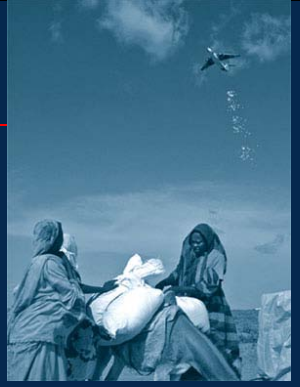
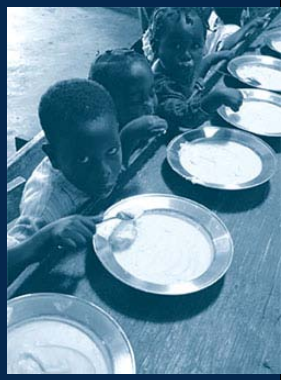
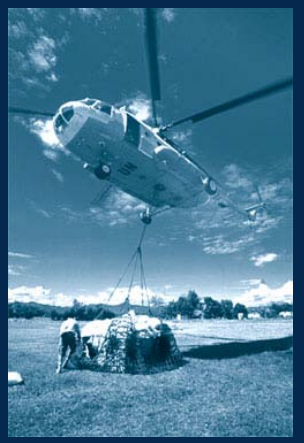
WFP

wfp.org









WFP Logistics

Bernard Chomilier

Head Logistics Development Unit

February 2010

Contents

- WFP Logistics
- WFP Logistics 2009 at a glance
- WFP Logistics Strategic Direction
- WFP Logistics in 2010-2011

WFP Logistics

Core purpose:

Save lives and protect livelihoods by providing the leadership and logistics capacity required. WFP delivers the right product, in the right quantities, at the right place, at the right time, at the right cost, and in the right condition. (6Rs)

WFP Logistics Core Services

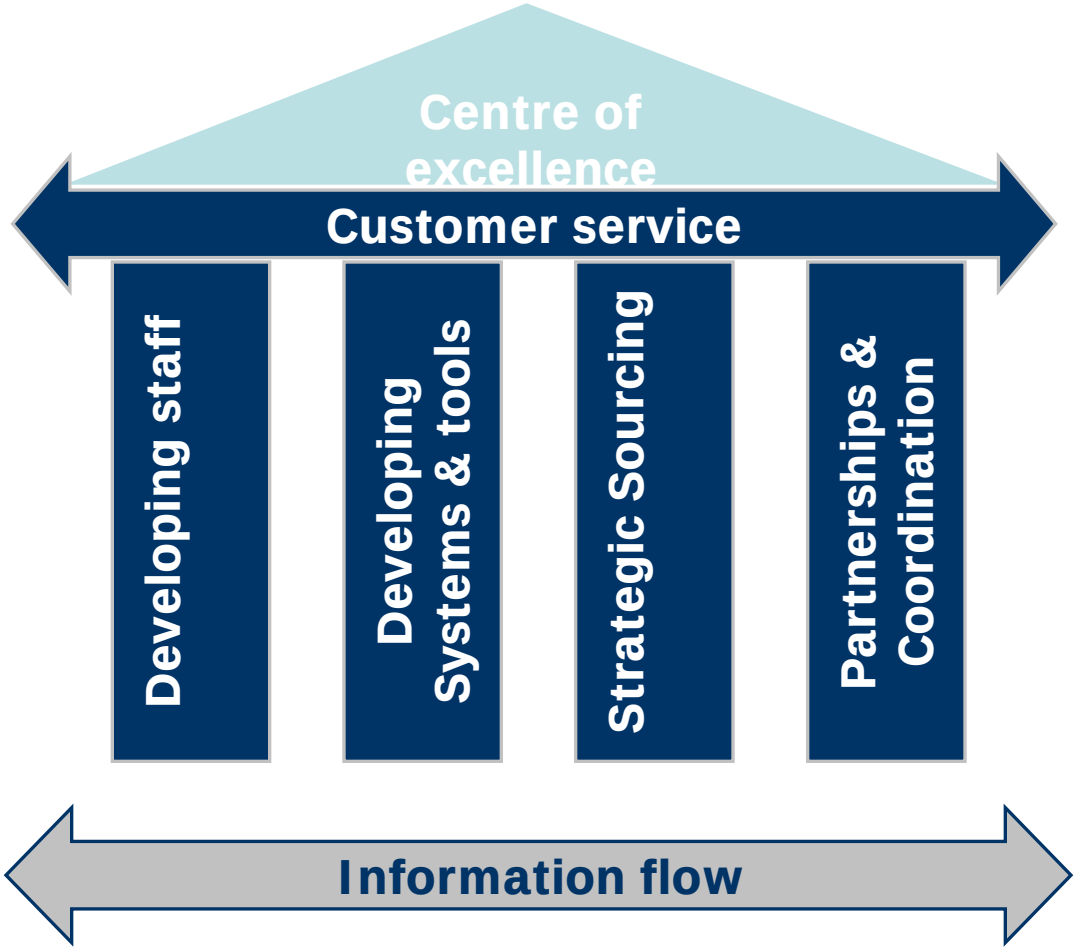
- Surface Transport
- Air Transport
- Ocean Transport
- UNHRD
- Logistics Cluster

WFP Logistics 2009 at a glance

- **Land Transport**: 4.97 million MT* handled
- **Ocean Transport**: 2.4 million MT transported
- **Air Transport**: 269,703 passengers and 8,947 MT cargo transported
- **UNHRD** global average monthly stock value stands at US$46.6 million.
- 35 active **Special Operations** with a total requirement of US$851.5 million and a total contributions of US$642.7 million. Shortfall US$208.8 million (24.5%).
- **Logistics Cluster:** activated in Indonesia, Pakistan, Philippines, Somalia, Chad, CAR, DRC, Gaza/OPT, Sri Lanka, Haiti and Laos.
- 15 Stand-by Partners Organizations, 68 Stand-by Personnel deployed in Jan-Jun 2009.

* Land transport figures from Jan-Sep 2009 (Source: COMPAS)

From Preparedness to Response



Developing Staff

Competence framework WFP

Technical Trainings
- Surface contracting
- Port operations
- Warehousing mgt
- Aviation support
- Supply chain management
- Transport manual (quiz)
- LTSH fund management
- COMPAS
- Procurement
- Milling

Emergency Trainings
- Technical Field Operations Training (TFOT – WFP Personnel)
- Logistics Response Team Training (LRT – inter-agency)
- Pandemic training (P2LX, inter-agency)

Soft skill Trainings
- Service Mindset Training (SMT – elearning tool)
- Management Training

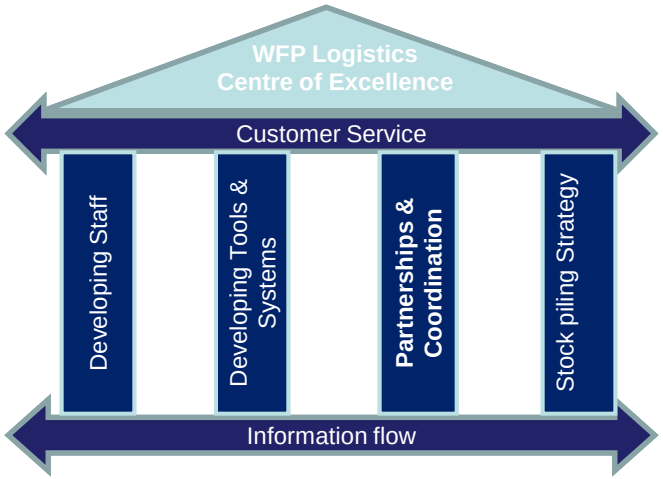
External Trainings
- CHL
- CHSCM
- Warwick University
- TNT – Go Academy
- Medical Logistics (MedLog)
- Specialized training (flight dispatcher, GAFTA, etc)

WFP's E-learning Management System (LMS)

Competence framework Humanitarian Community

Available | Under development | To be decided

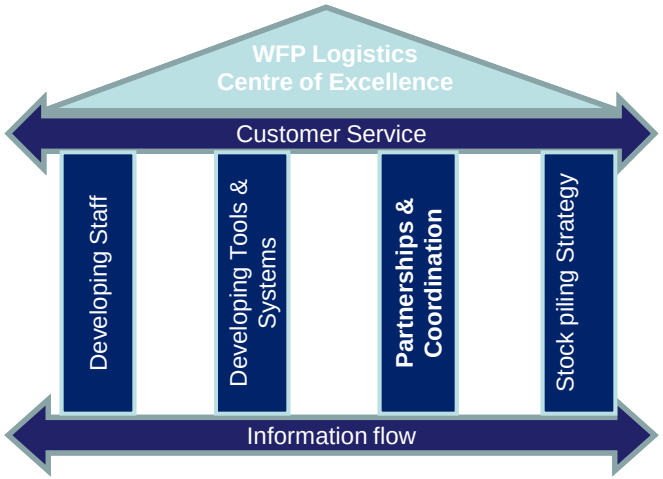
Systems and tools



- Logistics Portal
- KPIs / Dashboard
- Logistics Operational guide
- Self Monitoring tool
- Commodity tracking tool
- Flight Management Application
- Fleet Management Software

Performance Improvement

Partnerships & Coordination



- Logistics Cluster
- Standby partners
- Private Sector support
- Bilateral agreements
- Civil Military Cooperation
- Dept of Peacekeeping
- Academic Institutions

Strengthening collaborative efforts & augmenting capacity

WFP Logistics: Inter-agency service

- **United Nations Humanitarian Air Service (UNHAS)**
  - Over 200 locations in 16 countries with 58 aircraft
- **United Nations Humanitarian Depot (UNHRD)**
  - Five network hubs in Accra, Dubai, Brindisi, Panama and Subang
- **Logistics Cluster**
  - Coordination during emergency and enhancement of emergency preparedness
- **Service Provision**
  - Providing logistics services to 59 humanitarian organizations in 39 countries worldwide.

WFP – Leader of the Logistics Cluster

Providing the platform for an integrated and more predictable response through cooperation and collaboration

- Fill logistics gaps and alleviate bottlenecks
- Prioritize logistics interventions & investments
- Collect/share information & assets
- Trigger & facilitate common logistics services
- Advocacy and resource mobilization for logistics initiatives

- http://www.logcluster.org/

UNHRD Network and Partnering Organizations

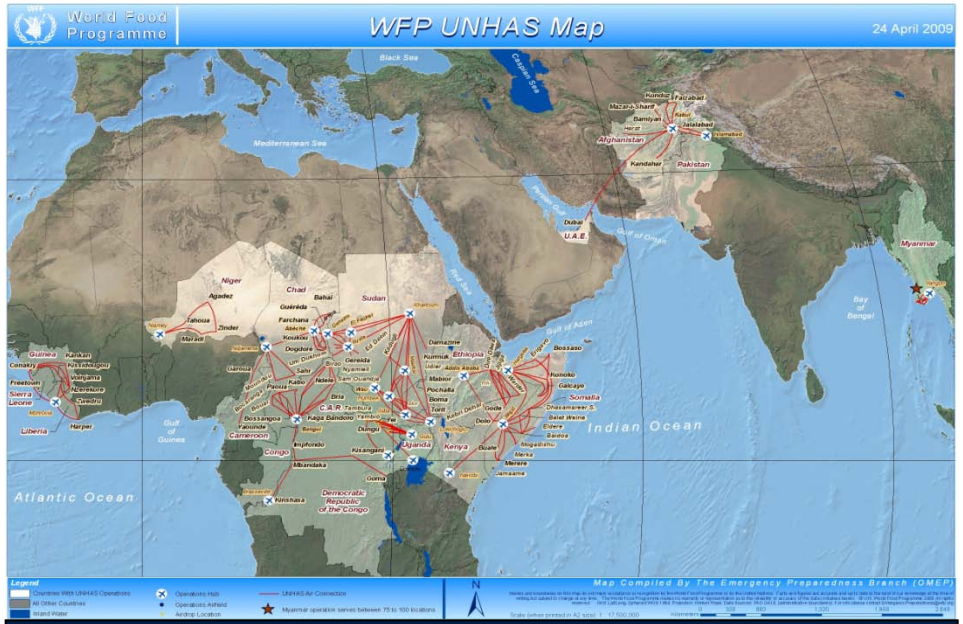
UNHRD - A more rapid, efficient and cost effective response

- Strategic locations
- Inter-agency cooperation: prioritization of the 1st wave deployment
- Savings: free storage
- Exchange & Loans: multiple stocks of partners
- Immediate purchase: stocks of suppliers
- Virtual Stocks: through long-term agreements
- All requests centralized through a support office - “One-stop-shop”

Over 30 partnering humanitarian organizations

UNHAS Network Map

- Air support to WFP Operations
    - Airlifts and airdrops for food
- Strategic airlift operations
- Security evacuations
- United Nations Humanitarian Air Service - UNHAS



More than 200 locations in 16 countries

Service Provision

- Growing humanitarian needs present increased demand for humanitarian logistics capacity.
- WFP Logistics began developing its logistics services for the benefit of WFP programmes and the humanitarian community (UN, NGOs, government agencies). We aim to provide services that are transparent, efficient, reliable and predictable.
- Not a new concept; WFP has supported other humanitarian actors in delivery of humanitarian aid with established logistics capacities and infrastructure.
- **Zimbabwe:** logistics services in response to cholera; SLAs with three UN agencies (UNICEF, FAO and WHO) and three NGOs (GTZ, Care Int. and SSA) with contract value in excesses of US$1 million in handling and transporting NFIs.

Issues / Questions

Education, Community Preparedness, and Capacity Building

Dale Herzog

United Parcel Service (UPS), CARE-USA

Living on the Edge

Why collaboration matters?

Dale Herzog

Customer Solutions Manager

UPS

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UPS Humanitarian Outreach

Domestically

- UPS has been and will always be actively engaged in relief efforts
- UPS foundation – $100 million in philanthropy
- UPS employees – $52 million to United Way
- UPS Employees log over 1 million hours in volunteer service

Internationally

- 2007 CARE requests logistical help
- 2009 UPS Foundation launches a 2 year $9 million dollar initiative
  - Enhance preparedness, strengthen collaboration and build capacity building for disaster relief and recovery
    - *CARE*
    - UNICEF
    - American Red Cross
    - World Food

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UPS Corporate Vision

- Leverage UPS Intellectual Capital
  - Logistics – 3PL – Brokerage
- Engage all 5 functions within UPS as contributors
- *Become the driving force in motivating other corporations / foundations to join us as we strive to improve humanity*
  - Asked as a partner / donor to come in and LOOK
  - Observed that efficiency drives inefficiency
    - NGO's chase a range of 88% to 92%
    - Limits capacity building, training, propositioning
      - Unrestricted funding needed

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Why CARE Approached UPS?

