Exploring the role of ICT in Inclusive Disaster Governance and Community-Based Disaster Risk Management in the Philippines

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project

- **on the possibility of transforming disaster governance and management in PH thru ICT.**
- **how to institutionalize citizen participation**
- **policy oriented**

project

- **three relatively autonomous components**
  - **Cheryl on the ecology of ICT use.**
  - **Sherwin will look at Disaster Informatics**

Disaster Governance

the way stakeholders coordinate at community, national and regional levels in order to manage and reduce disaster and climate related risks

CONTEXT

There has been a shift in the framing of disaster risk reduction and response from a management approach to one focusing on governance.

CHANGE OF FOCUS

- **from technical management to legal, institutional, social and economic context**
- **from regulations to multi-actor participation and negotiation**

FROM THE LITERATURE

- **Disaster Governance is shaped by forces such as**
  - **globalization**
  - **social inequality, and**
  - **sociodemographic trends.**

FROM THE LITERATURE

- **DG is "nested" within and influenced by overarching societal governance systems.**
  - **poorly governed societies and weak states are almost certain to exhibit deficiencies in disaster governance.**

FROM THE LITERATURE

- **Governance regimes are**
  - **polycentric,**
  - **multiscale, and**
  - **multilevel**

    condition in which power is fragmented among multiple state and societal agents operating at various spatial scales.

MLDG

- **COORDINATION is the central challenge**
- **ICT can help**

DISASTER GOVERNANCE IN PH

- **Regularized state involvement started in Civil Defense Act (RA 1190) of 1954**
- **Between 1978 and 2010, the National Disaster Coordinating Council (NDCC) was lead agency.**

DISASTER GOVERNANCE in PH

Landmark laws:

1) Climate Change Act of 2009;

2) Philippine Disaster Risk Reduction and Management Act of 2010; and

3) People's Survival Fund of 2012

DISASTER GOVERNACE in PH

Landmark laws:

- hailed as a "proactive approach to disaster risk governance "
- "created a common language, vision and understanding of the responsibilities"

DISASTER GOVERNANCE in PH

HOWEVER

significant "institutional gaps" remaiN on the national and local levels

DISASTER GOVERNACE in PH

“Coordination within the bureaucracy was a huge challenge, and countless barriers remained for closing these gaps” - WB

DISASTER GOVERNACE in PH

"Local DRRM structures are often not functional, community participation has not been maximized and there remains a lack of clarity about key governance and funding provisions" - Oxfam

THE TASK

1) to understand the conditions for successful stakeholder participation

2) in order to design an inclusive, ICT-enabled process for multilevel disaster governance in PH

Crisis Informatics in the Philippines

Examining possible challenges and opportunities for Local Governments and communities

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The Haiyan Experience

Nov. 1912 (4.6-9.1 m surge)

