

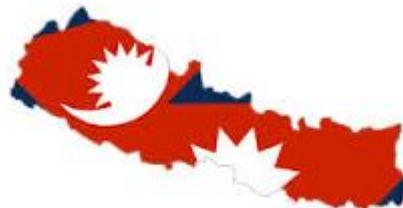
Evaluation of Nepal's Emergency Communication System

Investigation - Nepal Earthquake 2015

Learning Lessons from Nepal - Embracing ICTs for Disaster Management

Hotel Yak & Yeti, Kathmandu, Nepal
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Chauthara Story

- Telecom damage
 - NT & NCell towers were intact but had to be relocated
 - SmartTel tower, outside of Baazar, was unharmed
 - After 48 hours batteries drained & were stolen
- Electricity
 - Bazaar and villages in darkness for four weeks
 - Solar powered mobile device charge centers
- Radio Sindu was down for two days
 - Bamboo antenna hoist
 - Transmission equipment unharmed
 - Generator by ISOC

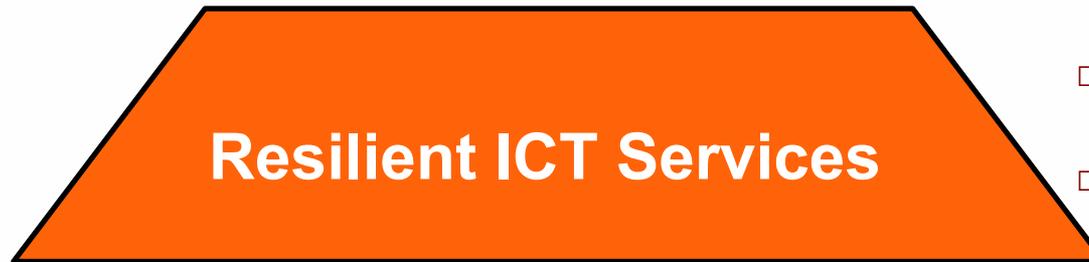


Areas for Improvement

Common Operating Picture



- Situational-Awareness
 - Alerting/Warning
- First-response
 - Dispatch (Resource Messaging)
 - Incident Command & Control
 - Situational-Reporting



Contingencies

- Business Continuity Planning
 - Institution, Personnel, ICTs
- Restoration of Services
 - Access, transmission, interconnection, power



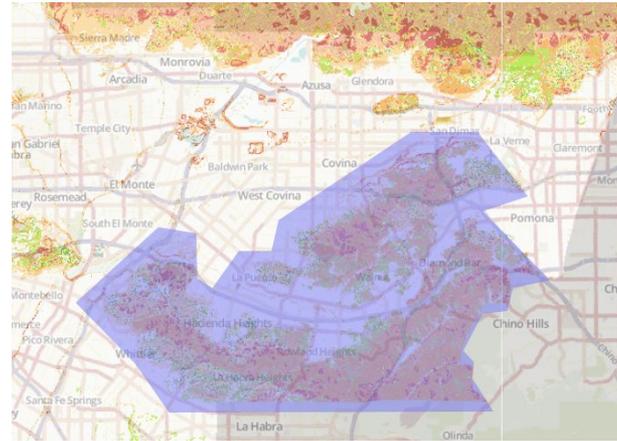
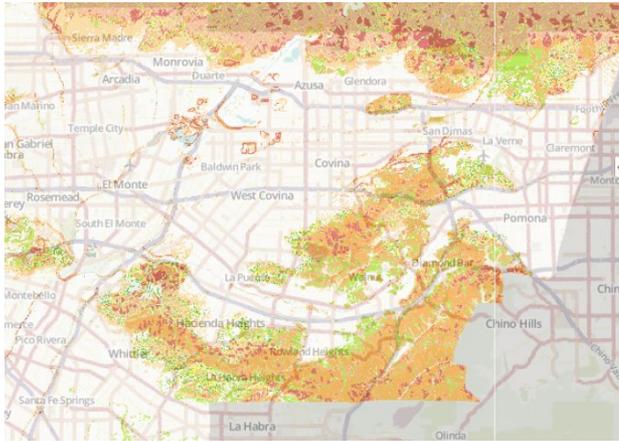
Risk Analysis