- Atlanta based Organization
- Logistics – Core business
- Global Operations (over 200 countries)
- Significant warehousing and transport capability
- Established relationship in supporting CARE's emergency operations for several years

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Assessment Process

- 3 CARE Country office visits
  - Honduras, Sudan, Indonesia
- Field perspective received - 4 Country Directors
  - Peru, Ghana, Somalia, Sri-Lanka
- Interaction with 34 Emergency Team Leaders
  - Bangkok workshop
- CARE International Global Conference on Poverty
  - Johannesburg, South Africa

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Response Plan

- Identified 25 various sized projects to be implemented in phases
- Phase 1 – (Structure)
  - 13 projects
  - Immediate start / implementation
- Phase 2 – (Planning)
  - 4 projects, medium term (19 to 24 months)
- Phase 3 – (Accountability)
  - 8 projects, long term (25 to 36 months)

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Phase 1 Projects

- Commodity Tracking System
- Supply Chain Unit
- Inventory and Warehouse Management Processes
- Prepositioning of Relief Supplies
- Access to partner logistics capabilities through Consortium partnerships

Tracking – Structure – Processes – Supplies - Movement

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Phase 2 Projects

- Demand forecasting
- Supply planning
- Transport planning
- Leverage a deeper relationship with Aidmatrix
  - Gifts In Kind (GIK) policy linked to web portal

Forecasting – Planning – Relationships

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Phase 3 Projects

- Logistics performance review
- Vendor performance review
- Establish feedback mechanism
- Implement training programs
- 4 additional related projects

Review – Accountability – Training - Preparation

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Major Benefits for CARE

- Monitoring & Oversight of supply chain functions
- Standardized processes & procedures
- Commodity visibility & accountability
- Improved timeliness & quality
- Economies of scale

Major Benefits for UPS

- Introduces / Identifies UPS Brand to / within the humanitarian-relief world
- Opens up potential marketing opportunities
- Opens up opportunities for UPS international employees to support humanitarian causes
- Assures UPSers we are actively affecting change on a global basis

Education, Community Preparedness, and Capacity Building

Gulam Juma

Focus Humanitarian Assistance

FOCUS HUMANITARIAN ASSISTANCE

AN AFFILIATE OF THE AGA KHAN DEVELOPMENT NETWORK

Fostering Disaster Resilient Communities

www.akdn.org/focus

Focus Humanitarian Assistance (FOCUS)

- International disaster planning, risk management and crisis response agency
- Provides emergency relief to all communities in its areas of operation
- Founded in 1994, in Canada by the Ismaili Community
- Units in Afghanistan, Europe, India, Pakistan, North America & Tajikistan
- An affiliate of the Aga Khan Development Network (AKDN)

Overview: Vision and Mission

VISION

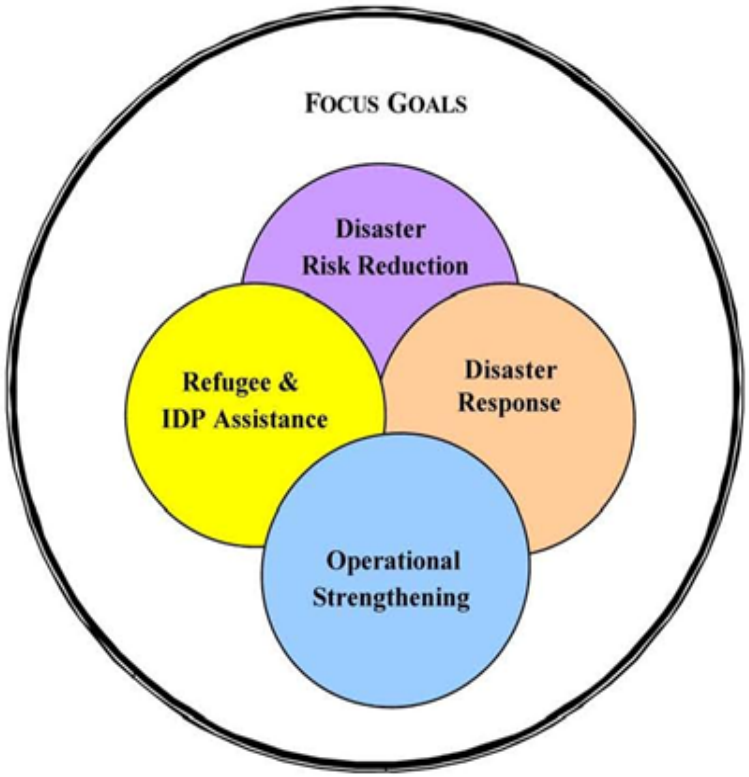
- An organization that enables disaster-resilient communities and responds to disasters rapidly and effectively

MISSION

- To protect lives and property of target communities from natural and man-made hazards by developing organizational and community capacity, expertise and programs

FOCUS HUMANITARIAN ASSISTANCE

FOCUS: What We Do…



Responds to humanitarian crises, mobilizes volunteers and distributes vital relief

Enables transitions from emergency to long-term solutions; strengthens people's capacity to respond

Anticipates disasters, helps communities identify and mitigate risks and prepare for natural hazards

Helps displaced people settle in new homes, and provides vocational training for a better future

FOCUS: Where We Have Worked…
1994 - 2009

North America

USA
- Response to Hurricanes, 2005 & 2008
- CERT – Training

Canada
- 13,000 Afghan Refugees Settled
- 1,000 Kosovar Refugees Settled
- Certified Emergency Response Training (CERT)

FOCUS: Where We Have Worked…
1994 - 2009

Europe

Portugal
- Forest Fire Response, 2005
- Earthquake Safety Training

Russia
- Humanitarian Assistance of Economic Migrants from Central Asia

United Kingdom
- Search and Rescue Team Training (RAPID UK)

FOCUS: Where We Have Worked…
1994 - 2009

Central Asia

Afghanistan
- Refugee Repatriation 50,000
- Shelters 8,000 (BPRM)
- CERT – Training
- Vocational Training
- Disaster Risk Reduction

Tajikistan
- School Safety Initiative
- Disaster Risk Reduction
- Responses to Earthquakes, Landslides & Avalanches
- Community Training
- Early Warning Communication Systems (CODAN), 294

FOCUS: Where We Have Worked…
1994 - 2009

South Asia

India
- Earthquake Response, 2001 & 2005
- Tsunami Response & Rehabilitation
- Search & Rescue
- CERT – Training
- School Safety Initiative

Pakistan
- Disaster Risk Reduction
  Responses to Earthquake - 2005,
  Landslides & Avalanches
- Search & Rescue
- School Safety Initiative

FOCUS: Where We Have Worked…
1994 - 2009

Middle East

Jordan
- Camp for Mothers and Children (UNHCR), 2003

Syria
- Displaced Persons Lebanese/Israeli Crisis, 2006

Africa

Kenya
- Post-Election Crisis, 2008

Madagascar
- Response to Cyclone, 2004

FOCUS Response Efforts

South Asian Earthquake Response
Pakistan-administered Kashmir, 2005

South Asian Earthquake Response
India-administered Kashmir, 2005

Post Hurricanes Katrina and Ike
USA, 2005 & 2008

Food assistance after forest fires
Seia, Portugal, 2005

Humanitarian relief, following Tsunami
Andhra Pradesh, India, 2005

Providing supplies after severe floods
Mozambique, 2004

FOCUS HUMANITARIAN ASSISTANCE

FOCUS Response Efforts

Earthquake Response
Nahrin, Afghanistan, 2002

Earthquake Response
Gujarat, India, 2002

Tents for displaced families
Syria, 2006

Marriott bombing response
Islamabad, Pakistan, 2008

Providing supplies, post 2nd Gulf War
Jordan, 2003

Humanitarian relief, Cyclone Gafilo
Madagascar, 2004

FOCUS HUMANITARIAN ASSISTANCE

January 2010: Hunza Valley Landslide
Northern Pakistan

Landslide in motion
Attabad

Houses submerged by the lake
Ayeenabad

FOCUS HUMANITARIAN ASSISTANCE

January 2010: Vanj Earthquake
Tajikistan

- In total 1,035 houses in 20 villages in 2 Jamoats of Vanj district sustained damage
- 264 houses were severely damaged; 28 destroyed, 106 on the verge of collapse, and another 130 houses are partially damaged (50%)

FOCUS HUMANITARIAN ASSISTANCE

Education, Community Preparedness, and Capacity Building

Brian Koon

Walmart

March 4, 2010

Emergency Management

in the Private Sector

Bryan Koon
Director of Emergency Management

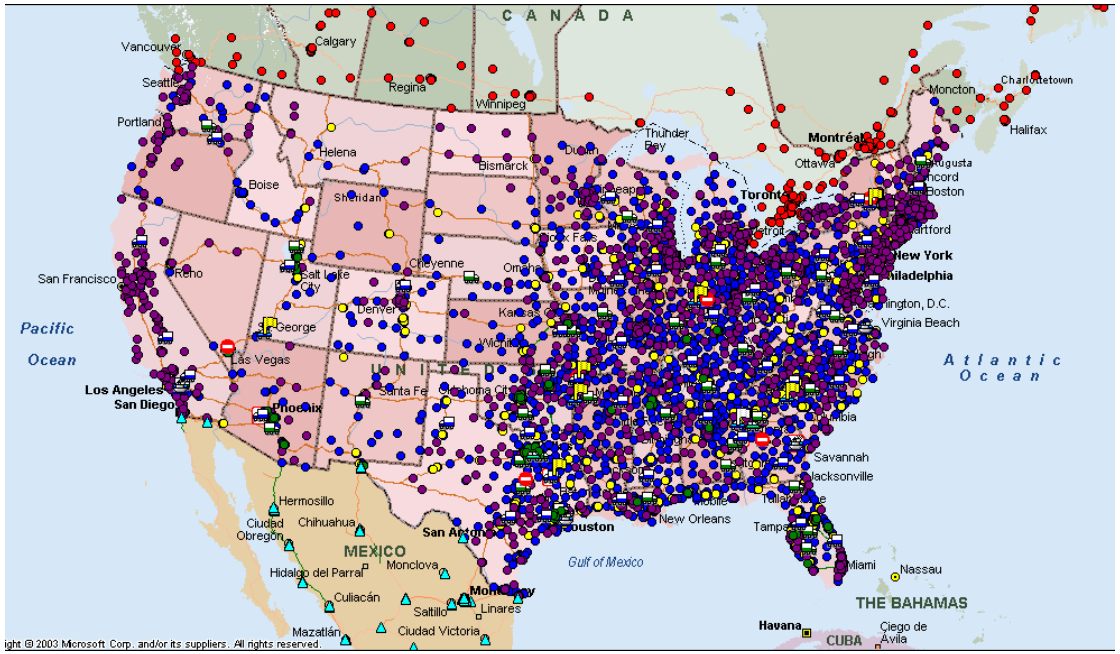
Why Walmart Has an Emergency Management Department

Three Priorities for Responding to Disasters

- Take care of our people
- Take care of our operations
- Take care of our communities

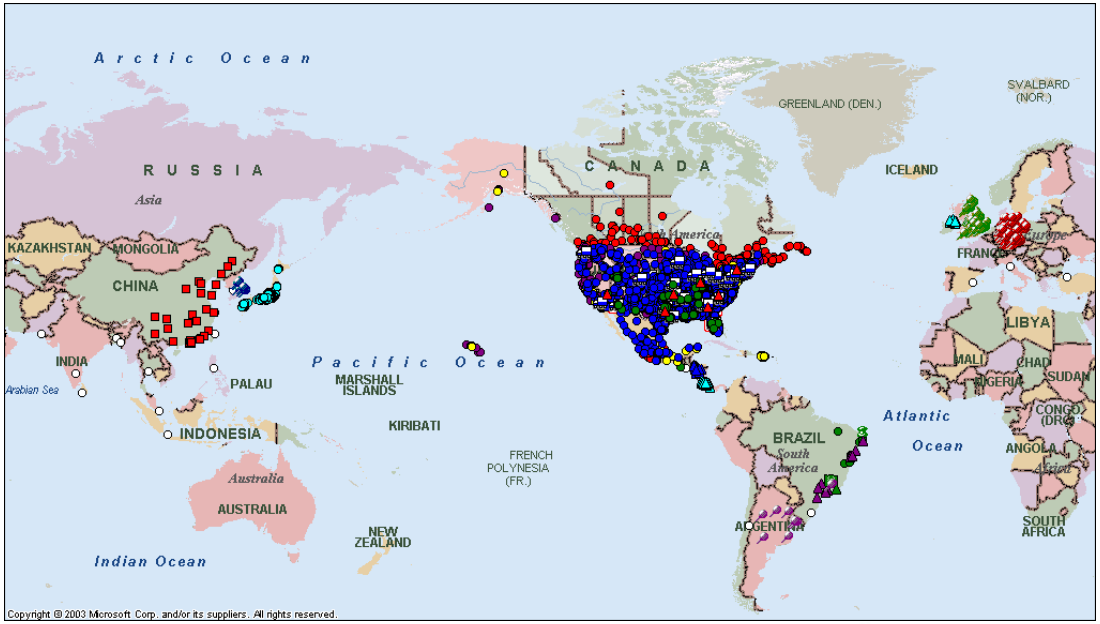
Where We Operate
United States

- 1.6+ Million associates in 50 States
- 4,300+ Retail Outlets
- 148 Distribution Centers
- 50+ Corporate Facilities



Where We Operate
Internationally

- 700,000 associates in 25 Countries
- 4,000+ Retail Outlets in 15 Countries
- 40+ Corporate Facilities



What We Deal With

How the Department is Organized

Preparedness and Planning Section:

- Emergency Procedures, Flip Charts
- Associate, Customer, and Member Preparedness
- Training and Exercises

Operations Section:

- Emergency Operations Center and Alarm Central

Recovery / Mitigation Section

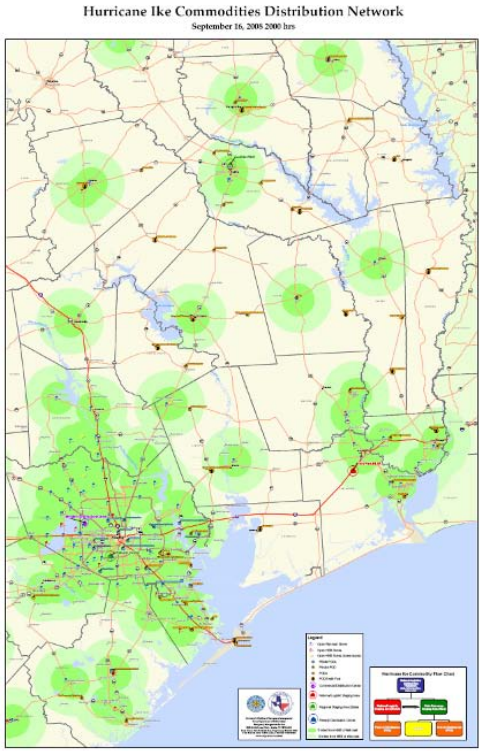
Our Partners

Federal and State Interaction

- Direct to DHS and FEMA through Private Sector Offices and Infrastructure Protection
- Direct to state emergency management agencies
- Through professional organizations like NEMA, IAEM, ACP
- Through business organizations like U.S. Chamber of Commerce, Business Civic Leadership Council (BCLC), Business Roundtable, and Business Executives for National Security (BENS)
- Local Relationships maintained by Field associates

How we work in State & Federal EOCs

- WM Associate Physically Present
- Through Representative Organization
- Through Phone & E-Mail



Our Partners
Charitable Organizations

What We're Doing
Preparedness / Awareness

- Initiated a major effort to educate associates in 2006
  - 1.6 million associates + family members = 1% of U.S.
- Continuous subtle messaging via:
  - Email
  - Posters
  - Internal Television and Radio Network
  - Intranet links / resources
  - Special events
- Targeted Merchandising
- Targeted / regional campaigns
  - Weather, geographical or other factors
- Recognition of efforts

- Business to Business through Sam's Club and in conjunction with DHS Private Sector Office

Ready

Homeland Security

Walmart EOC

479-277-1001

emergencyoperationscenter@wal-mart.com

Bryan Koon

479-204-8159

bryan.koon@wal-mart.com

Education, Community Preparedness, and Capacity Building

Captain Brian Sheppard

U.S. Africa Command







UNITED STATES AFRICA COMMAND

Building Capacity Through Logistics

Capt Brian Sheppard, SC, USN
Chief, Logistics Support Division
4 March 2010

PARTNERSHIP · SECURITY · STABILITY

Bottom Line Up Front -- Why U.S. Africa Command?

- **Provides dedicated focus on Africa**
  - **Performs military-to military activities that help build capacity of African partners and foster stability**
  - **Provides crisis response when directed**
- **Supports U.S. foreign policy goals and objectives**
- **Supports U.S. national interests in Africa**
  - **Fostering free and fair markets/trade, competitive access to resources**
  - **Fostering good governance**
  - **Countering illegal trafficking**
  - **Countering threat of terrorism**

Many and Increasing Opportunities

"Africa will continue to seek Africa's solutions to its problems…"
-- Brigadier General Jean De Martha Jaotody, African Union

- Growing political will to confront challenges
- Promising regional security & economic communities
- Increasing democratization
- Rapidly growing economies

The key is *Stability* that allows Africans to leverage their opportunities

U.S. Africa Command Mission Statement

United States Africa Command,

in concert with other U.S. Government agencies and international partners,

conducts *sustained* security engagement

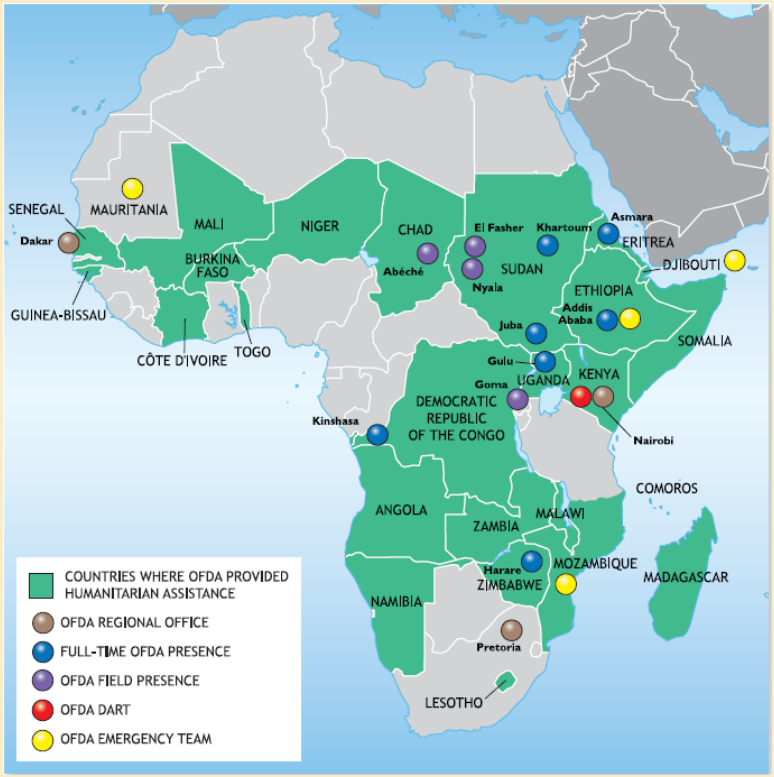
through military-to-military programs, military-sponsored activities, and other military operations as directed

to promote a stable and secure African environment

in support of U.S. foreign policy.

… not the only one's engaged

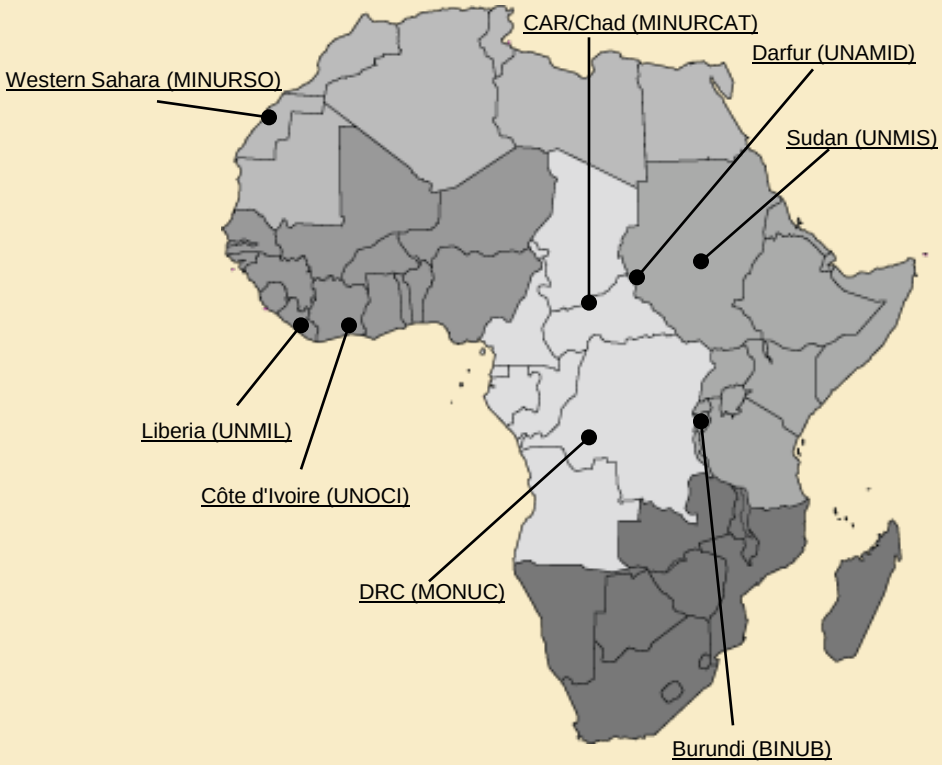
28 OFDA Responses in Africa (2008)



During FY 08 OFDA spent $292 Million in Africa, more than all other regions combined

Source: OFDA Annual Report for FY 2008

47% (8 of 17) United Nations Peacekeeping Operations are in Africa



Source: Peace and Security Section of the United Nations Department of Public Information

Traditional COCOM Support Model

US Agency

Civilian Contractors

Host Nation Operations

Coalition Operations

US Military

Solutions to regional problems

One example…
AFRICOM Support Model

Local African

Local African Company

Local Multi-National Company

Non-Governmental Organizations

Civilian Contractors

Local Military-US Military

Civilian Contractors/US Military

US Military

African Capabilities for Africans

Use US Military *only* when it is the best option

Logistics Engagements … many organizations

Combined Joint Task Force-Horn of Africa (CJTF-HoA)

African Deployment Assistance Partnership Team (ADAPT)

Providing Exercise Related Construction (ERC)

Building Maritime Security Capacity: Africa Partnership Station (APS)

Medical/ Veterinary Civil Action Programs (MEDCAP/VETCAP)

Education, Community Preparedness, and Capacity Building

Bernard Chomilier, World Food Programme

Dale Herzog, United Parcel Service (UPS), CARE-USA

Gulam Juma, Focus Humanitarian Assistance

Brian Koon, Walmart

Captain Brian Sheppard, U.S. Africa Command

Moderator: Leigh Fitzpatrick McCook

Georgia Tech Research Institute

Working Lunch & Group Discussions

Improving Public Health

Laurent Dedieu, Doctors Without Borders/Médecins Sans Frontières (MSF)

Yann LeTallec, Clinton Foundation

Edward Kaplan, Yale University

Mark Keim, Centers for Disease Control and Prevention

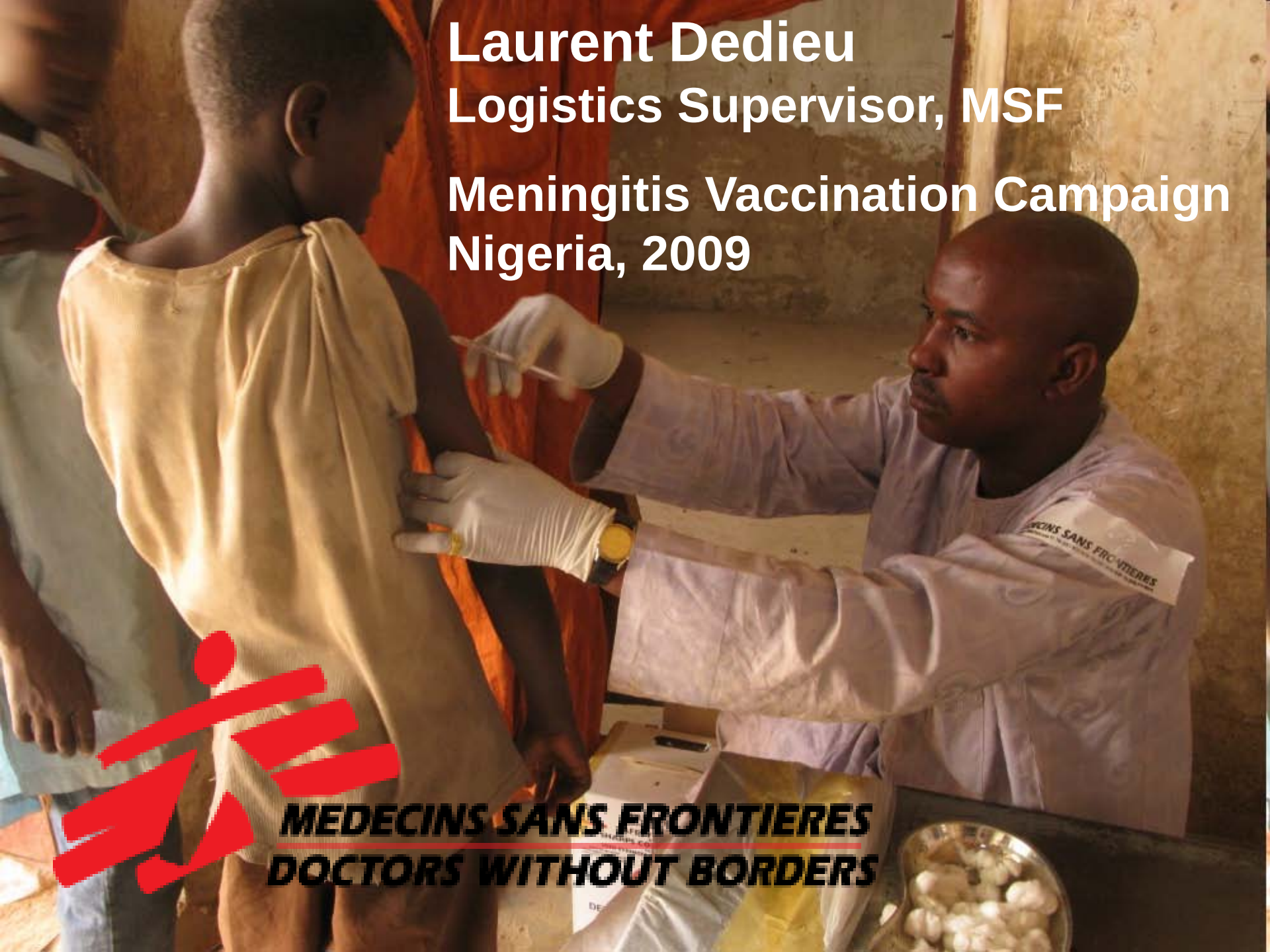
Nick Pacitti, Sterling Solutions

Moderator: Carladenise Edwards,
Georgia Department of Community Health

Improving Public Health

Laurent Dedieu

Doctors Without Borders/Médecins Sans Frontières (MSF)


Laurent Dedieu
Logistics Supervisor, MSF
Meningitis Vaccination Campaign
Nigeria, 2009
MEDECINS SANS FRONTIERES
DOCTORS WITHOUT BORDERS

