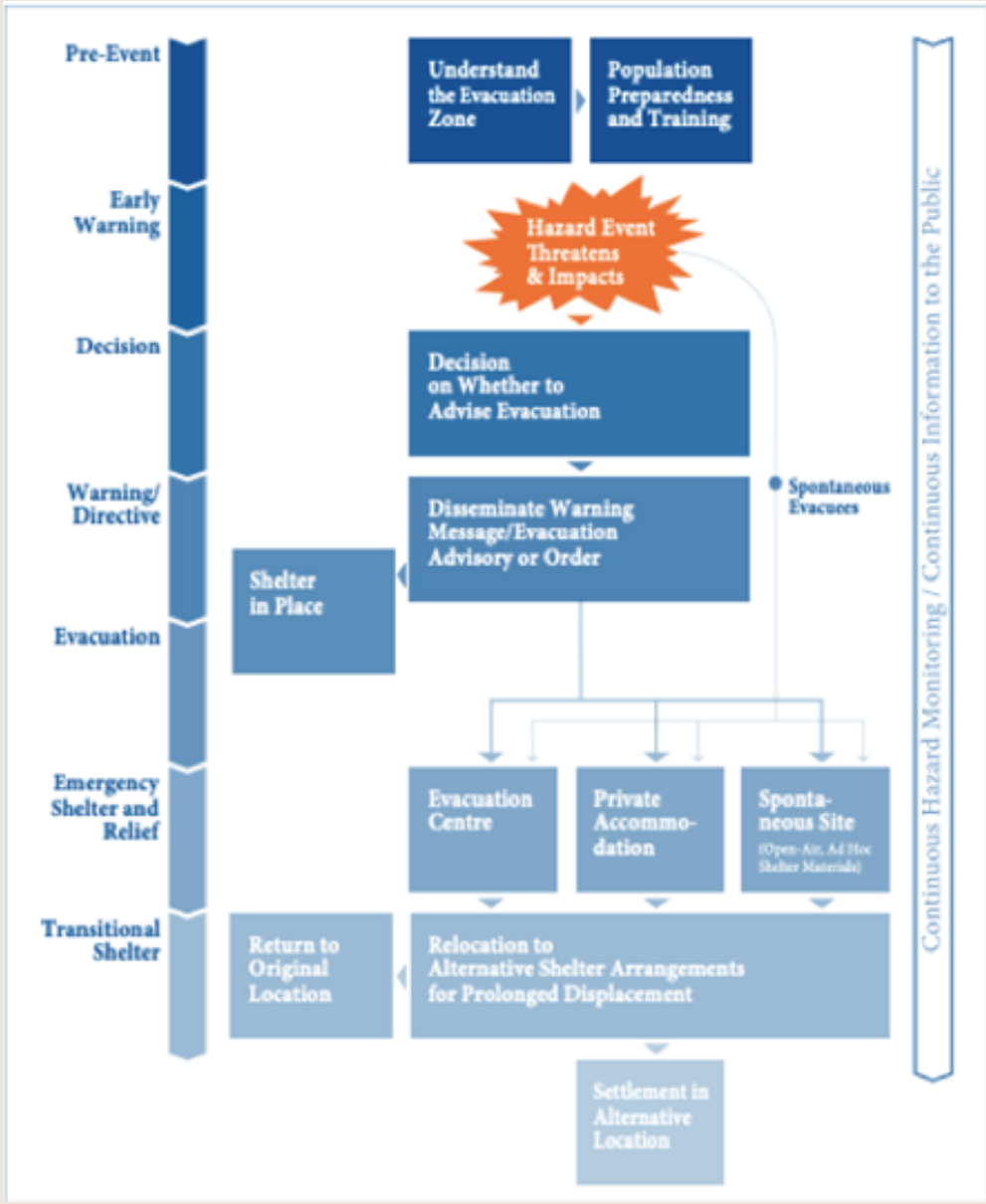
- An official evacuation advisory message may be issued to enable early response and informed decision-making by the population at risk on whether and when to evacuate.
- An advisory may precede a mandatory order to evacuate as the level of the threat and the risk associated with the alternative of sheltering in place increases.
- As for mandatory evacuations, authorities are usually seen to have a responsibility to facilitate safe and timely evacuations for those in need of assistance.