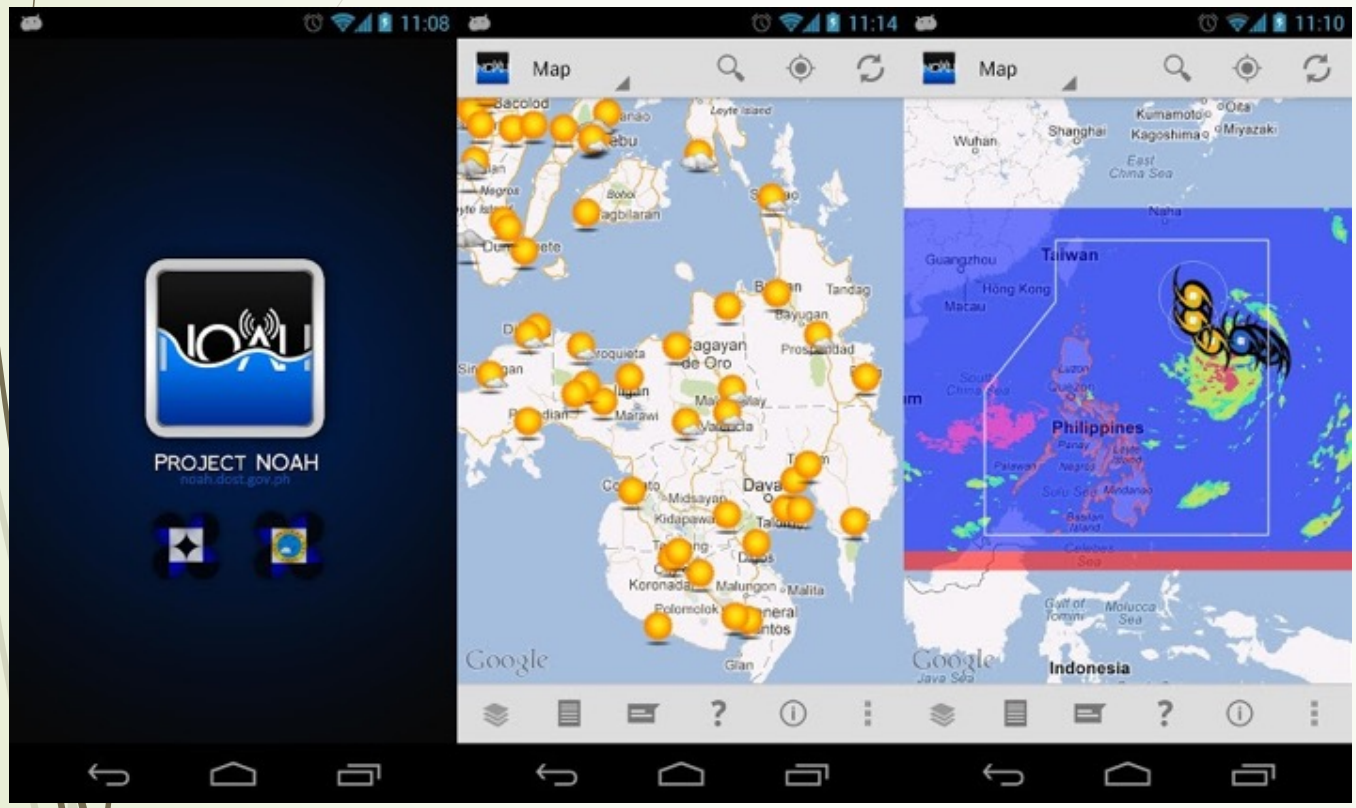

THE WASHINGTON HERALD


15,000 DIE IN PHILIPPINE STORM

Oct. 1897 (0.4-7.3 m surge, 1,200-1,300 dead, churches destroyed)

Source: Dr. M. Lagmay's presentation (2013)

Using ICTs in DRRM



Project NOAH Application (USD $5 million+++ in 2014 alone)

Moses Tablet ($400)

Doppler Radar ($2 million)

ICT and Social Media - Haiyan

Before Early Warning System

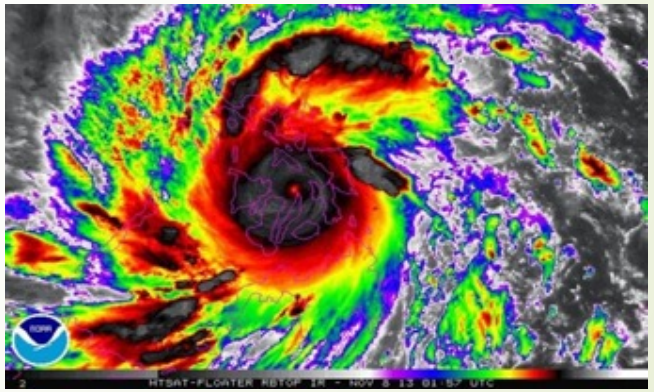
- PAGASA - The warnings from the government and media came days before the typhoon made landfall and therefore there was enough time for preparations and evacuations before
- Government offices asked residents near the coast repeatedly to evacuate and used force in a few cases.
- PAGASA/NDRRMC failed to emphasize the seriousness of the storm surge but stressed a rain warning
- LGU was apparently not serious enough to make people understand