- Survivability
 - Hazards, guidelines
- Availability
 - Congestion, coverage

Key Recommendations

- I. Assess Telecom **Survivability and Availability** in support of a robust Government Emergency Communications (GEOC)
- II. Develop a **Rapid Restoration** of Access to Telecommunications (RREACT) program for continuity of emergency communications
- III. Pilot-test a Cross-Agency **Situational-Awareness** (CASA) platform and **Incident Command and Control** (ICCS) for a Common Operating Picture in support of emergency management

Activities: risk and coverage mapping



Using hazard, vulnerability, and exposure to identify risk (e.g., landslide prone area)

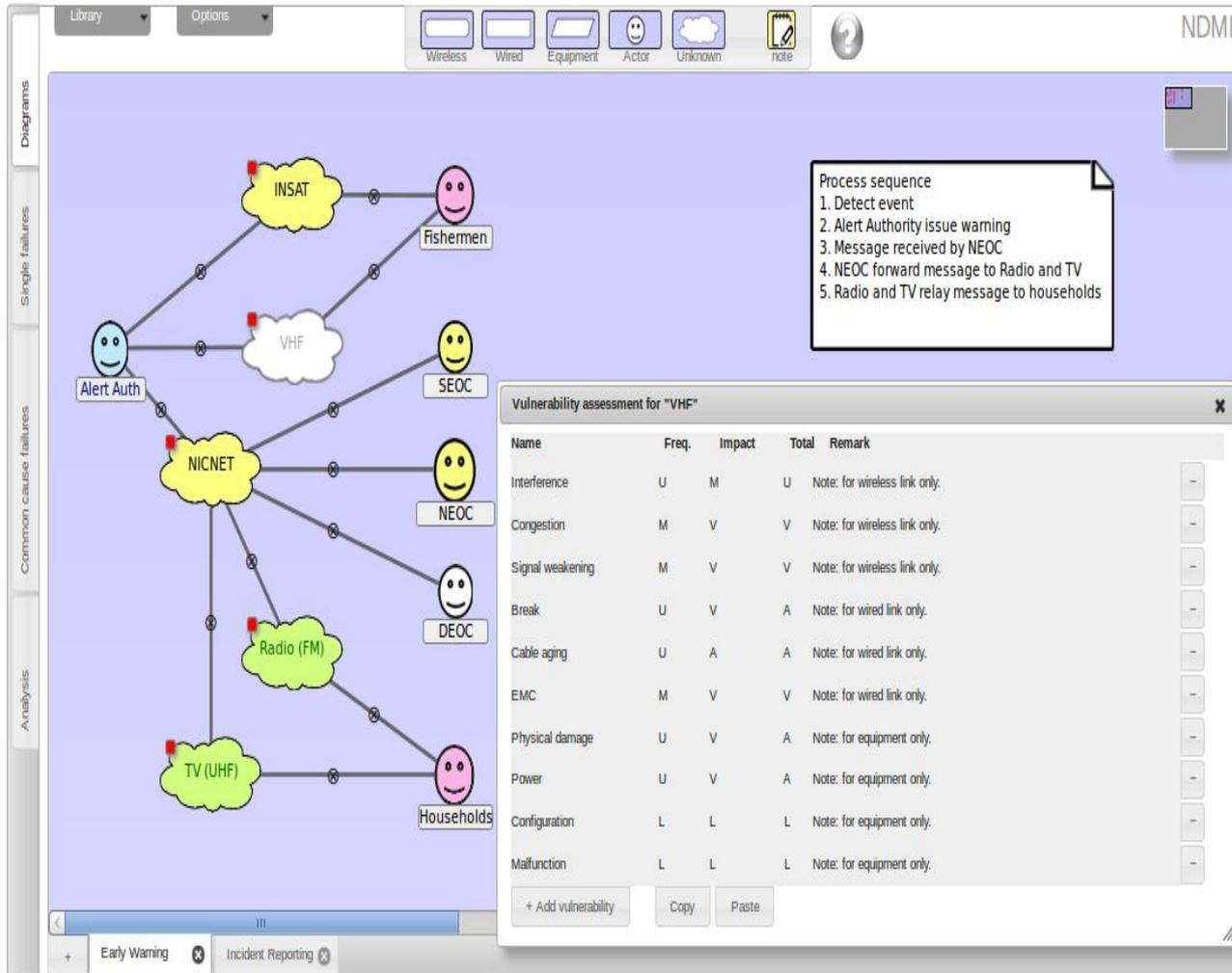
Define a risk-based predefined alert area to use when issuing heavy-rain and landslide warnings