CLASSIFICATION DUE TO TYPE OF DISASTER/INCIDENT

SPONTANEOUS

- When people evacuate their current location due to actual or perceived risk using their own means (self-evacuation) and without (or before) being officially advised or directed to do so.
- This may include people who leave areas outside a designated evacuation zone (also known as “shadow” evacuations).

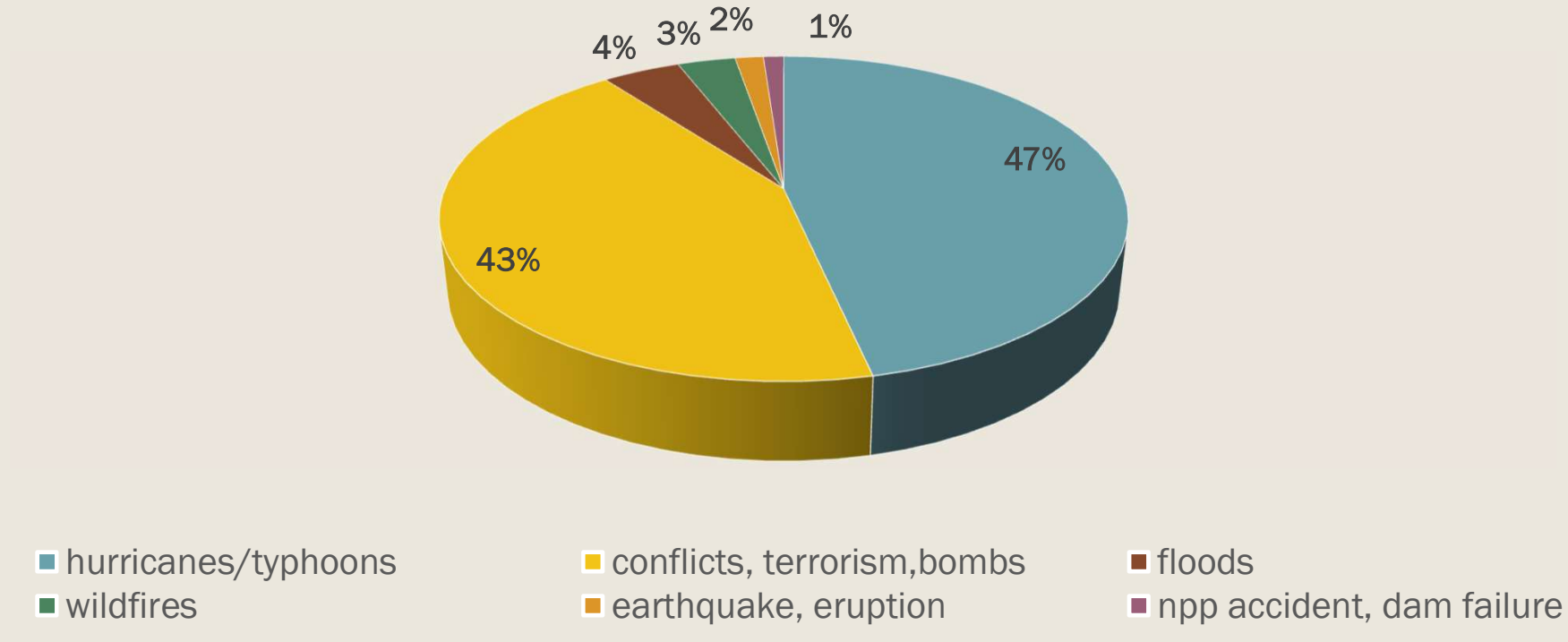
GENERIC FLOWMAP



Mass evacuations around the world.... (21st century)

