Applying ICT to Build Disaster-Resilient Cities and Towns Synergistically

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CO-PRESENTERS

LIVEABLE CITIES CHALLENGE

Liveable Cities Lab on Resilience

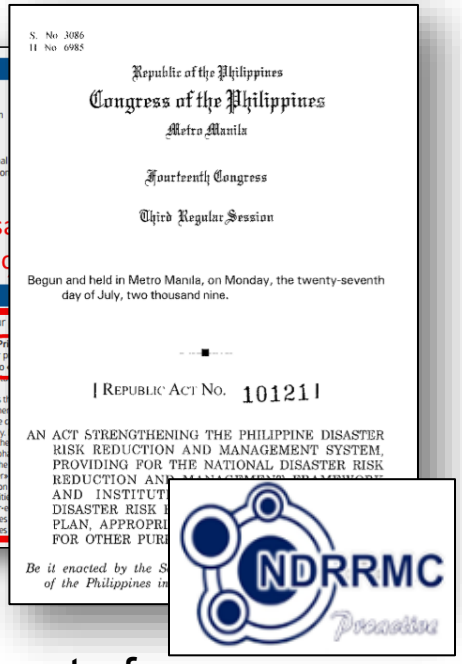
IN PARTNERSHIP WITH ASSURE pdrf PHILIPPINE DISASTER RESILIENCE FOUNDATION Globe Business

Applying ICT to Build Disaster-Resilient Cities and Towns Synergistically

We will examine how the **OPERATIONS CONTROL CENTER (OCC)** becomes a **CENTRAL NODE** for the **INTEGRATION OF ICT** in achieving synergies between municipalities..

UNDRR
UN Office for Disaster Risk Reduction

SENDAI 2015-2030


S. No. 3086
H. No. 6985

Republic of the Philippines
Congress of the Philippines
Metro Manila

Fourteenth Congress

Third Regular Session

Begun and held in Metro Manila, on Monday, the twenty-seventh day of July, two thousand nine.

[REPUBLIC ACT NO. 10121]

AN ACT STRENGTHENING THE PHILIPPINE DISASTER RISK REDUCTION AND MANAGEMENT SYSTEM, PROVIDING FOR THE NATIONAL DISASTER RISK REDUCTION AND
AND INSTITUT
DISASTER RISK
PLAN, APPROPRI
FOR OTHER PURI

Be it enacted by the S
of the Philippines in

NDRRMC

The OCC becomes an invaluable asset for achievement of RA 101211 and the SENDAI FRAMEWORK, while providing a node for SYNERGY BETWEEN MUNICIPALITIES

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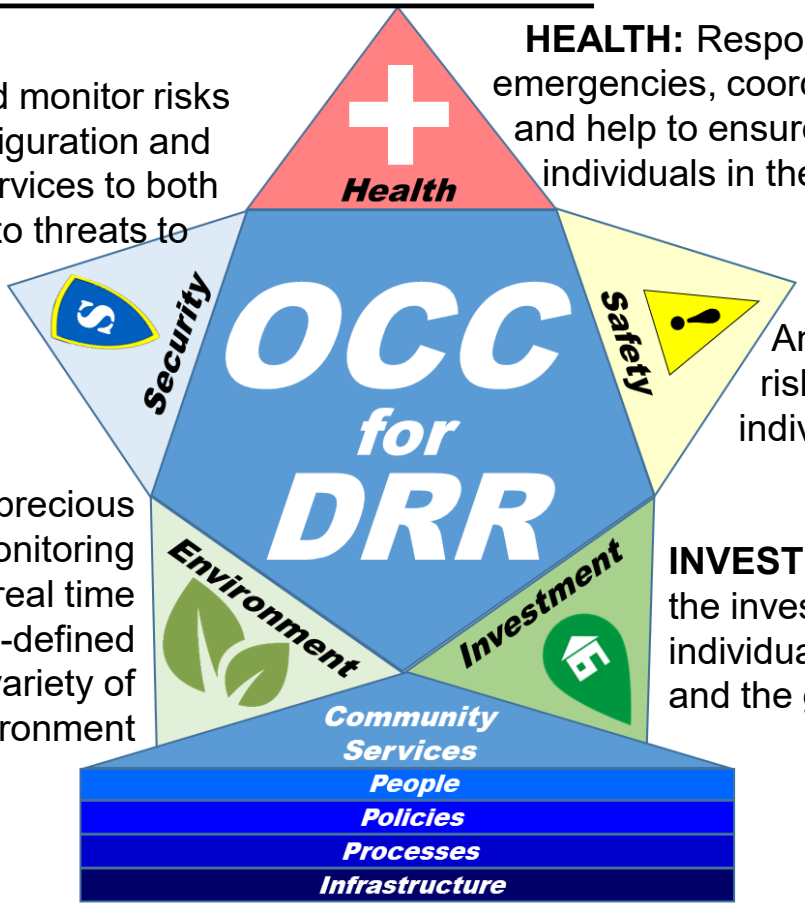
Vision and Approach : The OCC Model