Overlay with telecommunications signal coverage data to ensure warnings go through to intended recipients

Train a set of Trainers to assess the survivability and availability of emergency telecommunications (NETP 2013, Action Plan 8.3.3)

Activities: Risk Assessment and Refinement

RASTER Participatory Assessment



- What are the hazards and risks that threaten telecommunications infrastructure and services
- Identify the critical elements that must be improved to strengthen the resilience of the systems

Train a set of Trainers to assess the survivability and availability of emergency telecommunications (NETP 2013, Action Plan 8.3.3)

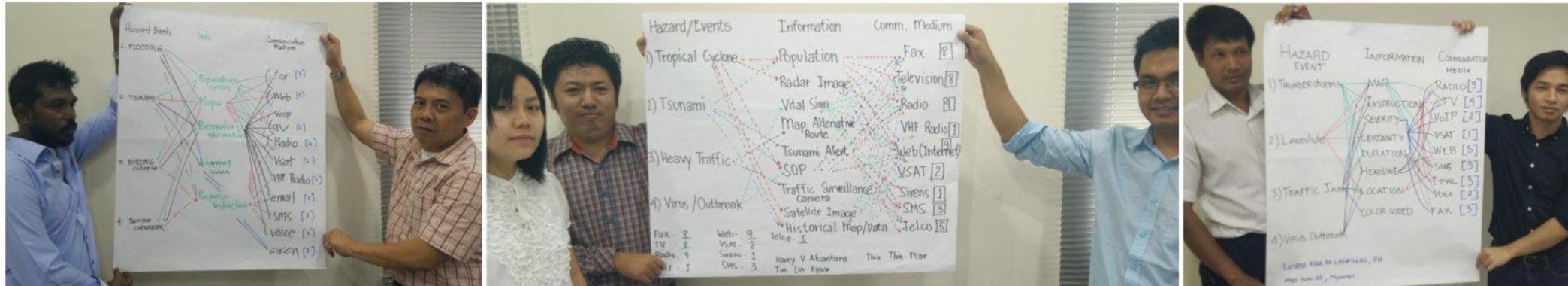
Activities: BC-DRP

- Build capacity in BC-DRP best-practices for developing a set of guidelines for the Nepali context (NETP 2013, Action Plan 8.7.3)
 - a. Conduct a comprehensive **BC-DRP needs and gap analysis** (GSMA published best-practices)
 - b. Develop **BC-DRP implementation guidelines** (NETCOMM)
 - c. Develop **BC-DRP self-evaluation guidelines** (NETCOMM)
 - d. Custom design **BC-DRP institutional programs** (telcos, data centers, services, personnel)

Activities: Infrastructure best-practices

- Facilitate a platform (e.g. NP Comm. Cl.) for stakeholders to build best-practices (NETP 2013, Action Plan 8.2.3)
 - a. Process the evidence from the Earthquake
 - b. Study the regional best-practices (LIRNEasia, ESCAP, ITU-D)
 - c. Combine a & b, earthquake and regional best-practices to derive the policy and guidelines (Earthquake building codes are available?).

