Too Much of a Good Thing:  
Water Shocks, Food Insecurity and Malnutrition

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Key messages:

- Water remains an ‘orphan’ resource institutionally.

- Assessing water ‘needs’ in emergencies requires good intersection across sectors…which doesn’t happen.

- Who should be responsible for responses to defined water needs remains unanswered.

- This represents opportunity for WSSS students to stake out new cross-disciplinary work in emergencies.
Some areas to become wetter, others drier. Net increase projected

Source: IPCC (2007)
% population killed by flooding 1975-2000

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<table>
<thead>
<tr>
<th>Disaster</th>
<th>Month</th>
<th>Country</th>
<th>No. of people Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Storm</td>
<td>April</td>
<td>China P Rep</td>
<td>1.000.000</td>
</tr>
<tr>
<td>Flood</td>
<td>June</td>
<td>Colombia</td>
<td>652.430</td>
</tr>
<tr>
<td>Flood</td>
<td>February</td>
<td>Bolivia</td>
<td>446.500</td>
</tr>
<tr>
<td>Flood</td>
<td>February</td>
<td>Indonesia</td>
<td>400.001</td>
</tr>
<tr>
<td>Flood</td>
<td>February</td>
<td>Mozambique</td>
<td>285.000</td>
</tr>
<tr>
<td>Cyclone (Indhala)</td>
<td>March</td>
<td>Madagascar</td>
<td>215.182</td>
</tr>
<tr>
<td>Flood</td>
<td>June</td>
<td>India</td>
<td>200.000</td>
</tr>
<tr>
<td>Cyclone (Favio)</td>
<td>February</td>
<td>Mozambique</td>
<td>162.770</td>
</tr>
<tr>
<td>Flood</td>
<td>May</td>
<td>Uruguay</td>
<td>119.200</td>
</tr>
<tr>
<td>Cold Wave</td>
<td>January</td>
<td>Bangladesh</td>
<td>100.000</td>
</tr>
</tbody>
</table>

Source: CRED Sept 2007
1971 Storm surge (cyclone) peaking at 12.4’ [>400,000 dead]

Highest recorded surge:
Australia 1899: 16m (not feet!)
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy precipitation events. Frequency increases over most areas</td>
<td>Very likely</td>
<td>Damage to crops; soil erosion, inability to cultivate land due to waterlogging of soils</td>
<td>Adverse effects on quality of surface and groundwater; contamination of water supply; water scarcity may be relieved</td>
<td>Increased risk of deaths, injuries and infectious, respiratory and skin diseases</td>
<td>Disruption of settlements, commerce, transport and societies due to flooding; pressures on urban and rural infrastructures; loss of property</td>
</tr>
<tr>
<td>Intense tropical cyclone activity increases</td>
<td>Likely</td>
<td>Damage to crops; windthrow (uprooting) of trees; damage to coral reefs</td>
<td>Power outages causing disruption of public water supply</td>
<td>Increased risk of deaths, injuries, water- and food-borne diseases; post-traumatic stress disorders</td>
<td>Disruption by flood and high winds; withdrawal of risk coverage in vulnerable areas by private insurers, potential for population migrations, loss of property</td>
</tr>
<tr>
<td>Increased incidence of extreme high sea level (excludes tsunamis)</td>
<td>Likely(^d)</td>
<td>Salinisation of irrigation water, estuaries and freshwater systems</td>
<td>Decreased freshwater availability due to saltwater intrusion</td>
<td>Increased risk of deaths and injuries by drowning in floods; migration-related health effects</td>
<td>Costs of coastal protection versus costs of land-use relocation; potential for movement of populations and infrastructure; also see tropical cyclones above</td>
</tr>
</tbody>
</table>
Bangladesh projected to lose 17% of its land area with sea level rise of 1 meter
“120 Days After Tsunami” (April 2005)
Health Technical Office,
Ministry of Public Health, Thailand
Where do you start...?

**Consumption:**
- Clean water
- Appropriate sanitation
- Equity of supply
- Polluted water (epidemic, malaria)
- Wells swamped

**Production:**
- Irrigation
- Livestock

**Ecosystem integrity:**
- Lost trees/soil fixation
- Shifts in submarine topography
- Polluted rivers and soils
HSL-47 SH-60B (HAWK 700) ARRIVED IN KUEDE TEUNOM AND DROPPED OFF 700LBS OF NOODLES AND 150LBS OF WATER.

APPROX. 100-200 IDPS IN THE AREA. HAWK 700 TOOK THE REMAINDER OF SUPPLIES AND MADE DROPS EVERY 5 MILES.

AIRCREW REPORTED THAT GROUPS BETWEEN 20-50 IDPS APPEARED TO BE IN MODERATE HEALTH. ALL THE IDPS APPEARED TO BE MALE.
HSL-47 SH-60B (HAWK 703) TRANSPORTED SUPPLIES TO 0402.38N 09616.21E.

AIRFIELD IN POOR CONDITION, SUITABLE FOR HELOS, BUT UNSUITABLE FOR FIXED WING AIRCRAFT DUE TO LARGE CRACKS IN RUNWAY (APPROX. 2-3 FEET WIDE AND SIX INCHES DEEP), ROAMING WATER BUFFALO, AND LARGE PILES OF DIRT ON THE TARMAC.