SECURITY: Anticipate and monitor risks to enable the proper configuration and deployment of security services to both anticipate and respond to threats to security

HEALTH: Respond to medical emergencies, coordinate services, and help to ensure the health of individuals in the community



SAFETY: Anticipate and monitor risks to ensure safety of individuals and companies

ENVIRONMENT: Protect our precious environment by integrating monitoring mechanisms which provide real time alerts, along with a pre-defined response framework for a variety of challenges facing our environment

INVESTMENT: Protect the investment of individuals, companies, and the government

The **Firm Foundation** of the OCC is built upon **People/Policies/Processes/Infrastructure**

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Vision and Approach : What is the Role of the OCC?

- Intelligent Operations Center for Emergency Management (DOST)
- PhiVolcs Earthquake & Volcanology Center
- PAGASA

(etc)

- Global Tsunami Warning Center (UNESCO)
- CDC Global Response Network
- Global Seismographic Network
- Security Agencies (Interpol, etc)
- World Meteorological Organization

(etc)

National ⟷ Global

ASSESS RISK INFORMATION

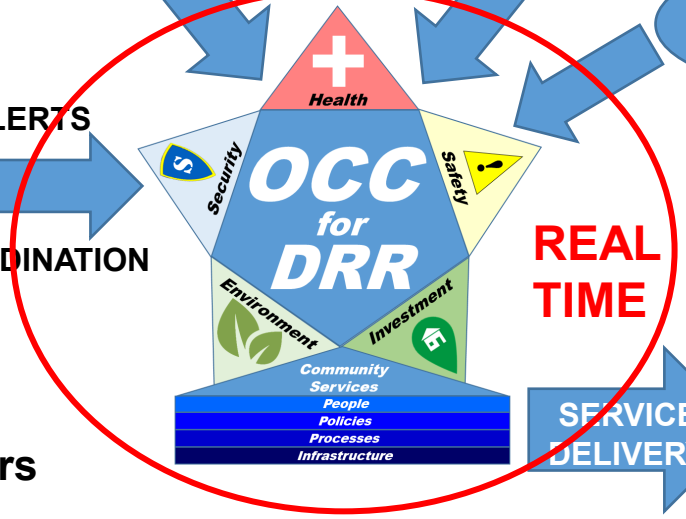
Local Events

- Marine / Air / Traffic incidents
- Crime
- Corporate Accidents
- Traffic Congestion
- Etc.

- **Relief Organizations**
- **Military**
- **Security**
- **Government Agencies**
- **ICT / IOT / Sensors**

ALERTS

COORDINATION



REAL TIME

SERVICE DELIVERY

AUDIENCE

- **Companies**
- **Intelligent City Services**
- **Local Government Units (LGUs)**
- **Individuals**

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OCCs with ICT to Build Synergy

So our challenge is to leverage learning and best practices to build a network of OCCs at the which provides synergy and an outstanding benefit to the surrounding LGUs and communities.

Providing this will create a new global best practice, and prove immensely valuable not only to the Philippines, but also to many other developing countries in Asia, Africa, the Middle East, and South America.