At least 25 mass evacuation took place between 2000-2017

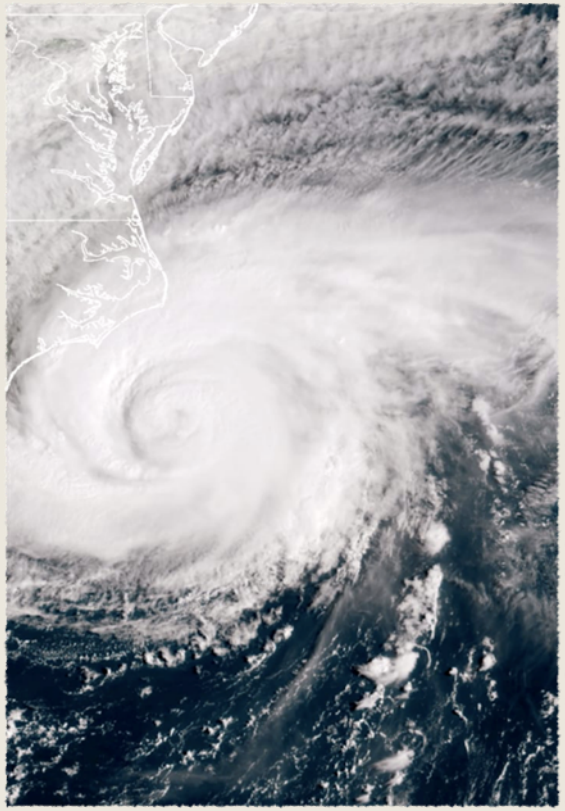
Almost 31.500.000 people relocated




Advanced
noticed
emergencies
EVACUATION
ROUTE

Advanced noticed emergencies

- Advance noticed emergencies are those that can be predicted (24-72 hours before) before the devastating effect occurs.
- The most prominent examples include hurricanes and storms.
- The impact area and the devastating impact of the hurricanes are predicted by weather forecasts so that emergency actions and, if necessary, evacuation can be initiated before the probable hazard zone.



As a specific example;

- In case of severe nuclear power plant accidents, «general emergency» situation can be predicted advance.
- Urgent protective actions and other response actions can be started couple of days before radiation is released from the containment to the atmosphere.

NO noticed emergencies

No-noticed emergencies

- No-noticed emergencies are emergencies that do not give a chance to plan for emergency actions.
- Decision makers must be prepared to act on limited information, and emergency responders must be trained so that they can effectively respond rapidly and with imperfect information.
- There is insufficient time during a no-notice incident to determine the capacity, safety, and potential chokepoints of all roadways.
- Rapid assessment and response to the incident is critical to successful evacuation operations.
- The most prominent examples are terrorist attacks, nuclear explosions, releases of hazardous substances and earthquakes.

Limitations for evacuation in case of no-noticed emergencies

- Limited time to get ready
- Limited information
- Limited time to take/complete protective actions
- Traffic management tactics
- Shelter in place implementation
- Contamination
- Limited Resources
- Complex behavior of people