AFRICA: Meningitis belt

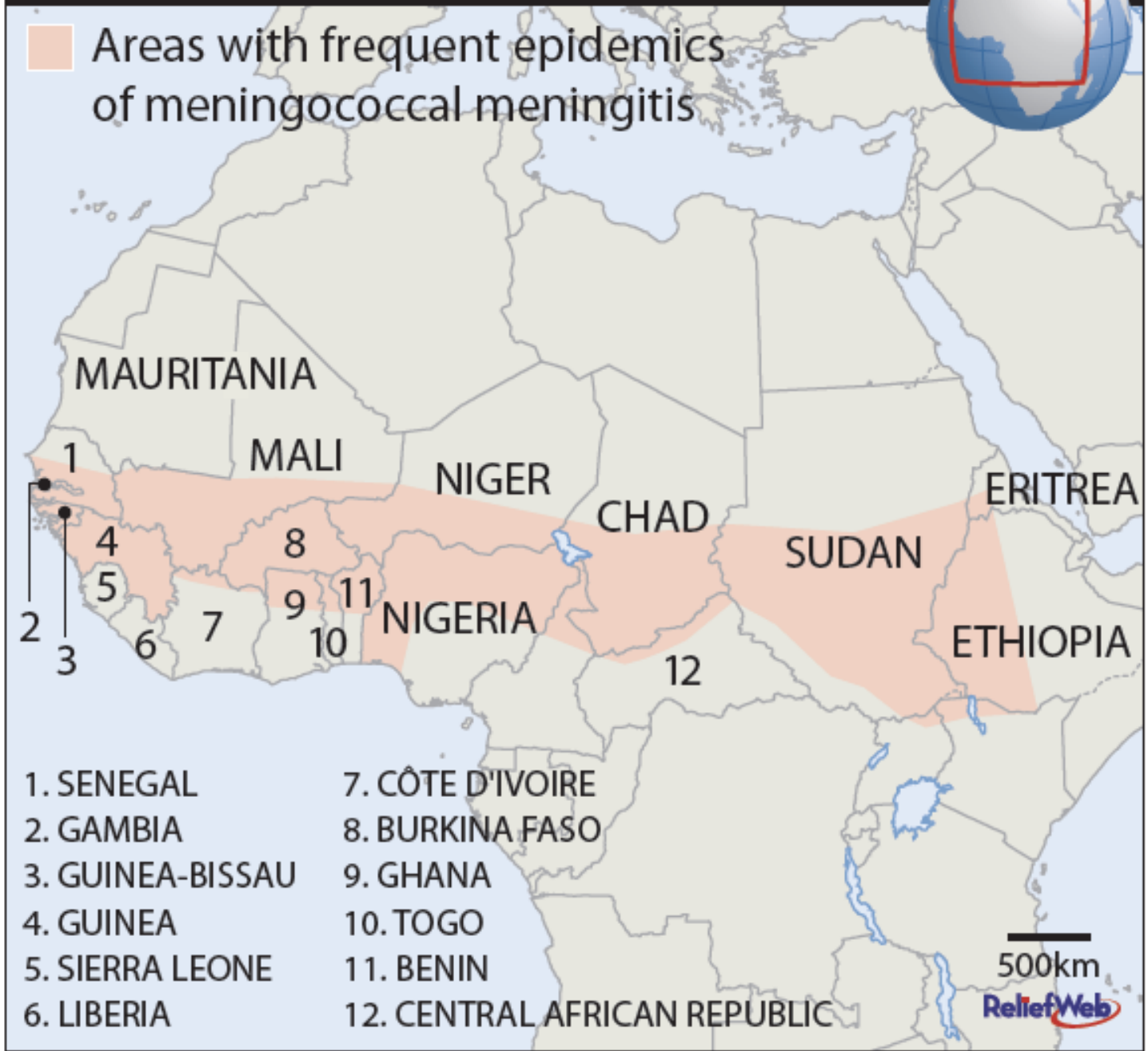


Table 2: Chronogram of MSF activities at state level, in the northern part of Nigeria during meningitis outbreak 2009, Nigeria

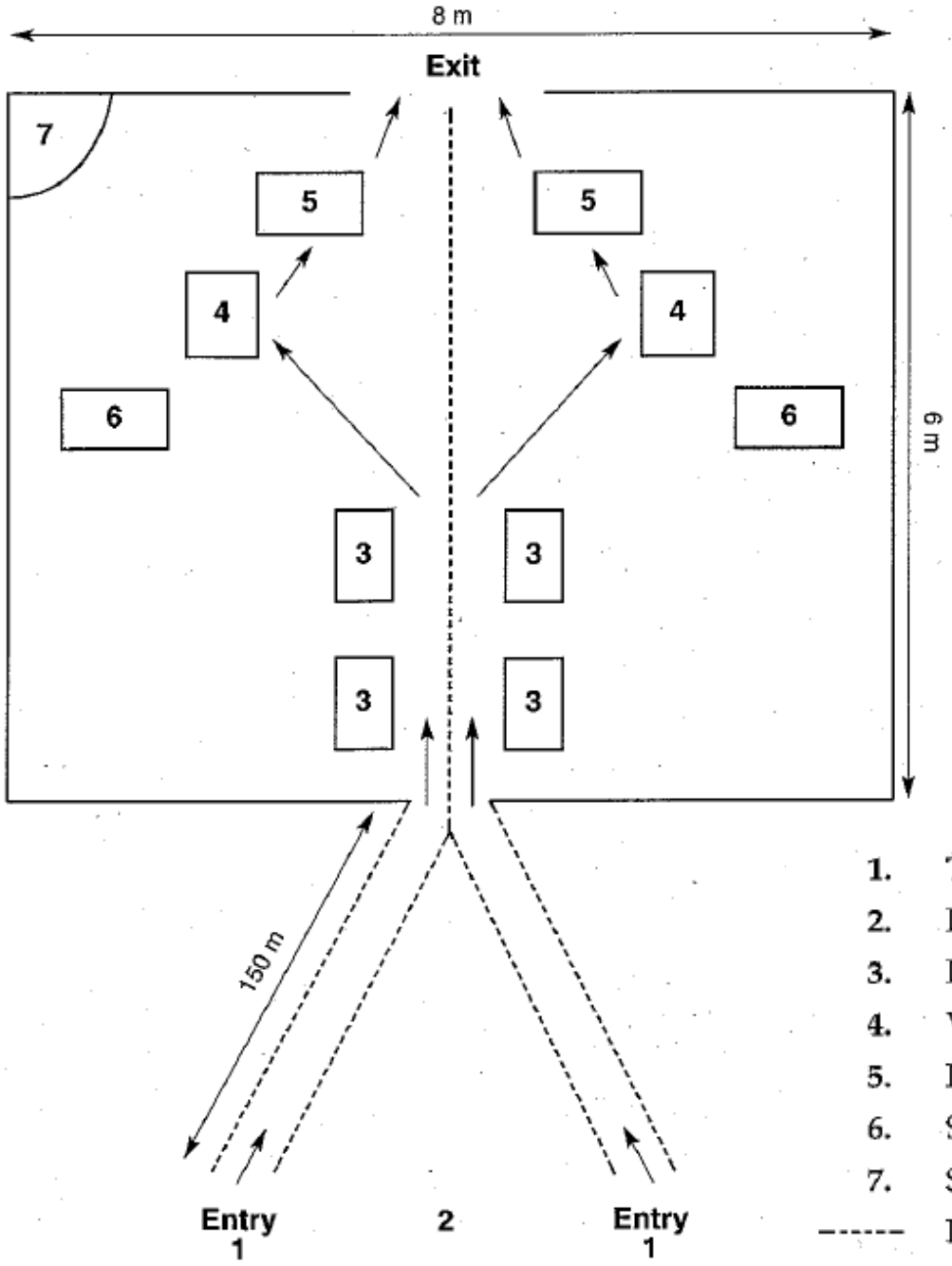
State		w1	w2	w3	w4	w5	w6	w7	w8	w9	w10	w11	w12	w13	w14	w15	w16	w17	w18	W19	w20	w21	w22
Gombe	1st case		x																				
	1st ward A/E*					A	E																
	Investig mission										X												
	Arrival 1st team											x											
	Start/End Case Management													4,124 cases/1,555 Treatment distributed									
	Start/End vaccination															516.317 vaccinated							
Kaduna	1st case		x																				
	1st ward A/E*					A/E																	
	Investig mission											x											
	Arrival 1st team												x										
	Start/End Case Management													2,230 cases/5,3505 Treatment distributed									
	Start/End vaccination															167.026 vacc							
Jigawa	1st case	x																					
	1st ward A/E*		A/E																				
	Investig mission						x																
	Arrival 1st team							x															
	Start/End Case Management										1,303 cases/7,680 Treatment distributed												
	Start/End vaccination										835.669 vaccinated												
Katsina	1st case	x																					
	1st ward A/E*	A	E																				
	Investig mission					x																	
	Arrival 1st team						x																
	Start/End Case Management Management								20,654 cases/15,108 Treatment distributed														
	Start/End vaccination										1.302.951 vaccinated												

*** 1st ward in the state to cross A= Alert threshold** **E**= epidemic threshold

Main challenges

- Human resources and site planning
- Cold chain
- Supply
- Transport

Vaccination Site Planning



1. Triage zone, age check
2. Information about vaccination (using a megaphone)
3. Preparation of vaccination cards
4. Vaccination posts
5. Recording posts (tally sheets)
6. Syringe preparation posts
7. Supply and storage area

------ Rope


03


MEDECINS
SANS FRONTIERES

Improving Public Health

Yann LeTallec

Clinton Foundation

Improving global health - A perspective from the Center of Strategic Health Operations Research at the Clinton Health Access Initiative

Yann Le Tallec

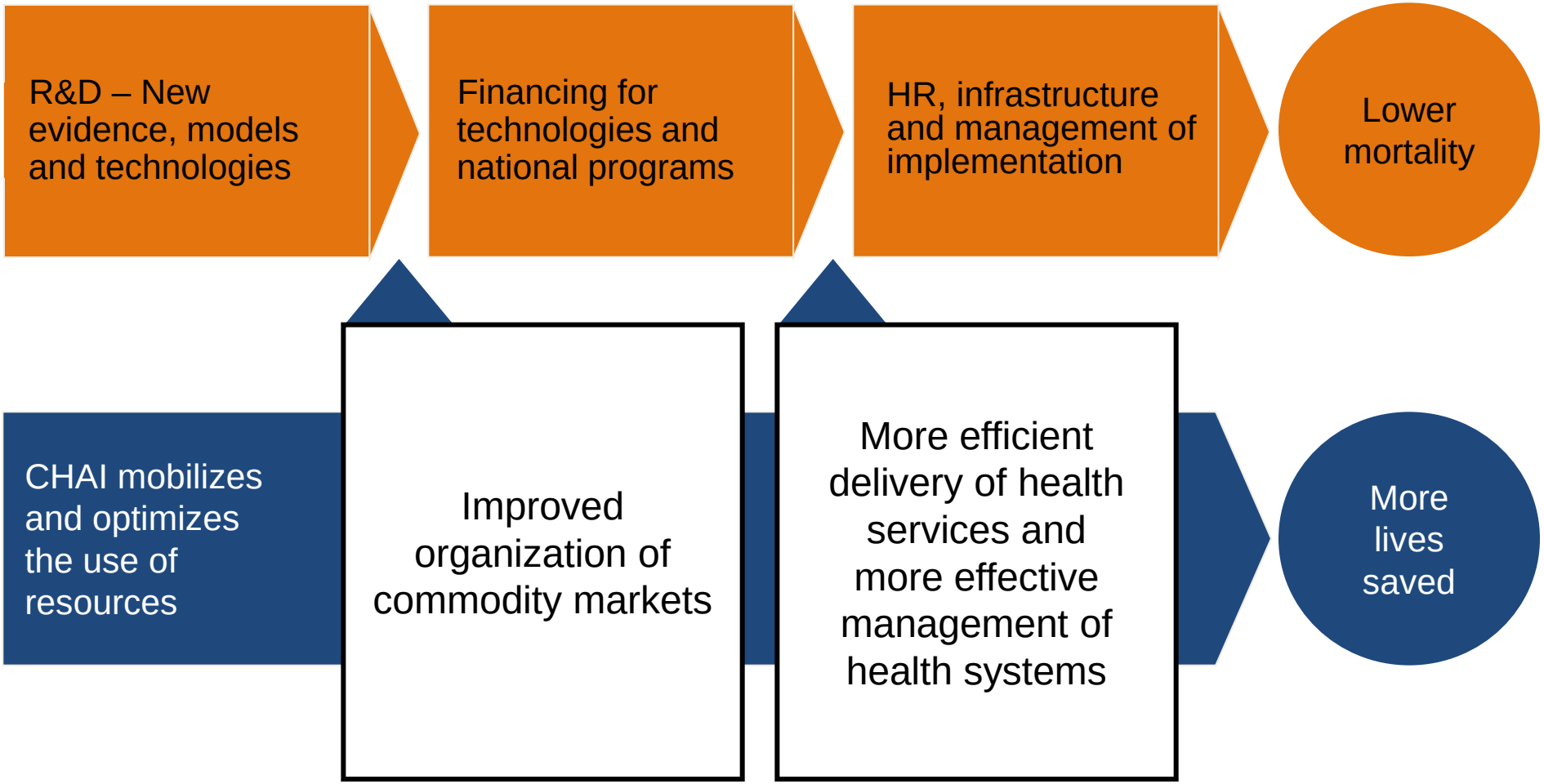
Clinton Health Access Initiative

Humanitarian and Health Logistics Conference

March 5, 2010

What does the Clinton Health Access Initiative (CHAI) do?