After Recovery

- Use of social media as coping mechanisms (contacts, sharing) - Ties to a larger community - trigger an individual to engage in an act of citizenship
- Tagging aerial images of damage (Tomnod)
- FAITH Hub: On-line donations
- Humanitarian OpenStreetMap help mapping areas in Philippines (Info4disasters)
- Yolanda People Finder; #YolandaPH, #RescuePH

The Haiyan Experience

- Some of the evacuation centers were inundated by the surge (updating of land use and disaster maps)
- Many residents did not heed evacuation orders:
  - People did not believe the warning and thought that their concrete houses can withstand the typhoon
  - People claimed that they know the seas better…stars were out that night (catastrophe is not imminent)
  - Many failed to fully understand the public warnings (e.g. storm surge and its Filipino equivalent: "***Daluyong***")



Typhoon Sendong (Washi) – Flash Flood

- Flash Floods in Cagayan de Oro and Iligan City - December 16, 2011

Casualty in Region X:
No. of Deaths: **1,206**
Cagayan de Oro City (674);
Iligan City (490); and
Bukidnon (42)

Source: Report from http://www.ndrrmc.gov.ph/

ICT and Social Media - Washi

Before Preparedness

- NDRRMC Issue first bulletin Dec 15 less than 24 hours before landfall
- Severe weather bulletin" also advised local disaster councils to "initiate pre-emptive evacuation of families in low-lying and mountainous areas if situation warrants."
- No known "pre-emptive evacuation" that took place
- Early warning forecasts were disseminated, the water raging from the mountains was overlooked

After Response

- Volunteer initiatives on mapping disaster event using Ushahidi at http://http//www.oneforiligan.com
- Utilized Facebook to help search for their missing loved ones- Facebook pages Sendong Missing Persons and Missing Persons of CDO and Iligan.
- Social media drives Mindanao relief efforts #oneforiligan, #helpcdo

http://www.gmanetwork.com/news/story/242008/news/regions/despite-claims-of-early-warning-pagasa-caught-sleeping-on-sendong#sthash.KxwPfiEU.dpuf

Crisis Informatics: An Overview

- CI is seen as a multi-disciplinary field that combines information technology and social science knowledge in DRRM (Palen & Anderson, 2016)
- Examining data and information, focusing on behaviors before, during and after disaster events
- Aims to increase the capacities for resilience through information and communication technology considering socio-technical goals comprised of human capacities and relationships, data and software tools (Soden, Budhathoki & Palen, 2014)

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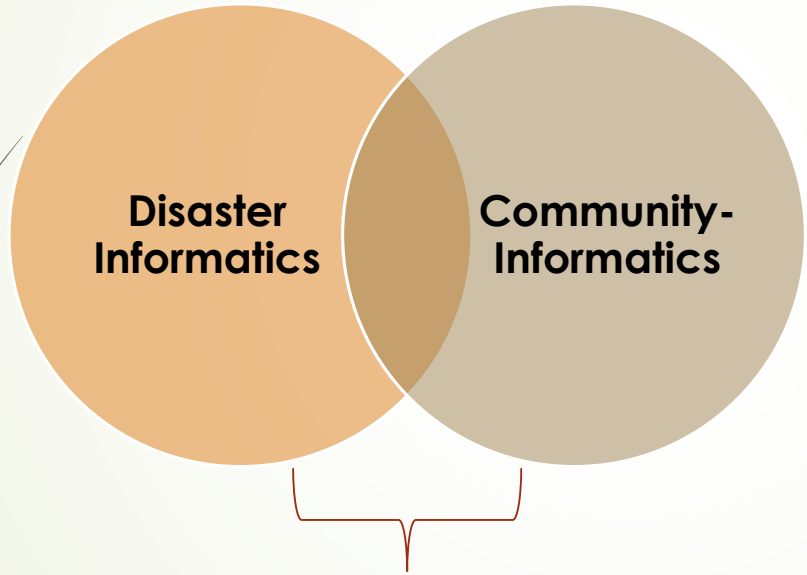
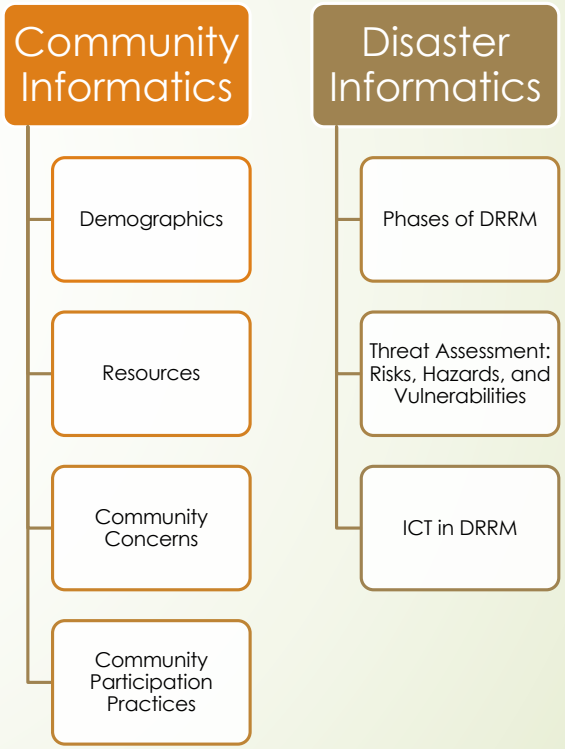
Themes about Crisis Informatics: Intersection between Disaster and Community Informatics