50 INDONESIAN MILITARY HAD AIRFIELD SECURED BUT REBELS WITH ROCKETS 1KM INLAND. DID NOT RECOMMEND AIRCRAFT STAY LONG. WARNING SHOTS EFFECTIVE IN KEEPING CROWD AT SAFE DISTANCE.
Emergency and Reconstruction ‘Needs Assessments’

**WHO:**
- US military supported; USS Lincoln carrier group
- Helicopter based; ‘personalized’; confused mandate -- health and nutrition? Food security? Agriculture? Security?
- Major displacement effects, huge costs
- Water issues focused on sanitation and hygiene

**WFP:**
- Joint with NGOs and local government
- Stretched by concerns with logistics, security, and camp management
- Focus on livelihoods, food needs, diet diversity/adequacy, market impacts, infrastructure needs
Emergency and Reconstruction ‘Needs Assessments’

- **CDC/UNICEF:**
  - No logistics, no security, no idea...
  - "convenience sample" of nearby camps (with WFP)
  - Focus on nutrition and morbidity
  - Much focus on water (but only delivery)

- **FAO:**
  - Helicopter (fly-by) survey
  - No ground presence for weeks
  - Focus on costing agricultural losses
  - Nothing on nutrition
  - ‘Scare’ on salinization
Water

21. Drinking water available to IDPs vary by location but is generally adequate. However much water collected from wells and is contaminated. Very little is disinfected although most people boil their drinking water, which may help explain lack of diarrheal disease outbreaks. Emphasis must be placed on disinfecting drinking water supplies as well as the safe storage of drinking water in the home. This must be tied to a health promotion program as many people are not used to drinking chlorinated water. Finally as most families lack adequate water storage containers these should be distributed as soon as possible.
CONSTRAINTS to ENAs:

- **Logistics**
  - Lack dedicated helicopter assets (USS Lincoln’s ‘displacement’ effect)
  - Road constraints
  - Working conditions

- **Human Capacity**
  - Overload of national MOH staff
  - Lack institutional capacity and skill

- **Insecurity**
  - In line of fire
  - ‘No go’ zones (ENA representativity?)
  - Neutrality (3 competing political groups)
  - Role of Indonesian army in relief
  - Role of US army (even ‘unarmed’) in disasters
Food items NOT consumed by households pre and post Tsunami

- Pulses
- Vegetables
- Fish
- Meat
- Fruits
- Eggs

Percent

Before vs After

Sri Lanka
Humanitarian: Who’s responsible for H₂O?
Humanitarian: Who’s responsible for H₂O?
Humanitarian: Who’s responsible for $\text{H}_2\text{O}$?
Indonesia:

- No major outbreaks of disease
- Who takes the ‘lead’ on surveillance/control?
- Rising morbidity in poorly-serviced camps (lacking clean water, sanitation)

Camp-based *children*:
- 43% diarrhoea,
- 70% cough
- 56% fever
- 35% vomit

Adult *women*:
- 17% diarrhoea
- 45% cough
- 26% fever
- 27%, vomit
**Provision of Safe Water**

![Chart showing the provision of safe water for IDP HH, Host HH, and Non IDP HH in Aceh, Indonesia. The chart indicates the percentage of coverage for different water sources: Mineral or Tap, Truck, Protected well, and Unprotected.](chart)

GOI/UNICEF/WHO/WFP baseline 2005
Agriculture
Water Sanitation and Hygiene (WASH) Cluster

- Under OCHA umbrella, with UNICEF coordination
- Coordinator ToR and Competencies awaiting final approval
- Discussion continues around process of identifying and vetting of potential WASH coordinators/members
- Initial Rapid Assessment (IRA) Tool being developed (with Health, Food and Nutrition clusters)

- Mapping out overlaps between WASH and other clusters at operational field level. Overlaps with Camp Coordination and Camp Management (CCCM) and clusters on Shelter, Education, and Nutrition identified.
WASH FUNDING STATUS (as of October 2007)

Required: $7.8 million
In-Hand: $3.2 million
Appeal: $4.7 million

<table>
<thead>
<tr>
<th>2007 Appeal</th>
<th>Indicated</th>
<th>Received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canada</td>
<td>$200,000</td>
<td>$0</td>
</tr>
<tr>
<td>Ireland</td>
<td>$405,405</td>
<td>$0</td>
</tr>
<tr>
<td>Norway</td>
<td>$197,000</td>
<td>$0</td>
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<tr>
<td>Sweden</td>
<td>$528,316</td>
<td>$0</td>
</tr>
<tr>
<td>USAID</td>
<td>$1,297,000</td>
<td>$0</td>
</tr>
</tbody>
</table>
Key messages:

- Water still an ‘orphan’ resource institutionally

- Assessing water ‘needs’ in emergencies requires good intersection across sectors…which doesn’t happen

- Who should be responsible for what responses to assessed water needs over what period unclear

- This represents opportunity for WSSS students to stake out new cross-disciplinary work in emergencies