CHAI is not a research organization, donor or implementer by nature, but instead focuses on improving management and markets



CSHOR applies advanced analytical approaches to improve decision making in global health

CLINTON HEALTH ACCESS INITIATIVE

Analytical approaches

- Mathematical modeling
- Computer simulation
- Probability/statistics
- Optimization

+

People

- **15 staff members**
- **Operations Research experience**
  - Applied mathematics
  - Computer science
  - Engineering
  - Economics
- **Global Health experience**
  - Public Health
  - Epidemiology

+

Global health questions

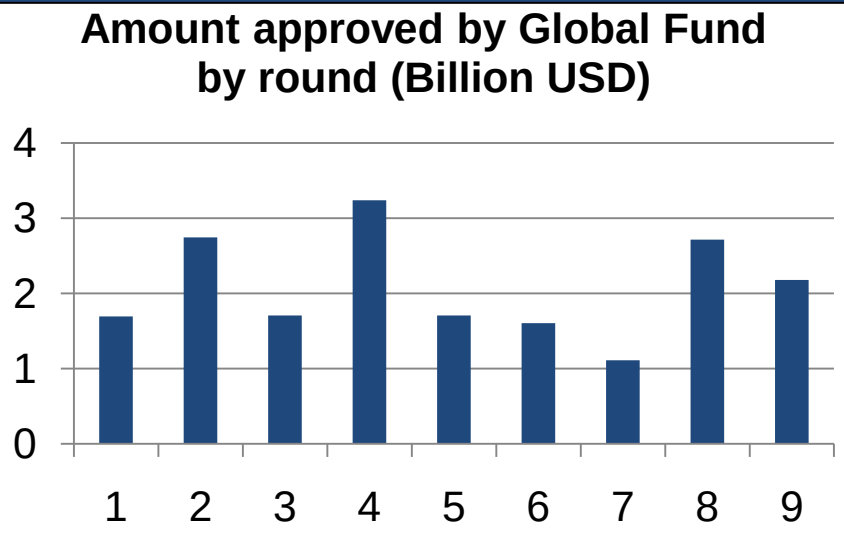
- Need and demand forecasting
- Resource planning
- Optimal resource allocation
- Supply chain management

=

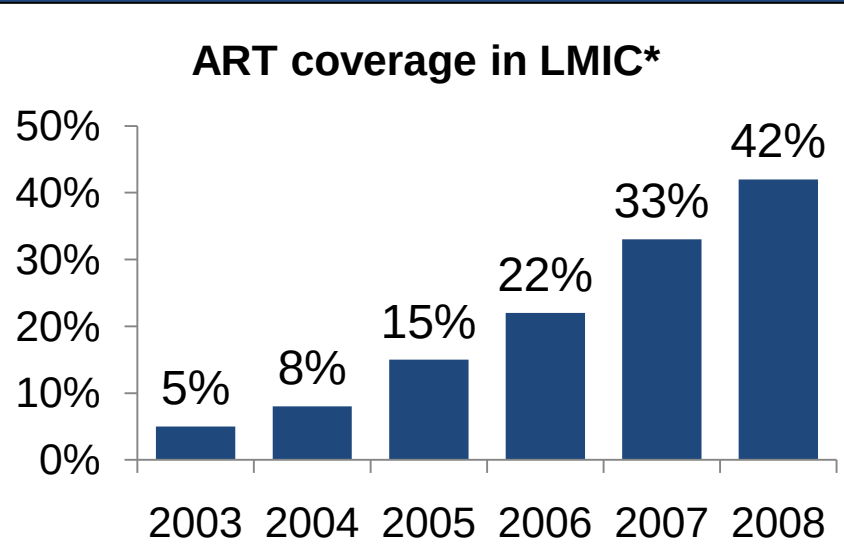
- Actionable evidence-based recommendations
- Transferable software tools

Why Operations Research (and other disciplines) for global health?

Historic amount of resources poured into global health



Yet large remaining gap to access health



Need of Operations Research and other expertise to

- bridge the health access gap and the resource gap
- address increasingly complex systems and operations in global health

* Antiretroviral Treatment coverage in low- and middle-income countries at end of year

Source: Global Fund website, WHO

Key areas of engagement for CHAI/CSHOR

Area of engagement	Trends in global health	Example of responses
Decentralization of health services	• Expansion of the dispensing network for health services • Decentralization of some "advanced" services to local facilities	• Inform trade-off between health outcome and equity vs cost of decentralization • Effective decentralized data collection and management
Human resources for health (HRH)	• Insufficient supply of qualified health care workers in poor countries	• Reduce gap between supply and demand of HRH • Optimize use and deployment of HRH
Sustainable financing	• Large and widening gap between funding need and availability • Uncertain future for health programs financing and impact	• Maximize value from limited financial resources • Make sound long-term investments
Operations and supply chain management	• Strained systems and operations supply chain under dramatic demand scale up	• To be detailed in next page

Logistics and supply chain management for global health

Area of engagement	Selected questions	Examples of CHAI work
Introduction of new products	• Demand and uptake forecasting (e.g., for supplier negotiations) • Pricing of new products	• Point of care CD4 counting, 2nd line TB drugs • Subsidies for ACTs* to foster adoption
Supply chain management and optimization	• Reliable demand forecasting • Inventory management to minimize stock outs and expiries with unreliable data/systems and heterogeneous needs • Effective lab and people referral network • Supply chain design/re-optimization	• ARV**, ACT, lab re-agents • India, Dominican Republic, etc • Early Infant Diagnostic • Re-integration of vertical supply chains (e.g., HIV, TB)
Continuous improvement of processes	• Optimize use of limited resources to yield high-quality outcomes	• Space optimization at clinic • HRH task shifting

* ACT = Artemisinin Combination Therapy (for malaria)

** ARV= Antiretroviral (for HIV)

The challenge of access to information in global health

A challenging information landscape

- Data is often collected, especially for donor reporting, but it is often
  - Hard and expensive to access
  - Unreliable
  - Outdated

What we need to do

- Making better decision with unreliable data
- Making the case for investing in improving information infrastructures
- Building information processes adapted to global health systems

Improving Public Health

Edward Kaplan

Yale University

Yale SCHOOL *of* MANAGEMENT

YALE UNIVERSITY
School of Public Health

YALE UNIVERSITY
School of Engineering and
Applied Science

Operations Research and Public Health

Edward H. Kaplan, PhD

William N and Marie A Beach Professor of Management Sciences

Yale School of Management

Professor of Public Health

Yale School of Public Health

Professor of Engineering

Yale School of Engineering and Applied Science

What Is Operations Research?

- Operations research is the scientific study of operations for the purpose of making better decisions
- Also refers to mathematical techniques developed/used by operations researchers
- Original applications were military; now prevalent in supply chain management, transportation, private/public services, homeland security/counterterrorism, etc.

What Is Public Health?

- The mission of public health is to assure conditions in which people can be healthy!
- Mission is accomplished via the application of public health *science* to the design and operation of public health *services*
- Operations research (and management) principles and techniques can be applied in both of these areas

Public Health Operations

- disease screening/surveillance (e.g. HIV, influenza)
- outbreak investigation (e.g. SARS)
- vaccination (e.g. childhood diseases), quarantine/isolation (e.g. TB)
- behavioral modification programs (e.g. STDs)
- inspection/standards enforcement at public establishments (e.g. restaurants)
- environmental monitoring (e.g. bacterial levels at public swimming areas)
- vector control (e.g. mosquitos, ticks, etc.)

American Journal of Public Health
42 (10): 1306-1307 1952

OPERATIONS RESEARCH AND PUBLIC HEALTH

THE problem of translating theory into practice is usually beset with difficulty, even in the more exact natural sciences. In the past, this problem has suffered from neglect, perhaps because it was assumed that practical men could apply in practice any clearly stated theory, and needed no special agency to facilitate and accelerate this process.

Following the termination of hostilities, it was quickly realized that operations research methods and technics could have wide application to conditions and needs of peace in government, industry, and in the community in general.[4] Since the war

Clearly, here are exciting possibilities of interweaving theoretical insight with practical experience which no health worker can afford to overlook. While the

How valuable operations research will eventually be to public health remains to be seen. The surface of the problems presented by such interaction of research and policy decisions has barely been touched. All that can be done here is to draw attention to this important branch of scientific activity and to indicate its possible potential for public health.

Operations Research and Epidemiology

- What is the most famous equation in service operations management?

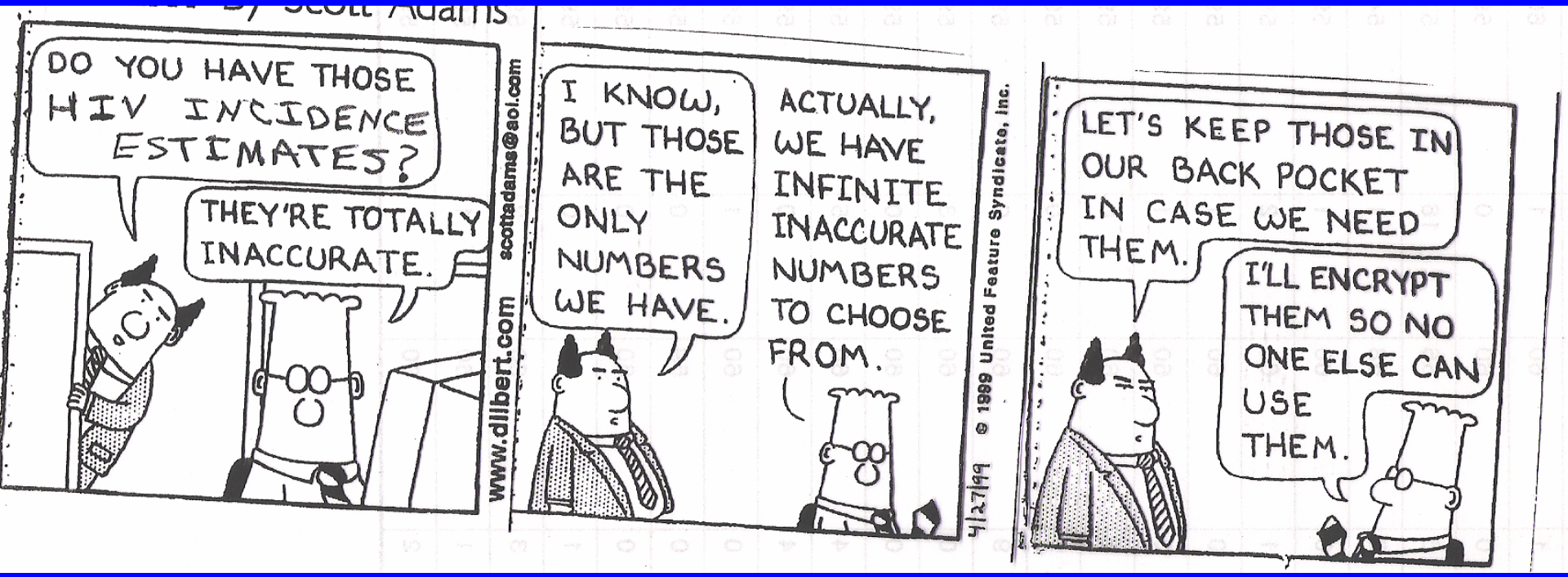
$$L = \lambda W$$

- What is the most famous equation in epidemiology?

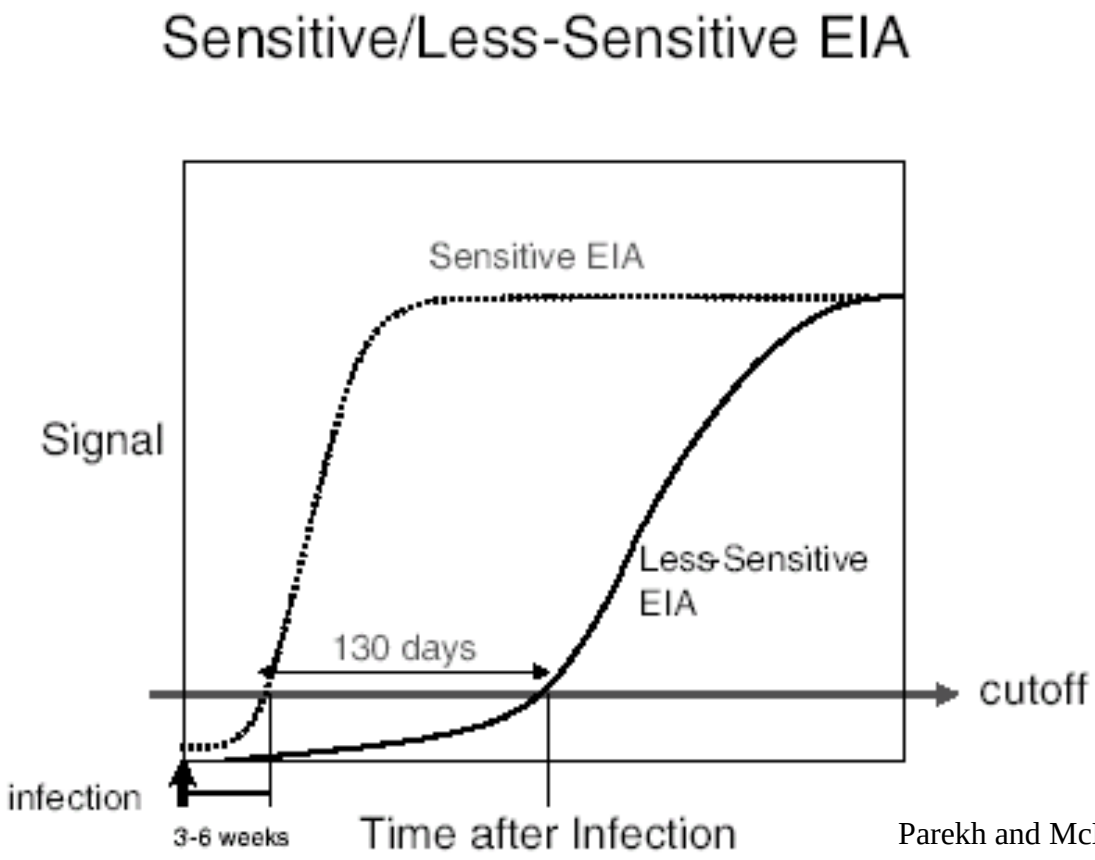
Prevalence = Incidence x Duration

- Any questions?

Example: How Many New HIV Infections Occur in the US Each Year?