Identify Stakeholder Information Needs



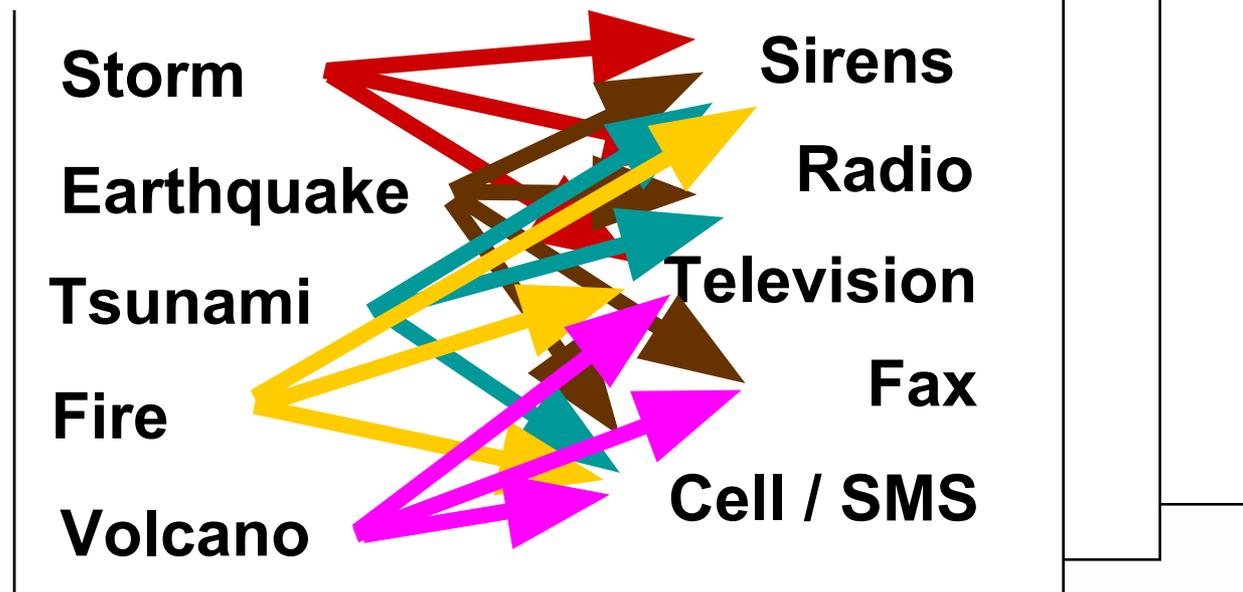
Another City / Province / Country

Another City / Province / Country

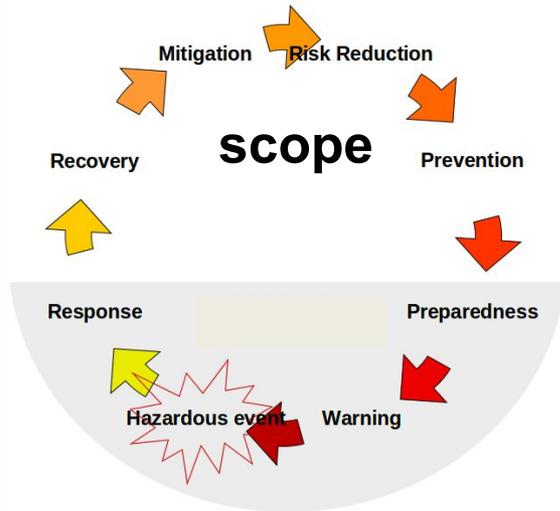
Your City / Province / Country

All governments have various public alerting systems:

- **Earthquakes/tsunami** by e-mail, news wire, Web sites, pagers, telephone calls ...
- **Weather** by news wire, fax, radio, television, e-mail, SMS text on cell phones ...
- **Fire, Security, Transportation** by television, radio, sirens, police with bullhorns...