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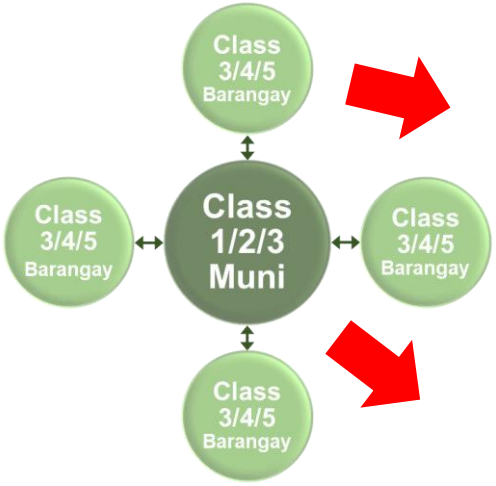
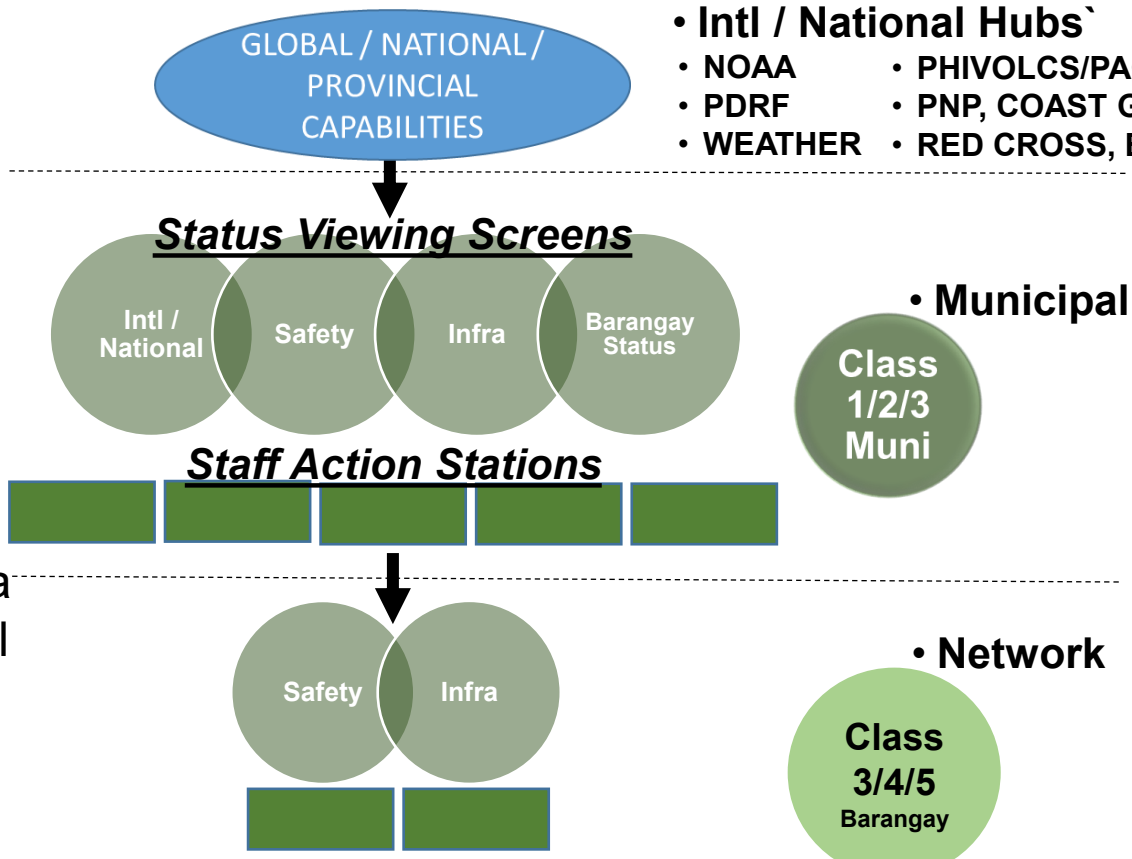
CONCEPTUAL MODEL



REAL WORLD IMPLEMENTATION



We will bridge the gap from a "conceptual" design, to a real world networked design with more capabilities at the core, yet connectivity to the Barangays