Application of $L = \lambda W$: Estimating HIV Incidence



Parekh and McDougal, *AIDS Rev* 2001;3:183-193

Figure 4. *A: Comparison of sensitive (3A11) and less-sensitive (3A11-LS) EIAs. B: Sensitive EIA plateaus soon after seroconversion, while less-sensitive EIA has longer dynamic range and takes about an additional 130 days to register reactive.*

Table 1. Estimated Incidence of Human Immunodeficiency Virus Infection, 50 US States and the District of Columbia

Characteristic	Stratified Extrapolation Approach: 22 States, No. (%)[a] BED Tested[b]	2006 Diagnoses[c]	2006 Incidence	50 States + DC, 2006 Incidence, No. (%) [95% CI][d]	Extended Back-Calculation Approach, 50 States + DC, Incidence per Year, 2003-2006, No. (%) [95% CI][d]
Total	6864	39 400	40 800	56 300 [48 200-64 500]	55 400 [50 000-60 800]
Sex					
Male	4892 (71)	28 900 (73)	29 300 (72)	41 400 (73) [35 100-47 700]	42 000 (76) [37 400-46 600]
Female	1972 (29)	10 600 (27)	11 500 (28)	15 000 (27) [12 600-17 300]	13 400 (24) [11 000-15 800]
Race/ethnicity[e]					
White	1707 (25)	11 400 (29)	13 100 (33)	19 600 (35) [16 400-22 800]	17 700 (32) [14 700-20 700]
Black	3825 (56)	20 000 (51)	19 600 (49)	24 900 (45) [21 100-28 700]	27 800 (50) [24 200-31 400]
Hispanic	1190 (17)	7000 (18)	6800 (17)	9700 (17) [7900-11 600]	8600 (16) [6200-11 000]
Asian/Pacific Islander	78 (1)	440 (1)	590 (1)	1200 (2) [490-1900]	1000 (2) [200-1800]
American Indian/ Alaska Native	21 (<1)	130 (<1)	180 (<1)	290 (1) [80-500]	300 (<1) [50-700]
Age, y					
13-29	2790 (41)	13 100 (33)	14 100 (35)	19 200 (34) [16 300-22 200]	21 200 (38) [17 000-25 400]
30-39	1892 (28)	12 100 (31)	12 500 (31)	17 400 (31) [14 600-20 200]	16 800 (30) [13 600-20 000]
40-49	1539 (22)	9800 (25)	9900 (24)	13 900 (25) [11 700-16 100]	12 300 (22) [9100-15 500]
50-99	643 (9)	4400 (11)	4300 (11)	5800 (10) [4600-7100]	5100 (9) [2900-7300]
Transmission category					
MSM	3582 (52)	18 400 (48)	20 100 (51)	28 700 (53) [24 300-33 100]	31 200 (56) [25 400-37 000]
IDU	749 (11)	5600 (15)	4900 (12)	6600 (12) [5300-7900]	5900 (11) [3500-8300]
MSM/IDU	182 (3)	1200 (3)	1400 (3)	2100 (4) [1500-2700]	1600 (3) [400-2800]
Heterosexual	2328 (34)	13 100 (34)	13 100 (33)	16 800 (31) [14 200-19 400]	16 400 (30) [12 600-20 200]

Abbreviations: BED, BED human immunodeficiency virus 1 capture enzyme immunoassay; CI, confidence interval; IDU, injection drug use; MSM, men who have sex with men.

[a] Alabama, Arizona, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Louisiana, Michigan, Mississippi, Missouri, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, South Carolina, Tennessee, Texas, Virginia, Washington.

[b] Numbers do not count individuals diagnosed with AIDS at or within 6 mo after human immunodeficiency virus diagnosis; these were risk redistributed but not adjusted for reporting delay.

[c] Numbers for 2006 diagnoses were adjusted for reporting delay and risk redistribution.

[d] Confidence intervals reflect random variability affecting model uncertainty but may not reflect model-assumption uncertainty; thus, they should be interpreted with caution.

[e] Race/ethnicity and transmission category subgroup numbers may not sum to the overall total because cases with unknown race/ethnicity or unknown transmission categories are excluded. However, percentages are adjusted for the exclusion and sum to 100%.

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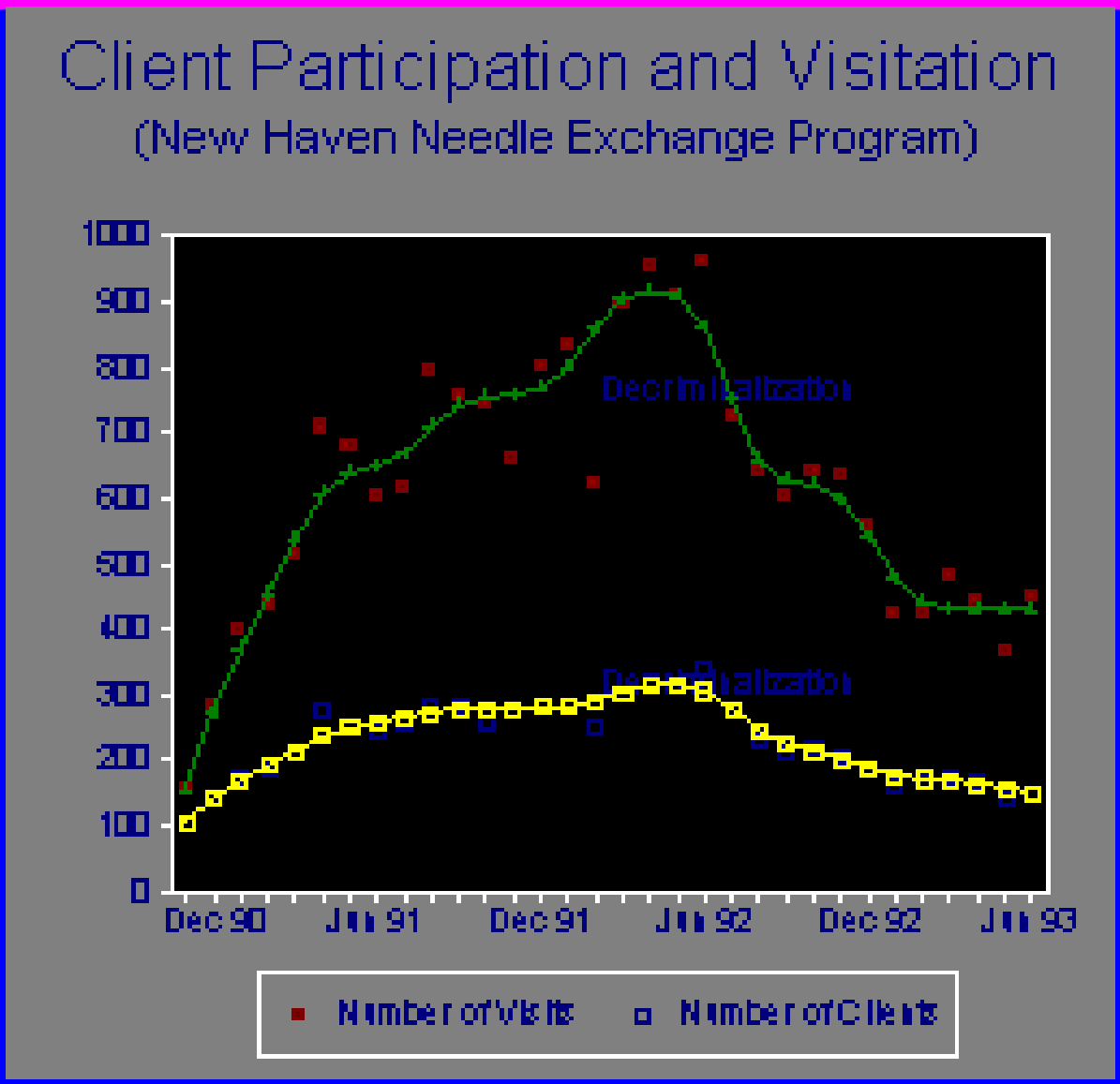
NEW HAVEN HEALTH DEPARTMENT
787-8709

OR Approach to Needle Exchange

- needle exchange reduces needle circulation times
- as a consequence, *needles share fewer people*
- as a further consequence, *fraction of needles that are infected should decline*
- easy to capture this logic with simple model
- what was not so easy was to verify it with actual data from the needle exchange program

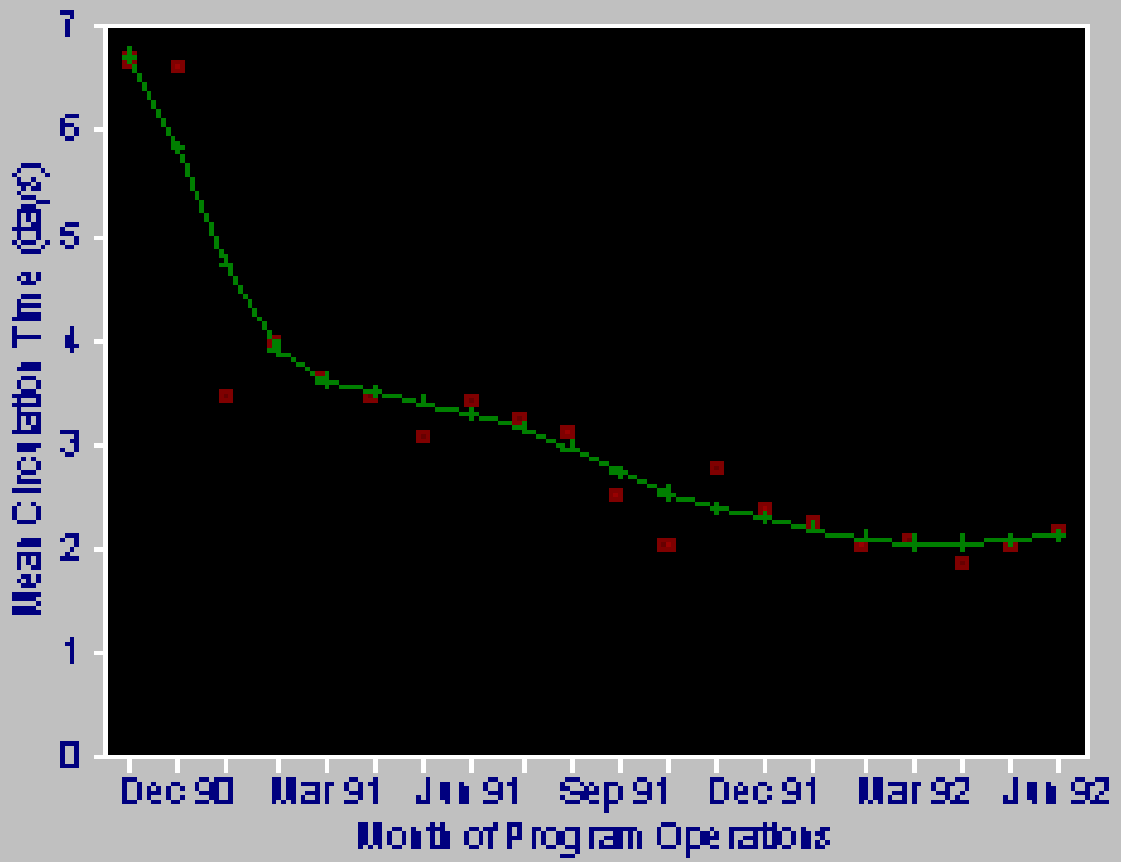
Circulation Theory: An Operational Model



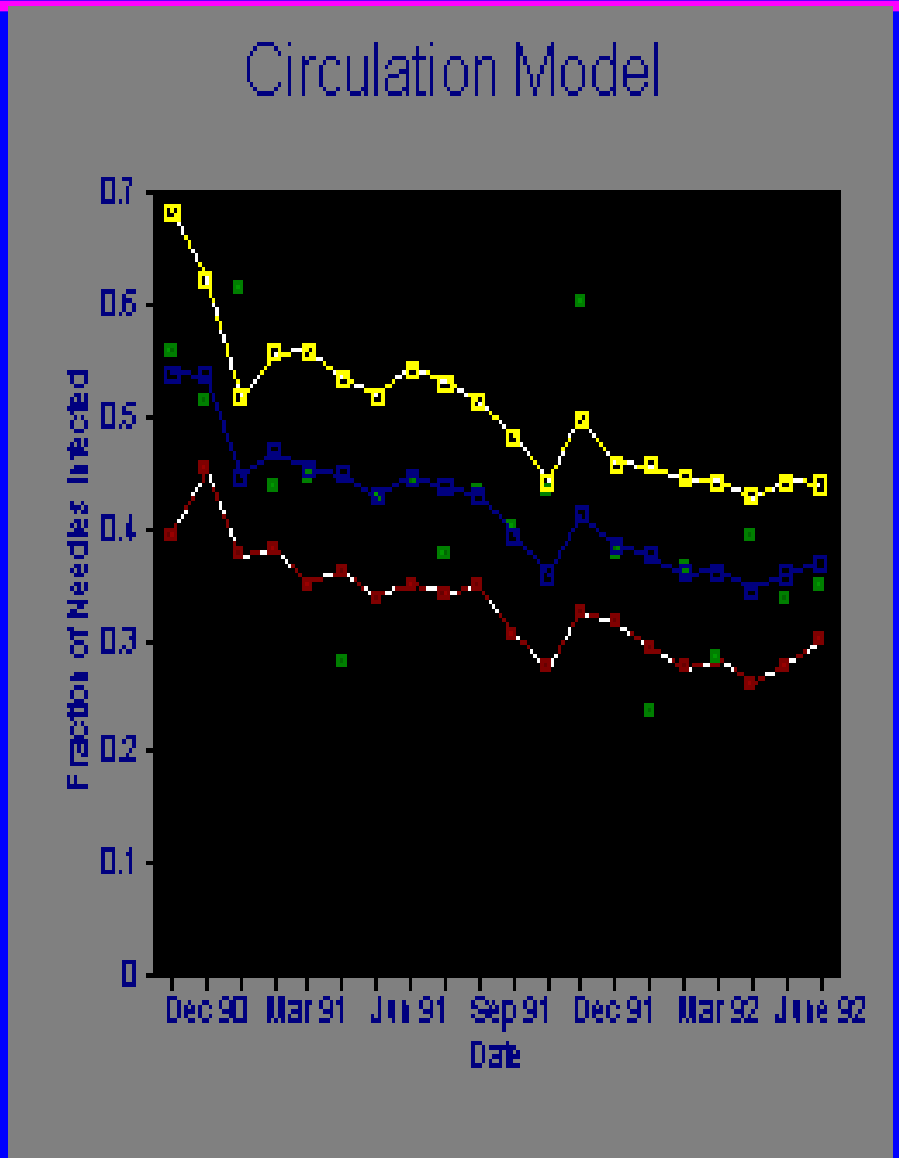
Circulation Theory: An Operational Model

Figure 3

Mean Needle Circulation Time



Circulation Theory: An Operational Model



Summary

- There are many outstanding opportunities to apply operations research ideas to improve public health
  - methodological contributions to epidemiology
  - practical contributions to the design, evaluation and operation of public health activities

Improving Public Health

Mark Keim

Centers for Disease Control and Prevention

Emergent use of social media:

A new age of opportunity for disaster resilience

Mark Keim, M.D.
Senior Science Advisor
Centers for Disease Control and Prevention
March 5, 2010