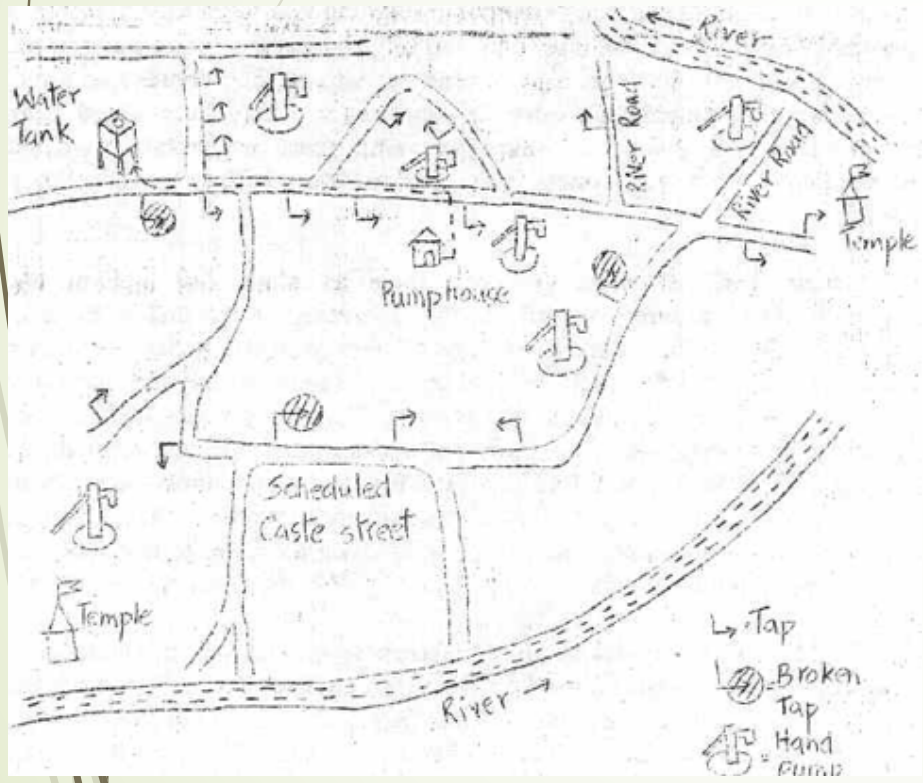
Information facet: Type, Source, Use, Owners, Creators, Context, etc. (Possible Innovation Space)



Themes about Crisis Informatics: Communities & ICT

Governance and policy aspects, Organizational (roles, capacities), Community-level practices, Usability concerns

