Stages of Post Conflict Restoration

• **Rescuing Phase**
  - Emergency Management
  - Mine & UXO Identification & Disposal
  - Shelter and Resettlement for Refugees
  - Basic Human Needs (i.e. water, food, medicine, post traumatic stress management)
  - Epidemiology and Public Health

• **Resuming Phase**
  - Damage Assessment
  - Civil Government, Law Enforcement & Protection of Rights for Women, Children, Minorities & Impoverished Groups
  - Defense, Diplomacy, Foreign Affairs, Foreign Aid & Foreign Investment
  - Utilities
  - Roadways & Transportation
  - Communication Networks
  - Cyber Infrastructure
  - Employment
  - Waste Management & Sanitation

• **Rebuilding Phase**
  - Poverty Reduction
  - Housing
  - Hospitals & Primary Health Care Facilities
  - Schools & Institutions of Higher Learning
  - Municipal Facilities
  - Joint Ventures and Responsible Corporate Investment
  - Cultural Centers
  - Religious Institutions
  - Agriculture, Rangeland and Animal Integration
  - Urban Infrastructure
  - Forestry & Natural Resource Management

• **Sustaining Phase**
  - Ensuring Social Justice, Equity & Fair Distribution
  - Safeguarding Civil Rights & Civil Liberties
  - Sustainable Water Resource Management
  - Food Security
  - Ecosystem Restoration and Feral Animal Biodiversity
  - Clean Products and Processes
  - Sustainable Economic Development
  - Knowledge Management, Technology Transfer and Intellectual Property Protection
  - Environmental Monitoring & Disaster Preparedness
  - Climate Change Vulnerability Assessment, Mitigation and Adaptive Response
Universities, Technicons and Polytechnics with Geomatics/Remote Sensing Departments
“Why do the Nations so furiously wage together…?” – George Frideric Handel, *Messiah, 1742*
Nagasaki & Radiation Burns
# Bombs Deployed on Japanese Cities—World War II

- Data from the US Strategic Bombing Survey, Japanese official counts, and U.S. government / military documents assessing the damage caused by these weapons.

## Target | Hiroshima | Nagasaki | Tokyo Fire Raid | Average of 93 Attacks on Cities
---|---|---|---|---
Dead/Missing | 70,000-80,000 | 35,000-40,000 | 83,000 | 1,850
Wounded | 70,000 | 40,000 | 102,000 | 1,830
Pop. Density | 35,000/sq mile | 65,000/sq mile | 130,000/sq mile | ?
Total Casualties | 140,000-150,000 | 75,000-80,000 | 185,000 | 3,680
Area Destroyed | 4.7 sq mile | 1.8 sq mile | 15.8 sq mile | 1.8 sq mile
Attacking Platform | 1 B-29 | 1 B-29 | 334 B-29s | B-29s
Weapon(s) | 'Tall Boy' 15 kT | 'Fat Man' 21 kT | 1,667 tons | 1,129 tons
(15,000 tons of TNT) (21,000 tons of TNT)

## Notes:
Many of the wounded in the atom bomb attacks would die in the coming days, months and even years due to radiation exposure and burns.
Armed Struggle.
Armed Struggle
When Armed Struggle Ends...

- “WHEN THE IRISH Republican Army announced its intention Thursday to abandon its armed struggle of three decades, the British prime minister, Tony Blair, correctly described the statement as a step of "unparalleled magnitude." Saturday, July 30, 2005; washingtonpost.com Page A18


- “On the night of April 30, 1997, Chile's leftist Manuel Rodriguez Patriotic Front (FPMR) held a clandestine press conference at the railroad retirees union local in Santiago to announce it is leaving the armed struggle and seeking to become a legal political organization.” Weekly News Update on the Americas, No. 379, 27 May, 1997

- “A Congolese renegade priest Pastor Ntumi has announced his Ninja fighters will disarm and his group will become a legitimate political party.” BBC, May 5, 2005

- “Mahmoud Abbas [PLO] told a reporter from the newspaper Asharq al-Awsat that 'The uprising should be kept away from arms because it is a legitimate right of the people to express their rejection of the occupation by popular and social means.' He then added, 'The use of arms has been damaging and should end.'

- “Further signs that Eta, the outlawed Basque separatist group, has been forced to rethink its hardline terror campaign emerged yesterday with the publication of a letter from jailed activists calling on leaders to lay down their arms.” By Mark Mulligan. Financial Times. November 3, 2004.

- “Communist rebels [National Democratic Front, or NDF] pledged to end their 36-year insurgency if the Philippine government signs a proposed peace agreement, which the guerrillas unveiled for the first time Saturday. Associated Press, Manila, Philippines

- “For the unthinkable crime of fighting to liberate the slaves, John Brown was hanged in Charleston, Va., on Dec. 2, 1859, with the full complicity of the federal government.” Pat Chin, John Brown's raid & the armed struggle to end slavery. Workers World, New York, NY
Commonalities with Non-Conflict Related Disaster Reconstruction

- Liberation Tigers of Tamil Eelam: Post Tsunami Reconstruction
- Post Hurricane Katrina-New Orleans & Mississippi/Alabama Gulf Coast
- Emergency Management
- Mine & UXO Identification & Disposal
- Shelter and Resettlement for Refugees
- Basic Human Needs (i.e. water, food, medicine, post traumatic stress management)
- Epidemiology and Public Health
Land Mine Identification

• Lawrence Carin, Norbert Geng and Mark McClure. ULTRA-WIDEBAND SYNTHETIC APERTURE RADAR FOR MINE FIELD DETECTION. NASA Ames Research Lab
• Jacqueline M. Bourgeois and Glenn S. Smith
Refugees