January 12, 2010

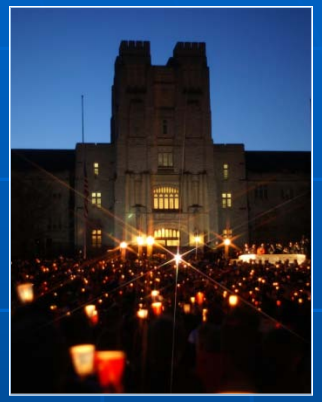
- The Haiti earthquake…
  - Killed 230,000
  - Injured 200,000
  - Changed disaster management…as we once knew it

The growing role of social media in disaster management

- Social media
  - Form of information communication technology
  - Designed to disseminated through social interaction
  - Collaborative, decentralized, horizontal, networked, community-driven

The growing role of social media in disaster management[1,2]

- 2007 Virginia tech shootings
- 2007 Southern California Wildfires
- 2008 Democratic Convention
- 2008 Hurricane Ike
- 2009 Iran protests



[1] Sutton 2008,
[2] Pew Research Ctr 2009

The role of media after the Haiti earthquake

- Traditional media
  - Consumers used traditional media to *obtain* information about the quake

- Social media
  - Consumers used social media to share information, react to the situation and to rally support

- Twitter ™ was the leading source of discussion about the Haiti quake[1]
  - Followed by
    - Online video
    - Blogs
    - Discussion forums
- Two kinds of tweets
  - Links to read news
  - Links to take action

Social activism via Tweets and texts

- 2.3 million tweets included the word Haiti or Red Cross during the first 48 hours after the quake[1]
- Red Cross raised $25 million in 2 weeks just by texting[1]

[1] Sysymos 2010

Human resilience as a means for vulnerability reduction

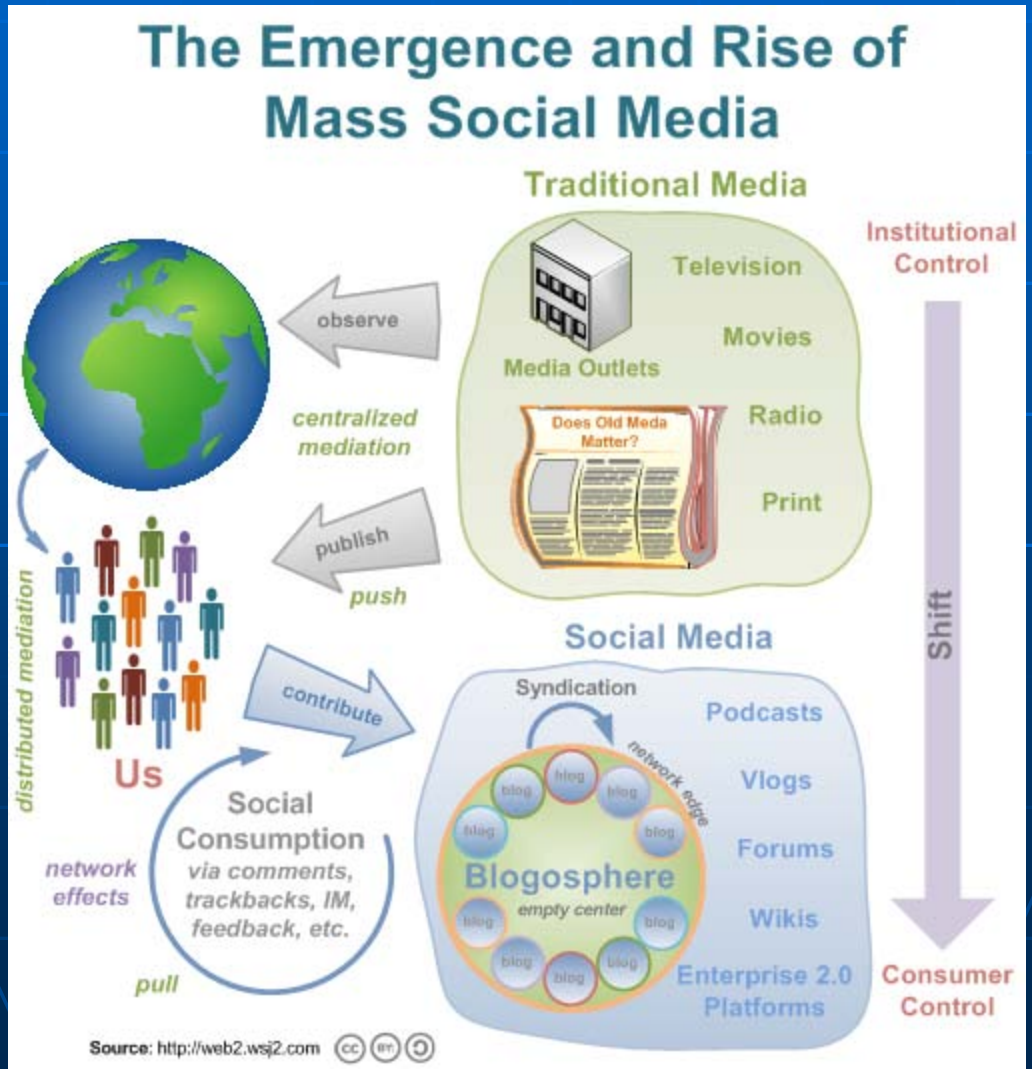
- Resilience
  - The ability to cope with and recover from disasters
- Resilience is comprised of:
  - Absorptive capability
  - Organizational capacity
  - Adaptive capacity

Impact of social media on disaster resilience

- Social media builds adaptive capacity
  - Shares knowledge
  - Creates flexibility
  - Empowers local responders

Impact on disaster organizational systems

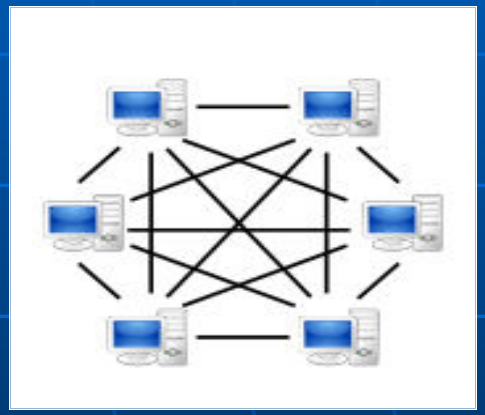
	Peer to peer	Hierarchical
Users	Public	Institutions
Sanction	Non-official	Official
Empowerment	Individual	Organizational
Activation	Immediate	Delayed
Adaptability	High	Moderate
Accessibility	Inclusive	Exclusive
Sources of public information	Many	One
Structure	Dynamic	Static
Scalability	High	Moderate


The Emergence and Rise of Mass Social Media
Traditional Media
Institutional Control
Television
Movies
Media Outlets
Radio
Print
Does Old Meda Matter?
observe
centralized mediation
publish
push
distributed mediation
Us
contribute
Social Media
Syndication
Podcasts
Vlogs
Forums
Wikis
Enterprise 2.0 Platforms
network edge
blog
Blogosphere
empty center
Social Consumption
via comments, trackbacks, IM, feedback, etc.
network effects
pull
Shift
Consumer Control
Source: http://web2.wsj2.com

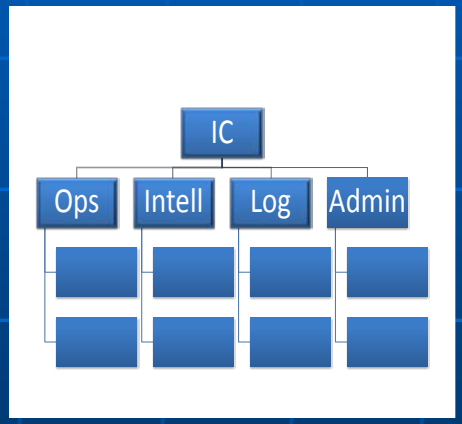
	Social media	Traditional media
Sources	Public	Corporations, Organizations, Government
Format	Online discussion forums Web broadcasting Weblogs and Wikis, Podcasts, Pictures and Video, Social network platforms	News Entertainment Advertisement Risk communication Public service Propaganda
Technologies	Mobile phones Computers Digital music players Internet	Television Radio Internet
Information flow	Multi-directional	Uni-directional
Information control	Low	High
Adaptability	High	Low
Relevance for local residents	High	Low
Intelligence	Collective	Proprietary
Empowerment	Individual	Organizational
Accuracy of information	Variable	Variable
Cost	Low	High
Accessibility	Inclusive	Exclusive
Timeliness of information	Immediate	Delayed

Impact on disaster organizational systems

- Peer to peer architecture

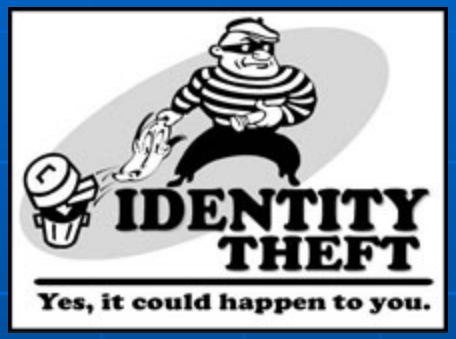


- Hierarchical architecture



Challenges of social media

- Lack of awareness
- Privacy issues
- Quality assurance



Improving Public Health

Nick Pacitti

Sterling Solutions

Improving Public Health

Disaster Response

…Can be a Disaster within a Disaster

Georgia Tech
March 4-5, 2010

Nick Pacitti

Sterling SOLUTIONS

Discussion Points

- **Provide high level insights on logistical challenges in disaster response**
- **Focus on supply chain intermediaries**
- **Areas for further study and research**

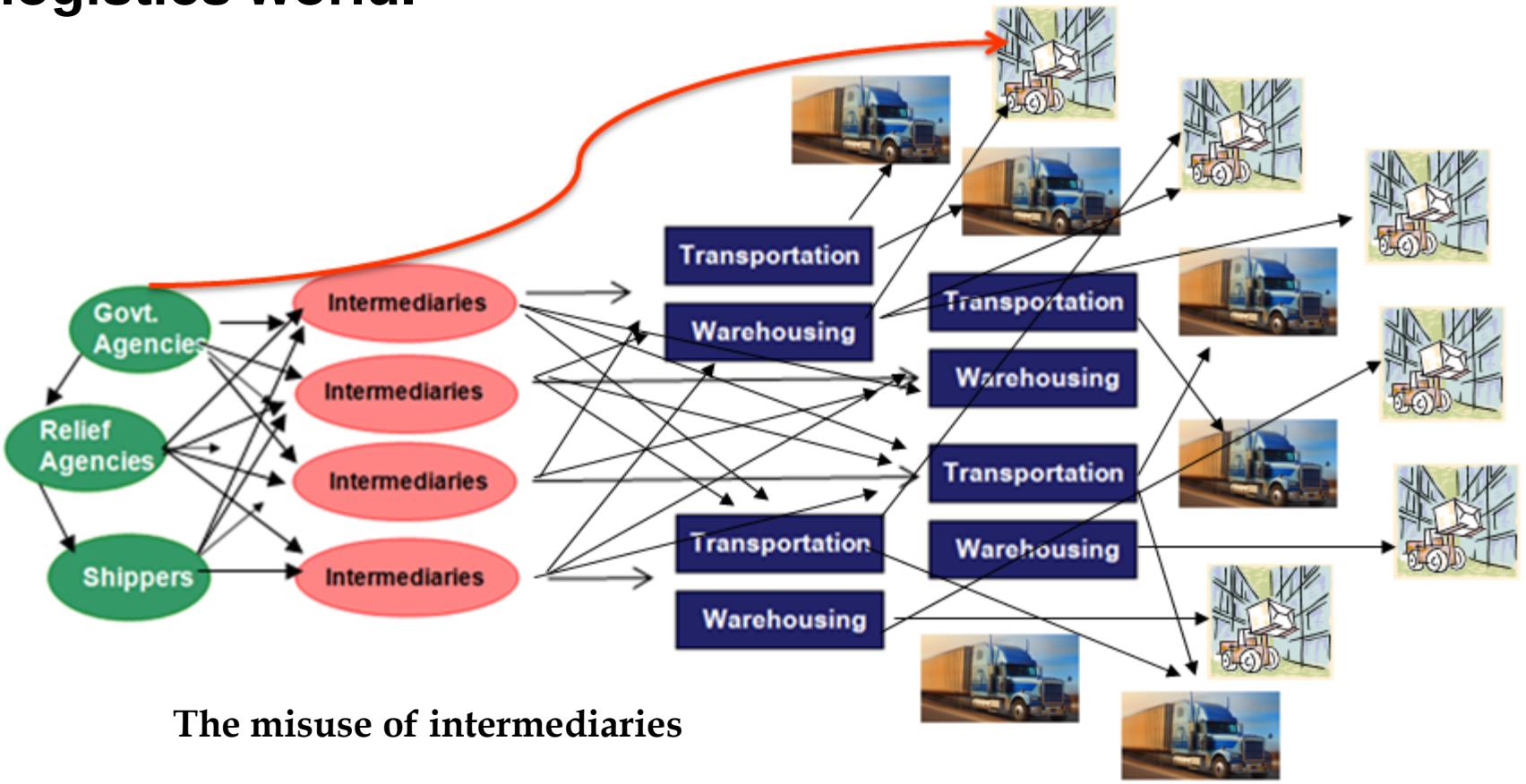
Sterling SOLUTIONS

There is a need for further research in analyzing and improving logistics systems under extreme conditions

- **Extreme events pose serious logistical challenges to emergency and aid organizations - the disturbances they produce turn normal conditions into chaos**
- **The design of reliable emergency and support logistics systems is hampered by lack of knowledge about how supply chain members operate and interact**
- **Coordination of priority and non-priority goods continues to be a challenge**