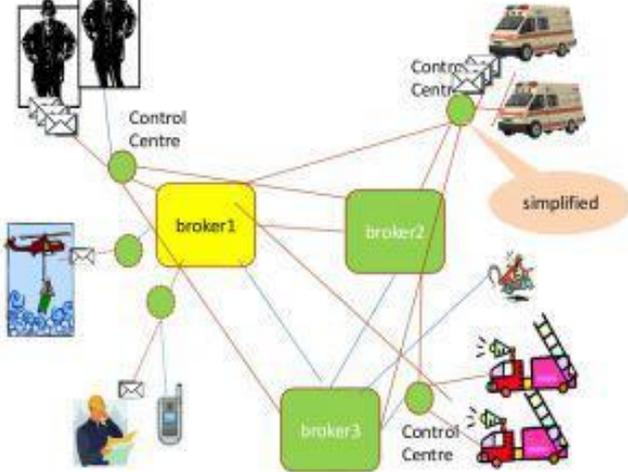
Emergency Communication - Simplified



functions



architecture



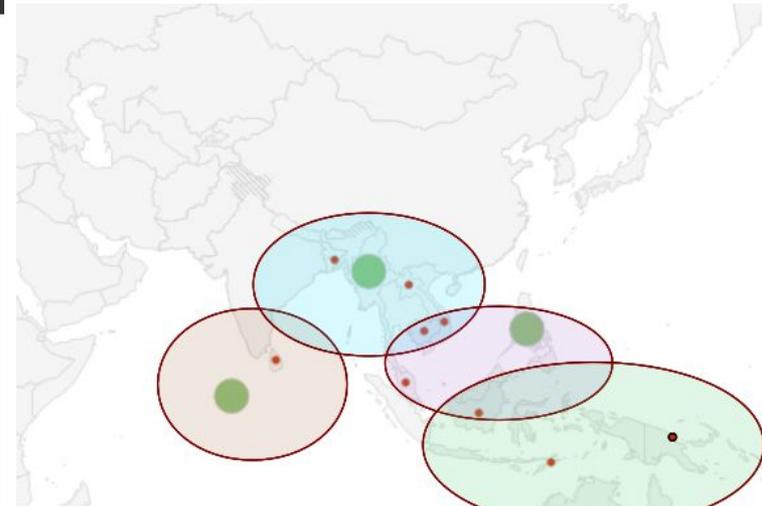
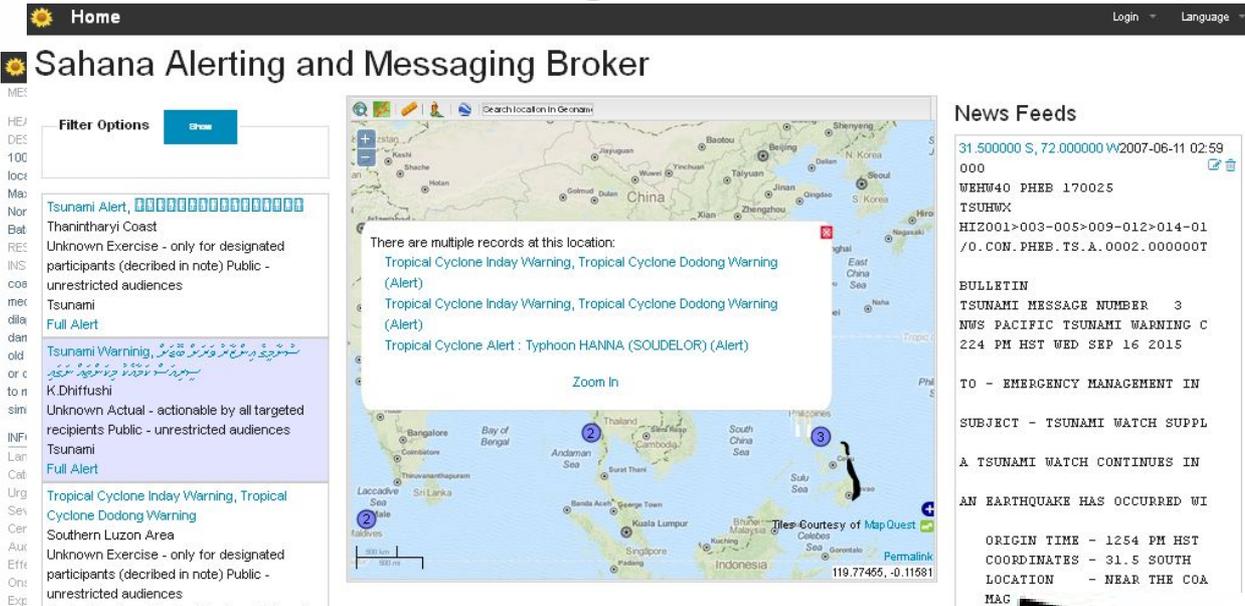
Situational-Awareness