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Converge ICT for Synergy

Guiding Influences

NDRRMC

UNDRR
UN Office for Disaster Risk Reduction

Subject Matter Experts / Leadership

DEPARTMENT OF TRANSPORTATION 1899

DSWD

ASSURE

DOST

pdrf

NCTS

UNIVERSITY OF THE PHILIPPINES 1908

UP PLANADES

PHILIPPINE TECHNOLOGICAL UNIVERSITY

LUMEN ET LUMINE — DOST — EL OBSERVATORIO DE MANILA

OCC for DRR

Health · Safety · Investment · Environment · Security

CREATE RESILIENT COMMUNITIES

Implementation Platform To CONVERGE TECHNOLOGIES

CONNFINITY

ASTI ARQ

RagingRiver ICT Corporation

vitro

BLOCKCHAIN TECHNOLOGY

ethereum

Microsoft Business Intelligence

waze

G Suite

Globe

Information Sharing and Collaboration

DEPARTMENT OF TRANSPORTATION 1899

PHILIPPINE RED CROSS

LTFRB

pdrf

DOST PHIVOLCS

NOAA — NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION — U.S. DEPARTMENT OF COMMERCE

DOST

COARE — COMPUTING AND ARCHIVING RESEARCH ENVIRONMENT

BIG DATA Historical Context

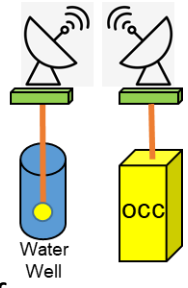
Innovative New IOT Implementations build Synergies

IOT allows the CONVERGING OF TECHNOLOGIES to be completed through the execution and integration of various strategies.

NOTE: The actual implementation depends upon the needs of the central municipality, as well as its surrounding municipalities and barangays – the essence of building Synergy.

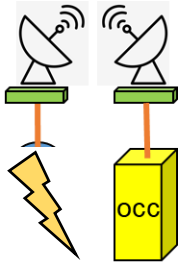
IOT 01:

Measure water resources in municipal wells; Allows a national measurement of available resources at the municipal level



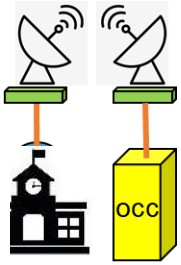
IOT 02:

Measure status of electrical power grid; Raise alarms if power draw exceeds capacities



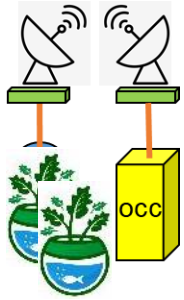
IOT 03:

Link to the alarm system of critical point facilities like schools; commercial opportunity to offer links for businesses



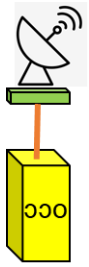
IOT 04:

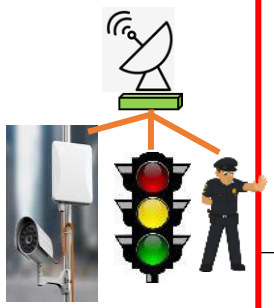
Connect to existing AQUAPONIC agricultural site; create model for automated ag sites remotely monitored



IOT 05:

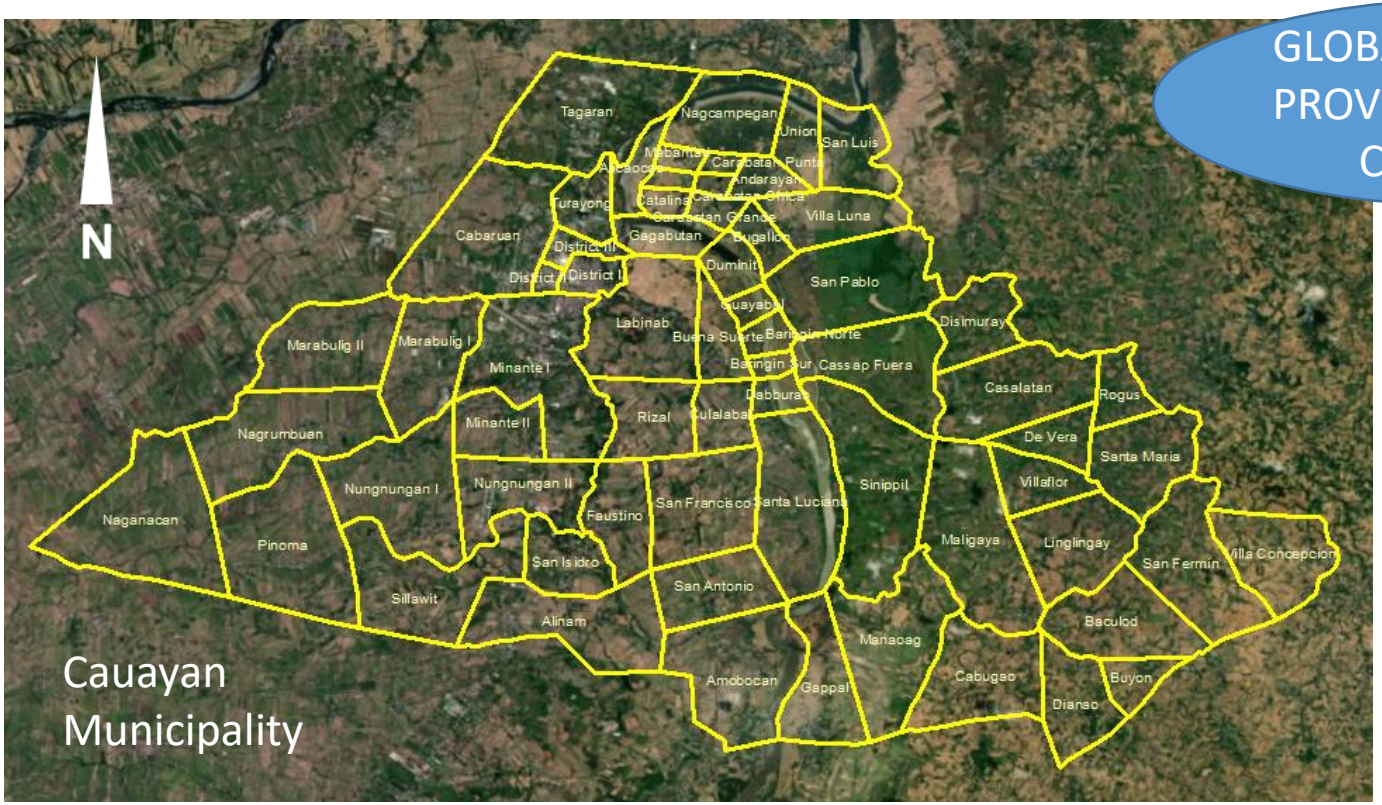
Utilize existing DOTR IOT monitoring system to monitor traffic, control traffic lights and provide real time info to traffic police for managing traffic and emergencies

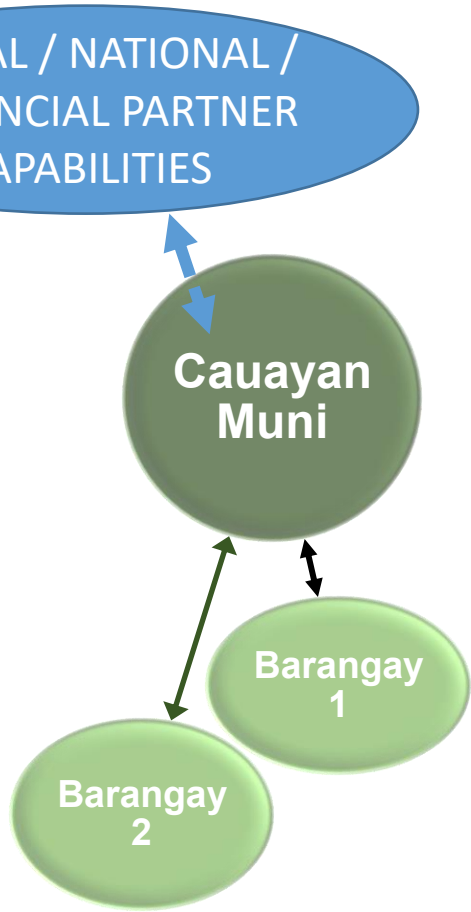




Example Implementation / Cauayan

We have had discussions with the government officials of the Cauayan Municipality, to describe a potential approach.