CBRN incidents

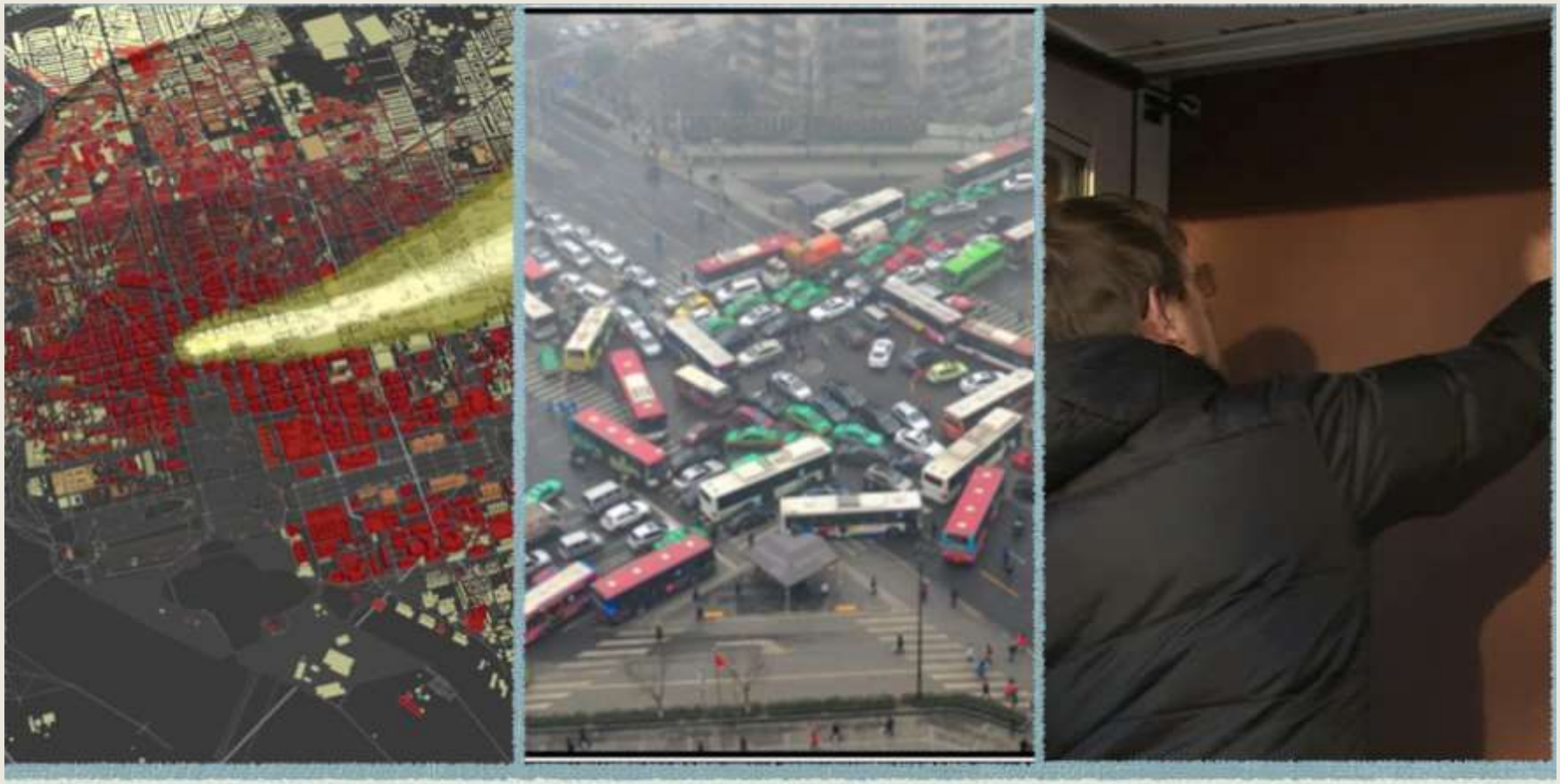
NEEDS FOR PROFESSIONAL TEAMS & EXPERTISE

DISPERSION OF AGENTS/RADIOACTIVE SUBSTANCES

DECONTAMINATION NEEDS

CBRN incidents

- Where CBRN events that occur as a result of a terrorist attack or a sudden accident occur, the type of substance used and the area contaminated can only be identified after the incident occurs.
- Evacuation personnel do not have sufficient time to prepare actions for a specific incident with limited information.
- Therefore, emergency professionals need to clearly understand the possible difficulties and evacuation practices of a no-notice emergencies.
- Immediate action and response in a CBRN incident means more number of saved lives.
- CBRN event is a continuous threat as long as the CBRN substance continues to spread and contaminated areas are not decontaminated.
- The uncertainty in dimensions of evacuation zones, the spread of contamination, the lack of knowledge about the origin of the contamination, existence, the purpose and capabilities of attackers, make management of life-saving response actions even more difficult than in other emergencies.
- CONSEQUENCES OF A SUCH INCIDENT CAN BE SHORT AND LONG TERM.



Factors affecting evacuation

For a less efficient evacuation:

- Traffic accidents
- Increasing in number of deaths from the hazard
- Number of injuries caused by the evacuation
- People spontaneously evacuating before being told to do so
- People refusing to evacuate
- Looting or vandalism.

For a more efficient evacuation

- A high level of cooperation among agencies
- Use of multiple forms of emergency communications
- Community familiarity with alerting methods
- Community cooperation
- Well-trained emergency responders.

What should we do to enhance CBRN incident response?

