Movable and Deployable ICT Resource Unit (MDRU) in the Philippines: Developing Resilient Networks in Disaster-Prone Countries

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CVISNET Foundation, Philippines
Outline

• Disaster Aftermath: Lessons Learned
• How the project started in the Philippines
• The Project study
• Agreements and Commitments
• The project site
• Project layout
• Future of the Project
Japan Tsunami 2011

- 9.0 Recorded magnitude earthquake
- Over 15,000 casualties
- Near total communications network failure
- Power outages across the country
- Communications networks recovery took 2 months
Typhoon Yolanda
(International code: Haiyan)

- Damage to over 500,000 Houses
- Over 15,000 casualties
- Telecommunications was lost
- Wide spread power outages
- Total loss of networks
- Network recovery took 3-12 months
Project Stakeholders

• Ministry of Internal Affairs and Communications (MIC)
• International Telecommunications Union (ITU)
• Department of Science and Technology (DOST)
• Municipality of San Remigio
• Nippon Telegraph and Telephone (NTT)
• Central Visayas Information Sharing Network (CVISNET)
Project beginnings

- International Telecommunications Union – Malaysia Communications and Multimedia Commission
- (ITU-MCMC) Contest to promote the Transformational power of broadband – “Connecting at the Roots”.
  - “Broadband for Communities / Schools”
  - “Broadband in all phases of disaster management and risk reduction”
- Held on November 2013 in Thailand
Movable and Deployable ICT Resource Unit
Overall Winner
Broadband Internet for remote schools
Runner-up Awardee

The internet helped me a lot in my studies.
ITU-D Broadband for Community Awardees
Collaboration Beginnings

- Through disaster experience by both countries a strong partnership was developed
- With the purpose to test a resilient communications facility in the Philippines
- Improve and expand the MDRU capabilities
- Demonstrate that the MDRU was viable in tropical areas
- Verify that the unit can be used during disaster and non-disaster situation
- To come up with a sustainability solutions to the MDRU project
The Project Study

• Test the MDRU in a typhoon devastated area in the Philippines
  – Simulation and testing in a town center located in Northern Cebu, Municipality of San Remigio
  – Real world testing of the MDRU in Cebu Province
The Project Study

- To test the MDRU in relation to tropical climate of the Philippines
  - High humidity versus low humidity
  - Four seasons in Japan compared to the two seasons in the Philippines
The Project Study

- Test the unit during non-disaster periods
  - Simulate usage in town center using the MDRU
  - Test and run applications in the town center
  - Stress test and configure the unit to meet the needs of the people
  - Develop information systems for local use
  - Report and document findings
The Project Study

• Implement a user friendly system that can be deployed quickly
  – Easy to use system that can be taught to locals
  – Set up time in less the one hour
  – Test system capabilities
The Project Study

• Conduct training to local residents in how to use the system
  – Regular training session provided by CVISNET in how to operate and manage the system
  – Conduct trainers training to community leaders
COLLABORATION BETWEEN TWO NATIONS
Assistance from Japan
Assistance from Japan

• A component of the MDRU
  – Modular system
  – Smart phone technology
  – Wireless technology
Project Study

• Initial discussion with NTT and local officials together with DOST and CVISNET
  – Meetings with DOST and ICTO on the future of MDRU in the Philippines
Project Study

• Trainers training conducted by NTT Team in the Philippines
  – Continuing training will be conducted by CVISNET to local counterparts
Agreements and Commitments
Agreements and Commitments
Cooperation Agreement for the Development of MDRU between the International Telecommunications Union, the Ministry of Internal Affairs and Communications of Japan and the Department of Science and Technology of the Philippines

(From left) Undersecretary Louis Casambre of the Department of Science and Technology’s Information and Communications Technology Office, Japanese Ministry of Internal Affairs and Communications Director-General for International Affairs Soichiro Seki and International Telecommunications Union’s Brahima Sanou; after the signing of the cooperation agreement.
Agreements and Commitments

Joint Statement of the DOST and MIC

Joint Experiment Agreement of NTT and CVISNET

JOINT EXPERIMENT AGREEMENT
On
Movable and Deployable ICT Resource Unit

This Joint Experiment Agreement (hereinafter this “Agreement”) is made and entered into as of the [14th April, 2014] (hereinafter “Effective Date”) by and between Telephone Corporation, a Japanese corporation with its principal place of business at DOST 7 & Cebu City, Philippines 6000 (hereinafter “CVISNET”) (hereinafter referred as the “Party” individually or the “Parties” collectively).

WHEREAS, NTT has been engaged in the development of Movable and Deployable ICT Resource Unit (hereinafter “New Technology”) and has certain experience in deploying it.

WHEREAS, CVISNET has conducted the Central Visayas Information Sharing Network (CVISNet), an internetworking project initiated by the Development Council (RDC) and the Department of Science and Technology Region 7 which aims to establish an e-government and e-commerce information sharing among government agencies and the private sector.

The Department of Science and Technology (DOST) of the Republic of the Philippines, represented by Secretary Mario G. Montejo, referred to as “DOST”;

and

The Ministry of Internal Affairs and Communications of the Government of Japan, represented by Minister Yoshitaka Shindo, referred to as “MIC”;

Expressed their desire to promote the cooperative exchanges in the field of ICT between the two countries considering:

- that the development of ICT is a major factor in the promotion and advancement of commerce as well as the social and economic development of each country;

- the importance of development in various areas of ICT to the mutual benefit and interests of both countries;

Manila, January 13, 2014
Agreements and Commitments

Signing by Municipality of San Remigio as MDRU Project Beneficiary

Republic of the Philippines
PROVINCE OF CEBU
Municipality of San Remigio

OFFICE OF THE MUNICIPAL MAYOR

January 9, 2014

HON. MARIO C. MORETE
Secretary
Department of Science and Technology
Cebu Provincial Capitol, Cebu City, Philippines

Thru:
ENGR. EDUARDO L. PARADEA
OIC – Office of the Regional Director
Department of Science and Technology – Regional Office No. VI
S&T Complex, Sugbo, Lapu-Lapu, Cebu City, Philippines 6000.