CAP on a Map: keeping it simple

Sahana Alerting and Messaging Broker (SAMBRO) improving Cross-Agency Situational-Awareness

Using EDXL-CAP and Pub-Sub (RSS/Email/SMS/FTP/Twitter/)

Common Operating Picture



Incident Management

Common Operating Picture

The screenshot displays the DRMIS interface. At the top, there is a navigation bar with the logo and the text "DRMIS". Below this, there are several menu items: "NOTISIA", "MAP", "PROJEITU", "PROFILES", and "SELUK". The main content area is titled "Hare mapa tomak" and features a map of Timor-Leste. The map shows various districts and islands, with "Timor-Leste" labeled in the center. To the left of the map is a "LAYERS" panel with a search bar containing "Buka fatin iha Geonaran". Below the layers panel is a table of incidents under the heading "INFORMASAU FOUN". To the right of the map is a "DEZASTRE" panel listing several disaster events.

| INFORMASAU FOUN | | |
|---|------------------------------|-------------------|
| Training Material | Timor-Leste | 22 Jun 2013 09:00 |
| Mercy Corps (MC) DRR Mainstreaming Training Module Eduardo dos Santos - Mercy Corps (MC) | | |
| Report | Fatimas (Bazarate) (Liquiçá) | 25 Feb 2013 09:00 |
| Oxfam Situational Report Jose Soares - Oxfam | | |
| Incident | Fuloro (Lospalos) (Lautém) | 15 Feb 2013 09:00 |
| Mercy Corps (MC) Outbreak of Cholera Eduardo dos Santos - Mercy Corps (MC) | | |
| Alert | Railaco (Hatolia) (Ermera) | 05 Feb 2013 09:00 |
| National Disaster Operation Center (NDOC) More rains expected. Floods could become more severe Uliana Otila - National Disaster Operation Center (NDOC) | | |

| DEZASTRE | |
|----------|--------------------------------|
| | Cyclone Simone 01 Sep 2012 |
| | Drought Zumalai 01 Aug 2012 |
| | Aileu Floods 01 Jul 2012 |
| | Same Earthquake 01 Jun 2012 |
| | Dili Tsunami 01 May 2012 |

Timor-Leste NEOC uses a simple alert and incident reporting system.