- Incident and substance specific plans are prepared. But they need to be studied again with approaches including public behaviour incase of a no-notice emergency.
- Well trained Professional CBRN Response Teams are crucial and they need to be READY any time!
- Transportation professionals, emergency managers, first responders, and local governmental decision makers must address challenges in advance of needing to implement an evacuation.
- All those professionals should be well trained on CBRN incident management.
- *Advance planning is needed* as soon as event- or incident-specific information is gained.
- For example, a jurisdiction learns that there is the potential for a wildfire to break a fire line and move toward populated areas. Based on the incident, the geography and demographics of the area that might be affected, and other relevant factors such as the weather and location of roadways, a jurisdiction will do advance planning to determine the best course of action (shelter in place, evacuate, etc.). Much of the time, preplanning information will be used during the advance planning process.

What should we do to enhance CBRN incident response?

- Cultural behaviours should be analyzed and evacuation plans should be designed to include cultural behavior patterns.
- The places possibly have a high potential for a terrorist attack should be identified and specific response plans should be developed in case of CBRN incidents.
- People with disabilities and need special care and also special care facilities are particularly important for evacuation planning.

PLAN FOR EVERY DISASTER & FOR EVERYONE

- MASS EVACUATION IS MORE THAN RELOCATING PEOPLE FROM DANGEROUS PLACES TO SAFE PLACES.
- IT IS NOT JUST A TRANSPORTATION PROBLEM.
- IT IS NOT JUST A RESOURCE MANAGEMENT PROBLEM.

BEYOND THESE.....

- ITS DIMENSIONS (PEOPLE- COMMUNITY- RESOURCE....) SHOULD BE STUDIED.
- ITS POSSIBLE EFFECTS SHOULD BE INVESTIGATED BEFORE ANY INCIDENT OCCURS.
- RISK PERSPECTIVE SHOULD FOCUS ON
  - *PHYSICAL PROBLEMS AND MENTAL DISORDERS*
  - *SHORT TERM AND LONG TERM CONSEQUENCES*

Thank you...

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Mass evacuations around the world…. (21st century)

- April 2001 – 77,000 inhabitants (around 2/3 of the population) of Vicenza, Italy) were evacuated for several hours so that an unexploded bomb, originally dropped in World War II, could be safely disarme
- September 11, 2001 – The evacuation of New York included the largest sea evacuation in recorded history, with over 500,000 being evacuated in 9 hours by hundreds of boats
- January 2002 – 300,000 residents of the city of Goma, Democratic Republic of the Congo were evacuated in three days due to the eruption of the Mount Nyiragongo
- Nearly 13 million Syrians are displaced after seven years of conflict in their country – a total that amounts to about six-in-ten of Syria's pre-conflict population,

Mass evacuations around the world.... (21st century)

- August 2002 – The 2002 European floods led to the evacuation of 50,000 residents of Prague, Czech Republic, on 13 August, with a total of 200,000 Czechs during the second week of August.[13] Elsewhere in Europe, more than 120,000 people were evacuated in the German city of Dresden, 36,000 in the German state of Saxony-Anhalt, and 1,500 in Hungary.[14]
- • September 2004 – Evacuation orders were issued for over 2.8 million residents in advance of Hurricane Frances, potentially the largest in Florida's history.[15] FEMA later granted assistance to 229,500 applicants largely associated with relocation expenses.[16]
- • July 2005 – 20,000 people were evacuated from the city of Birmingham in the United Kingdom after a security alert due to a bomb scare.[17]
- • August 2005 – Hurricane Katrina led to a mass evacuation of the city of New Orleans, Louisiana, with approximately 80% of the city's population of 484,000 evacuating before the storm struck.

Mass evacuations around the world.... (21st century)

1. April 2001 – 77,000 inhabitants (around 2/3 of the population) of Vicenza, Italy) were evacuated for several hours so that an unexploded bomb, originally dropped in World War II, could be safely disarmed.[11]
2. • September 11, 2001 – Evacuations from high-rise buildings across the United States. This included 3200+ survivors of the World Trade Center disaster and inhabitants of downtown Manhattan, New York City. Numerous other evacuations of high-rises in Chicago, Illinois included the Sears Tower and the Thompson Building. The evacuation of New York included the largest sea evacuation in recorded history, with over 500,000 being evacuated in 9 hours by hundreds of boats.[2]
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