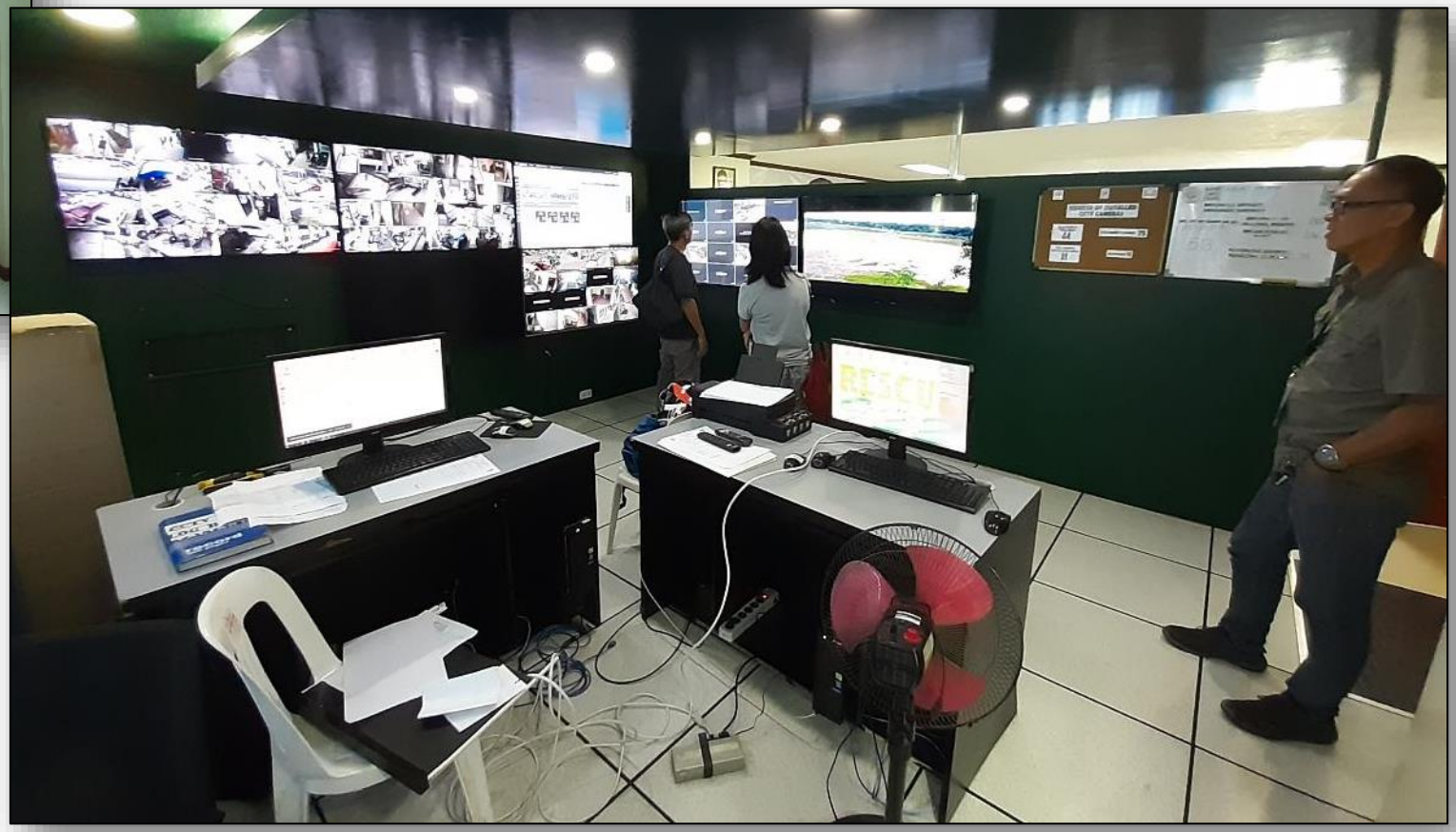




Example : Cauayan Emergency Ops Center

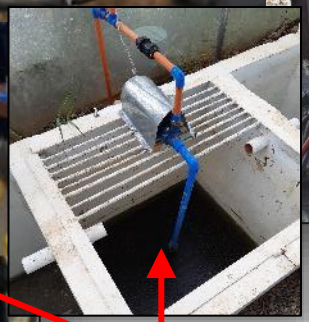
Municipal Disaster Center (2019)

Cauayan has The beginnings of a control center in place. This will allow a demonstration of how to work with a Municipality and its surrounding LGUs and Barangays…



Example : Cauayan / Aquaponics Site

Cauayan also has a working Aquaponics Center with instrumentation for Temperature, Water Level, and PH level. This site is ideal for remote monitoring.



MISTER SYSTEM ACTIVATION SOLENOID (TEMP)

PH AND WATER LEVEL MEASURE AREA