Resource Management System

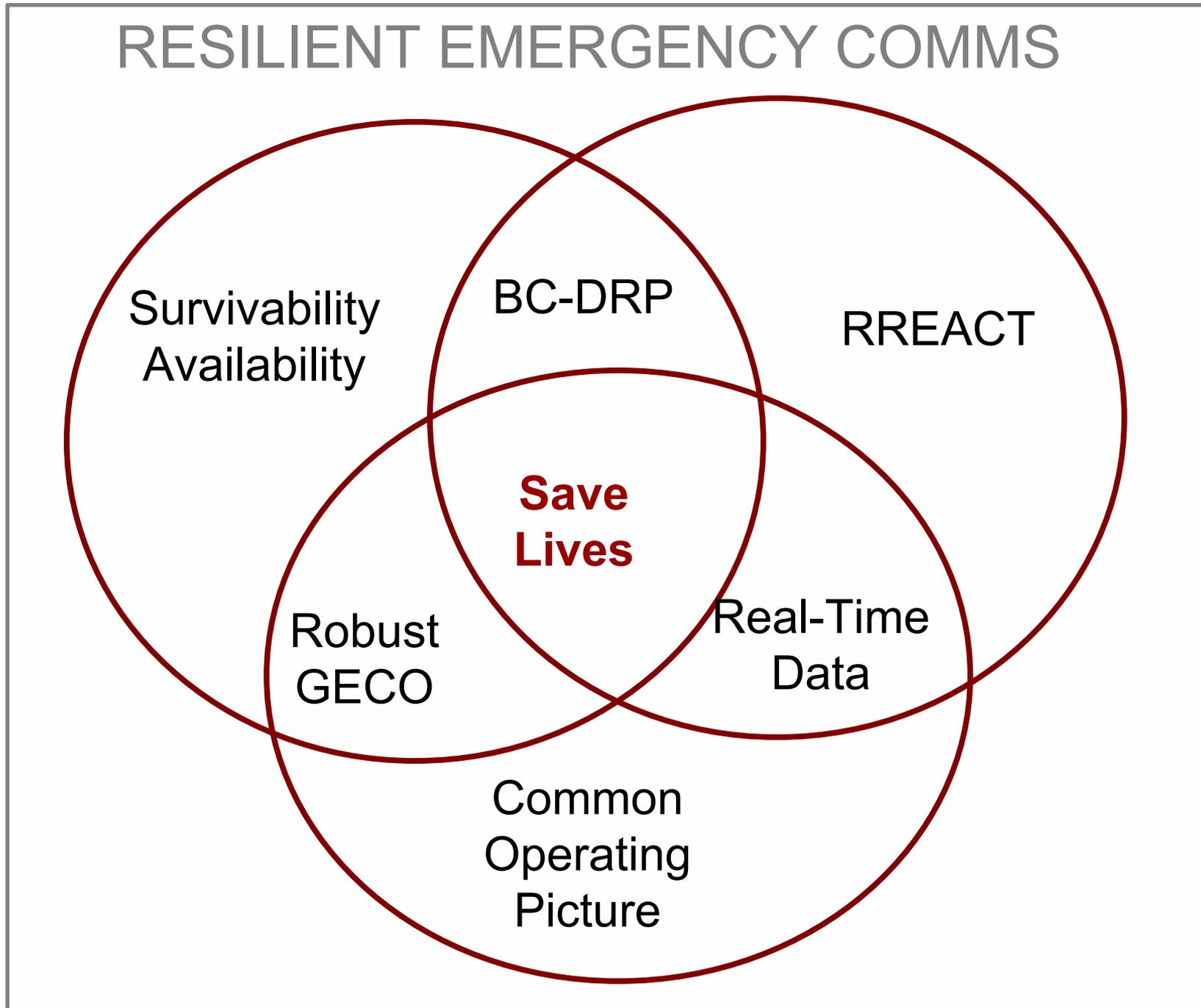
Telcos to manage a RREACT program

Common Operating Picture

The screenshot displays the RMS (Resource Management System) interface. At the top, the header includes the RMS logo, the text "RESOURCE MANAGEMENT SYSTEM IFRC", and user navigation options like "Administration", "Profile", "Change Password", "Logout", and "English". Below the header is a navigation menu with tabs for MAP, STAFF, VOLUNTEERS, MEMBERS, WAREHOUSES, ASSETS, ASSESSMENTS, PROJECTS, VULNERABILITY, EVENTS, and RDRT. The main content area features a world map with red location markers and a "NEWS" sidebar with two announcements: "New feature released soon: Incidents" and "New module released soon: Vulnerability tracking". At the bottom, there are six functional modules: STAFF (Add new and manage existing staff), VOLUNTEERS (Add new and manage existing volunteers), MEMBERS (Add new and manage existing members), WAREHOUSES (Stocks and relief items), ASSETS (Manage office inventories and assets), and ASSESSMENTS (Design, deploy & analyze surveys). A "PROJECTS" module is also visible at the bottom left, with the description "Tracking and analysis of Projects and Activities".

Each TSP can manage their own staff, warehouses, assets, incident management and alerting; on a single shared server; or sync

Elements and their Relationships



THANK YOU