Dear Hon. Morete,

This is to formally signify our intent to support the implementation of the project on “Movable and Deployable Resource Unit (MDRU)” in the Municipality of San Remigio, Cebu spearheaded by the Central Visayas Information Sharing Network Foundation, Inc. (CVISNET) and Japan Telegraph and Telephone Corporation (NTT). In close partnership with the Department of Science and Technology.

Further to our commitment, the Municipality of San Remigio will be entering into a Memorandum of Agreement with CVISNET and NTT as the pilot beneficiary of this project in the Philippines.

We are honored to be identified as the pilot recipient of this project. This is a great opportunity which will showcase notable contribution to our municipality and nation in the future for disaster readiness and ICT development.

We look forward to our fruitful collaboration in the realization of this undertaking.

Thank you very much.

Sincerely yours,

MARIANO R. MARTINEZ
Municipal Mayor

May 26, 2014

ENGR. ROBERTO A. CABARRUBIAS
President
Central Visayas Information Sharing Network Foundation, Inc. (CVISNET)
Cebu City 6000

Dear Engr. Cabarrubias:

Greetings from DOST (ICT)

Please accept our congratulations for a job well done for making our islands entry won in the International Telecommunications Union-Multidiscipline Communications and Multimedia Commission (ITU-MCMC) Contest in Bangladesh, Thakaly, last November 2003.

This victory had been DOST’s inspiration in building strong ties with the International Telecommunications Union (ITU) and the Ministry of Internal Affairs and Communications (MICA) – Japan through our project “Feasibility Study of Building a Backbone through the Use of the Movable Deployable ICT Resource Unit (MDRU)”.

Last May 13, 2014 I represented the signing of the Agreement on this project in behalf of Department of Science and Technology. The MOA was signed between DOST together with the Ministry of Internal Affairs and Communications – Japan represented by Mr. Saemilo Saito Director-General for Internal Affairs, Global ICT Strategy Bureau; and the International Telecommunication Union represented by Mr. Shizuo Sato, Director for DICT.

Considering that the Central Visayas Information Sharing Network Foundation, Inc. (CVISNET) is the major partner of the DOST in the conceptualization of the MDRU, and we believe that with your collaboration, we can make this project a success. Thus, the Department of Science and Technology – Information and Communications Technology Office hereby recommends CVISNET to be the local organization partner of the MDRU project.

Thank you and warm regards.

Very truly yours,

MARC LOUIS NAPOLEON C. CASAMAYOR
Executive Director
The Philippines

- Population: 98.39 million (World Bank 2013)
- Located in the Pacific rim of fire
- Averaging 19 typhoons per year
The Project Site – San Remigio, Cebu, Philippines
Map of the Philippines and Inset San Remigio, Cebu
San Remigio

- Location: Northern Cebu
- Population: 51,394 (2010 Census)
- 3rd class municipality
- Land area: 95 km²
- Population density: 540 per km²
The Project Site – San Remigio, Cebu, Philippines
Existing ICT Projects with DOST and CVISNET

Community e-Center of DOST

Wireless Infrastructure Provided by CVISNET
The Project Site – San Remigio, Cebu, Philippines
Typhoon Yolanda (Haiyan) Destruction

San Juan Nepomuceno Parish/ San Remigio, Cebu before and after
The Project Site – San Remigio, Cebu, Philippines
Typhoon Yolanda (Haiyan) Destruction

San Remigio National High School Destruction and Relief Goods Distribution Problem
MDRU Project Layout

San Remigio Municipal Hall
Command Center

San Remigio National High School
Evacuation Center

Fixed Wireless Access
26 GHz
Point to Point Network

Movable and Deployable ICT Resource Unit (MDRU) Project
MDRU Project Components
MDRU Project Components

MDRU System with Smartphones

Server Components
- L2 Switch
- RoR Manager
- MGW / MGW Manager
- APL Server
- Storage and UPS

Wireless Components
- DAP 3690 Wireless Access Point
- JRC Fixed Wireless Access (FWA) IPAS (Wireless IP Access System)
- Broadband wireless point-to-multipoint communication system
- 26 GHz high-speed IP access up to 80 Mbps
MDRU Activities 2014 - 2015

Promotions and exhibits
MDRU Activities 2014 - 2015

Equipment Delivery and installation
MDRU Activities 2014 -2015

Wireless facility installation
MDRU Activities 2014 - 2015

Equipment installation and testing
MDRU Activities 2014 -2015

Launching ceremonies with stakeholders
MDRU Activities 2014 -2015

Media Conference and VIP meetings
MDRU Activities 2014 - 2015

People behind the project
Future of the Project

- Establish a full MDRU implementation with mobile capabilities
- Integrate the Community Information Systems with the current disaster management system
- Integration of the TV whitespace technology
- Case study for the Mobile ICT Program of the Philippine government
Serving communities

Resilient networks

Lasting Partnerships
ありがとうございます
Daghang Salamat
Thank you very much