Sterling SOLUTIONS

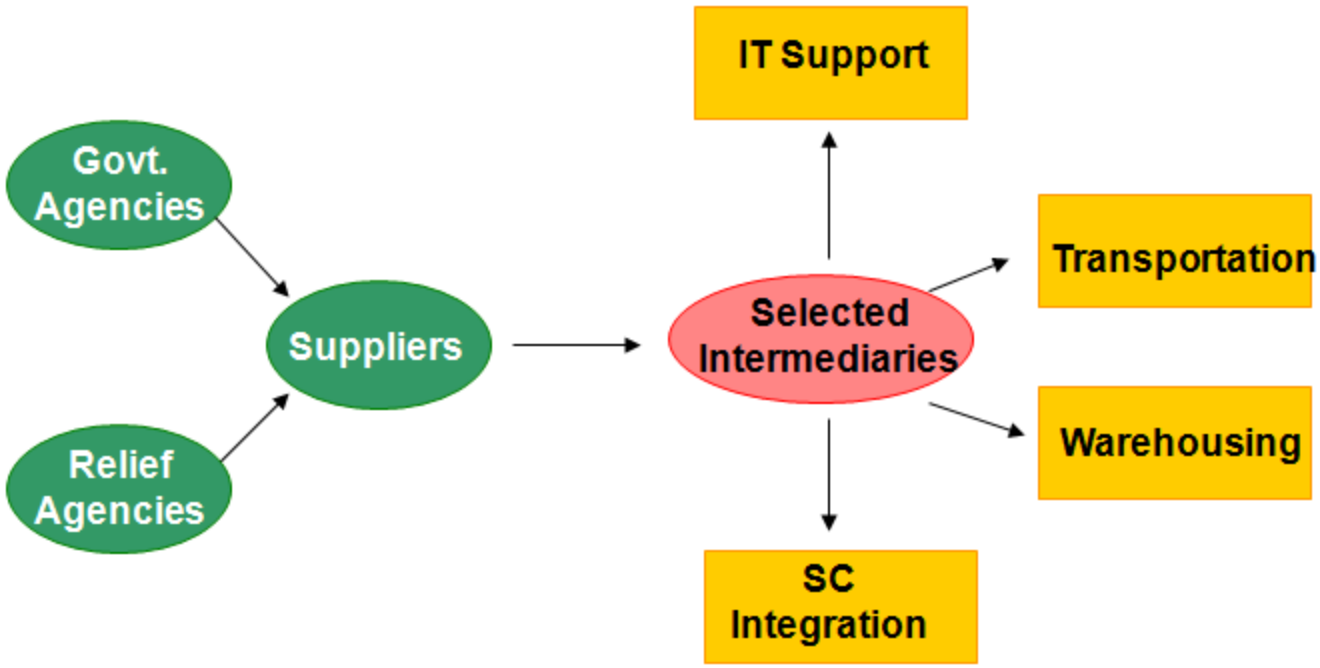
The role of supply chain intermediaries is a focal point in improving responsiveness and efficiencies. If used properly, Intermediaries provide a window to the logistics world.



The misuse of intermediaries

Sterling SOLUTIONS

With the sophistication of supply chain intermediaries information and product flows can be streamlined



Sterling SOLUTIONS

We have more tools and quicker access to supply chain intermediaries for improved and more efficient response

Third Generation
(2000 and beyond)

- Online marketplaces
- Web-based 3PLs
- Increasing supply chain integration

Second Generation
(1980s - 1990s)

- Non asset-based companies
- Asset-based companies increased service offerings

First Generation
(70s -80s)

- Transportation / warehousing
- Freight forwarders / brokers
- Shipper's agents

Sterling SOLUTIONS

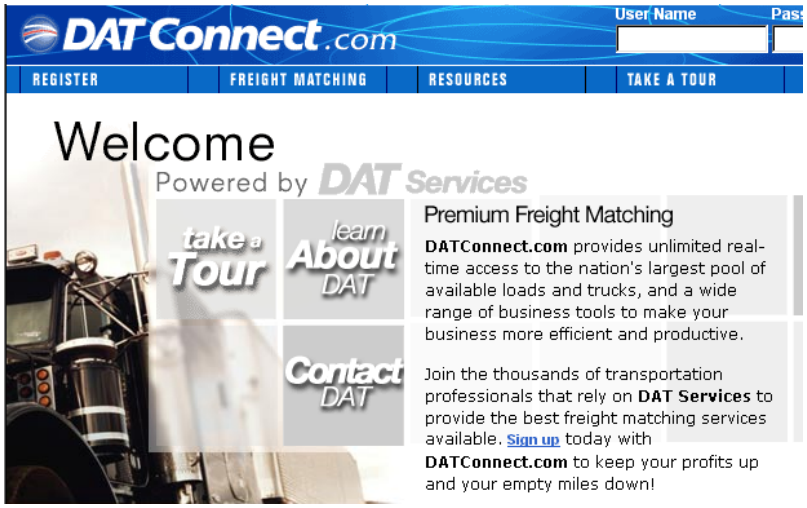
ALAN is a significant improvement in coordinating and responding to disasters – formed after the Katrina disaster

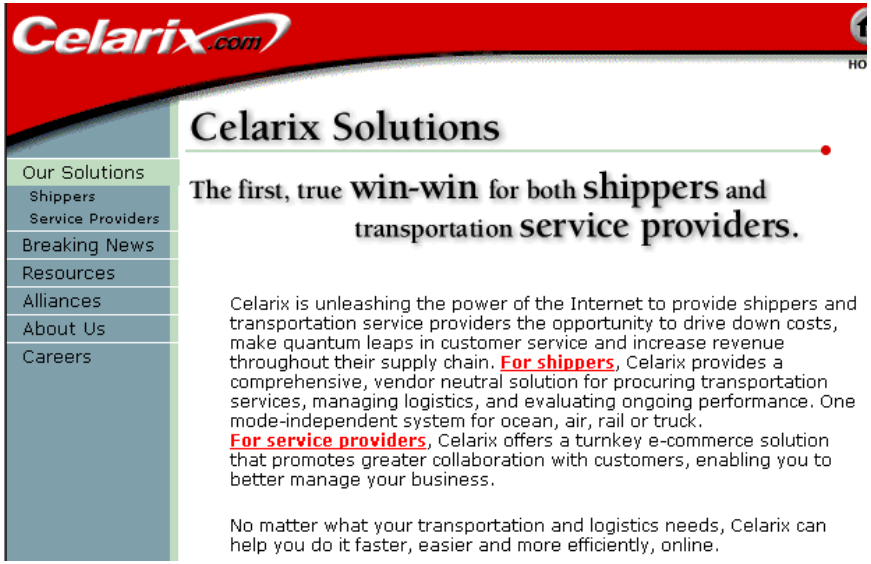
- ALAN serves as a clearinghouse for supply chain expertise, products, equipment, and services
- ALAN uses advanced technology platforms in facilitating donations and logistics support for relief agencies
- ALAN creates an efficient process for providing the right goods and services in the right quantity, at the right location, at the right time

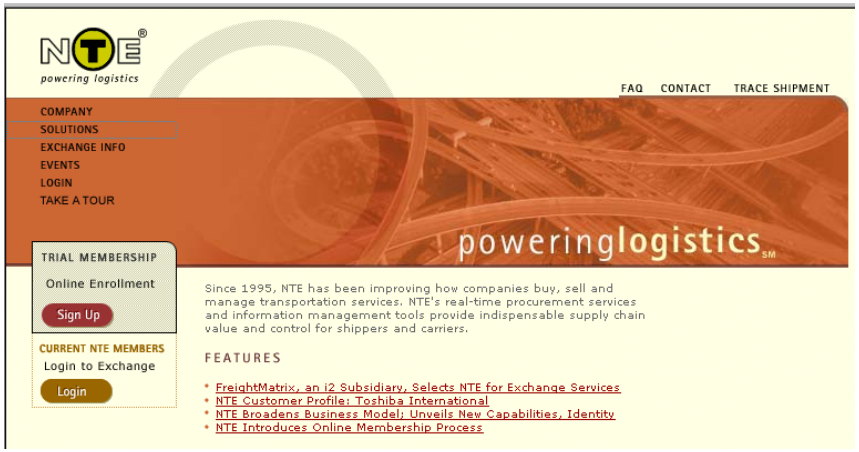
www.alanaid.org

Sterling SOLUTIONS

Third Generation Intermediaries







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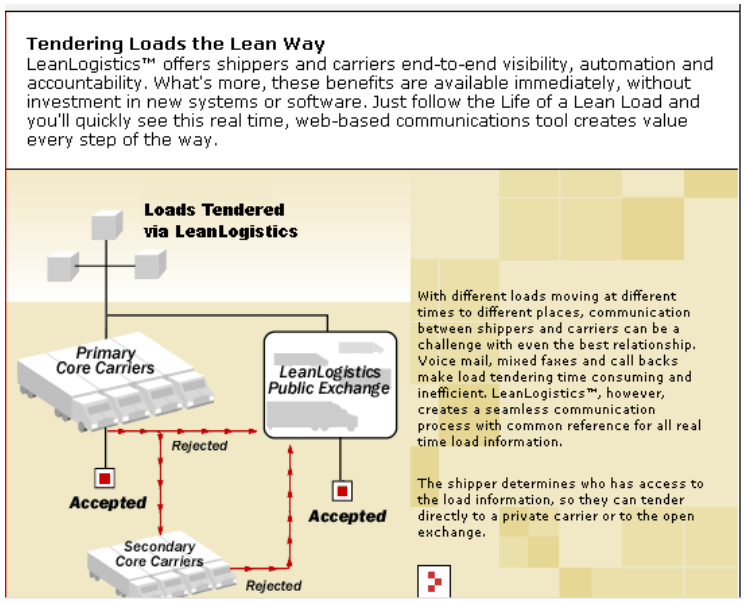
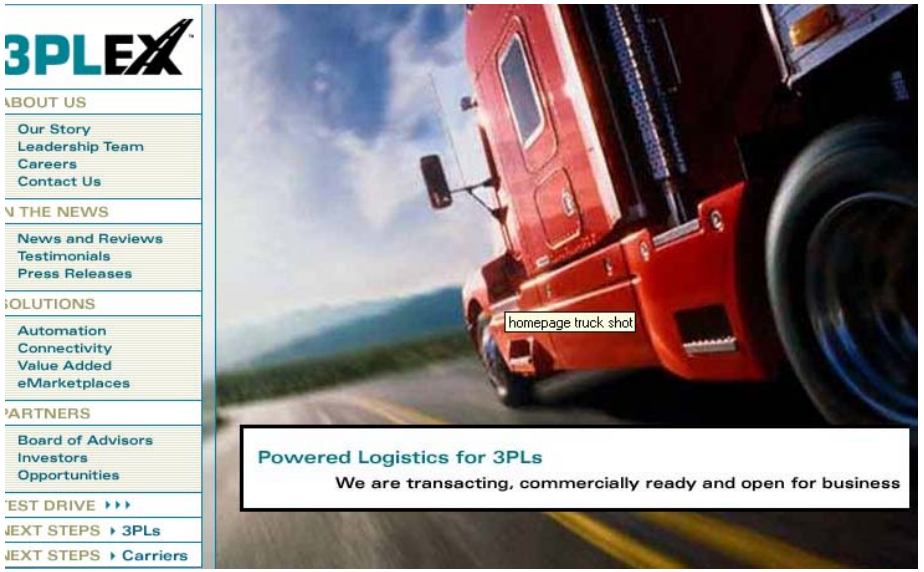
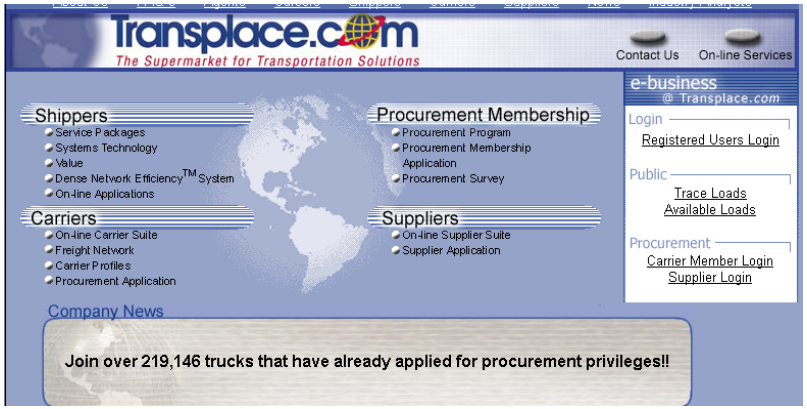
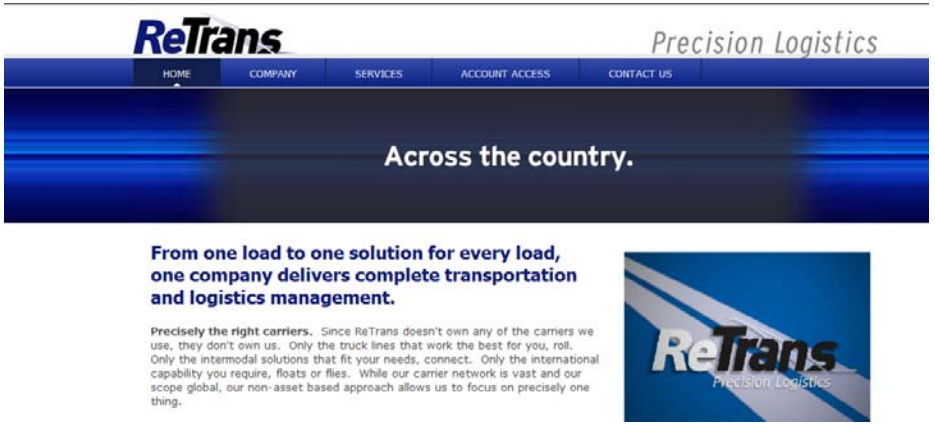
Third Generation Intermediaries









Sterling SOLUTIONS

As we do in the food segment we have to continue to play out a host of scenarios in terms of probability and severity of occurrence

			Probability				
			Certain	Likely	Possible	Unlikely	Unknown
			A	B	C	D	E
Severity	Catastrophic Out of business	I	1	2	6	8	12
	Critical Severe Disruptions	II	3	4	7	11	15
	Moderate Sporadic Disruptions	III	5	9	10	14	16
	Negligible To be expected	IV	13	17	18	19	20
			Risk Levels				

Improving Public Health

Laurent Dedieu, Doctors Without Borders/Médecins Sans Frontières (MSF)

Yann LeTallec, Clinton Foundation

Edward Kaplan, Yale University

Mark Keim, Centers for Disease Control and Prevention

Nick Pacitti, Sterling Solutions

Moderator: Carladenise Edwards,
Georgia Department of Community Health

Break and Poster Presentations

Keynote

Rear Admiral Scott Deitchman

Associate Director for Terrorism Preparedness and Emergency Response, National Center for Environmental Health and the Agency for Toxic Substances and Disease Registry

Introduction by Gregory Abowd

Health Systems Institute, Georgia Institute of Technology

Announcements

Reception / Dinner
Georgia Tech Hotel