• Bjorgo, Einar. Using very high spatial resolution multispectral satellite sensor imagery to monitor refugee camps. International Journal of remote Sensing. 21-3, 611-616, (Feb. 15, 2000) – VHSR MS satellite sensor from the Russian KVR-1000 sensor, w/ 3.3m. Resolution

NOAA AVHRR- UN FAO- ARTEMIS
FEWS & Desert Locust-
Schistocerca gregaria

- DOC NOAA- US Dept of Commerce, National Oceanic & Atmospheric Administration
  - AVHRR – Advanced Very High Resolution Radiometer
  - HRPT – High Resolution Picture Transmission
- GAC- Global Area Coverage
  (4 km)
- LAC- Local Area Coverage
  (1.1 km)

• Identified all world’s international river basins (1948-1999)
• Compiled dataset of every reported interaction between two or more nations involving water as a scarce and/or consumable resource or quantity to be managed from 5 sources:
  – Foreign Broadcast Information Service (FBIS) 1978-2000
  – Conflict & Peace Data Bank (COPDAB) 1948-1978
  – Global Event Data System (GEDS) Project 1979-1994
  – Transboundary Freshwater Dispute Database-Ohio State University’s TFDD Collection of Water-Related Treaties
  – Literature Review
• Developed GIS with 100 data layers, including biophysical, socio-economic & geopolitical variables.
Trypanosomiasis

- Tsetse fly (Bantu Name) *Glossina morsitans*
- *Trypanosoma brucei*

Schistosomiasis

- Biomphylaria pfeifferi, B. tenagophila, B. glabrata, B. straminea & Bulinus truncatus
- Schistosoma mansoni
Plasmodium Falciparum: Female Anopheles Mosquito
Leishmaniasis

- Phlebotomus paptasi
- Leishmania
Onchocerciasis

- Merck & Co. donate Ivermectin, since Oct.’87 to treat onchocerciasis (150 mg/kg single dose) for microfilaria. Alternative: diethylcarbamazine (DEC) & Suramin (macrofilaria)
- Temephos & clorphoxim insecticides resistance

Onchocerca volvulus
River Blindness

- 27 species of onchocerca affecting animals

Elephantiasis is a parasitic disease which is transmitted from human to human by *mosquito* Aedes aegypti and other vector bites. The parasite tends to lodge in and block the lymph nodes that drain into the lower extremities, producing massive enlargement and deformity of the legs and genitalia.
Resuming Phase

– Damage Assessment
– Civil Government, Law Enforcement & Protection of Rights for Women, Children, Minorities & Impoverished Groups
– Defense, Diplomacy, Foreign Affairs, Foreign Aid & Foreign Investment
– Utilities
– Roadways & Transportation
– Communication Networks
– Cyber Infrastructure
– Employment
– Waste Management & Sanitation
Rebuilding Phase

- Housing
- Hospitals & Primary Health Care Facilities
- Schools & Institutions of Higher Learning
- Municipal Facilities
- Joint Ventures and Responsible Corporate Investment
- Cultural Centers
- Religious Institutions
- Agriculture, Rangeland and Animal Integration
- Urban Infrastructure
- Forestry & Natural Resource Management
Sustaining Phase

- Poverty Reduction
- Ensuring Social Justice, Equity & Fair Distribution
- Safeguarding Civil Rights & Civil Liberties
- Sustainable Water Resource Management
- Food Security
- Ecosystem Restoration and Feral Animal Biodiversity
- Clean Products and Processes
- Sustainable Economic Development
- Knowledge Management, Technology Transfer and Intellectual Property Protection
- Environmental Monitoring & Disaster Preparedness
- Climate Change Vulnerability Assessment, Mitigation and Adaptive Response
Waste Minimization
'80 's
Pollution Prevention 90's
Design for the Environment 90's
Sustainable Development (OIA)
Industrial Ecology (ORD)
Continuum of Sustainable Technologies

Interdependent Manufacturing (low waste, no waste)
Manufacturing, Service (OPPT, OW, OWSER)
Site-Wide Manufacturing, (OPPT)

Global in scope, balancing environment with development
Time, Domain

Manufacture, Agriculture, Service (OPPT, OW, OAR, OWSER)
June 21, 2004

Destroyed Village near Shataya
(258 of 269 structures destroyed)

Black rings are foundations of destroyed huts.
Red areas indicate remaining healthy vegetation.

Source: GeoEye, Inc. [License: UNCLASSIFIED]
June 21, 2004

Destroyed Village - Shataya
(1300 structures destroyed)

Black rings are foundations of destroyed huts. Red areas indicate remaining healthy vegetation.
June 21, 2004

**Destroyed Village near Darurja**
*(180 of 240 structures destroyed)*

Black rings are foundations of destroyed huts.
June 21, 2004

Destroyed Village near Shataya
(206 structures destroyed)

Black rings are foundations of destroyed huts.
Red areas indicate remaining healthy vegetation.

QUICKBIRD GeoEye, Inc.
GeoEye Products and Services
1000-A Building 10
15975 Denver West Factory Boulevard
Denver, Colorado 80275
1-303-429-1200

Department of State
202-267-7305
HSU_INFO@state.gov
Need for Moderate Resolution & High Resolution Data:
Need for Course & High Resolution Data


REFERENCES

- Elmquist, B. Land Use Assessment in the Drylands of SUDAN Using Historical and Recent High Resolution Satellite Data. LUCSUS. Lund University Centre for Sustainability Studies, Sweden (2004)
- FAO of the UN. Africover-Eastern Africa Module. Land cover mapping based on satellite remote sensing. Rome, Italy
- Foresman, Timothy W., Guo Huadong and Hiromichi Fukui. “Progress with the Digital Earth Global Infrastructure,” Global Spatial Data Infrastructure, 7th Conference, Bangalore, India (February 2-6, 2004)
References Continued