Example: Participatory Resource Appraisal Maps



Formal/Informal CBDRM Practices: Community-level information dissemination

Tricycle Operators as part of a community intelligence network

Community level planning exercises using scenarios

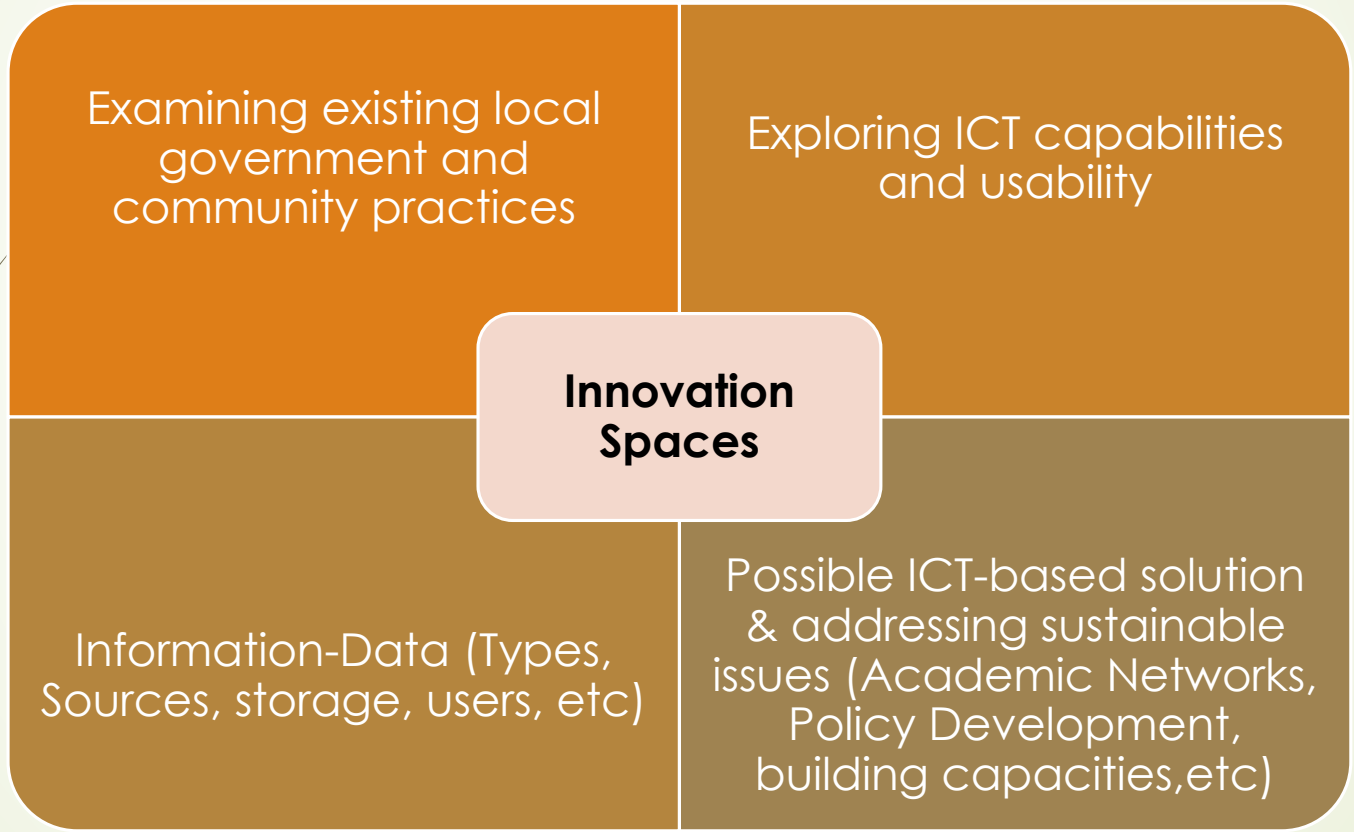
Themes: Possible Research Areas for Crisis Informatics

- User experience and ICT applications design: Presentation, Visualization and Interaction with Social media data, crowdsourcing systems, crisis mapping, virtual communities, network organizations:

  How collaboration can be facilitated in crisis management?

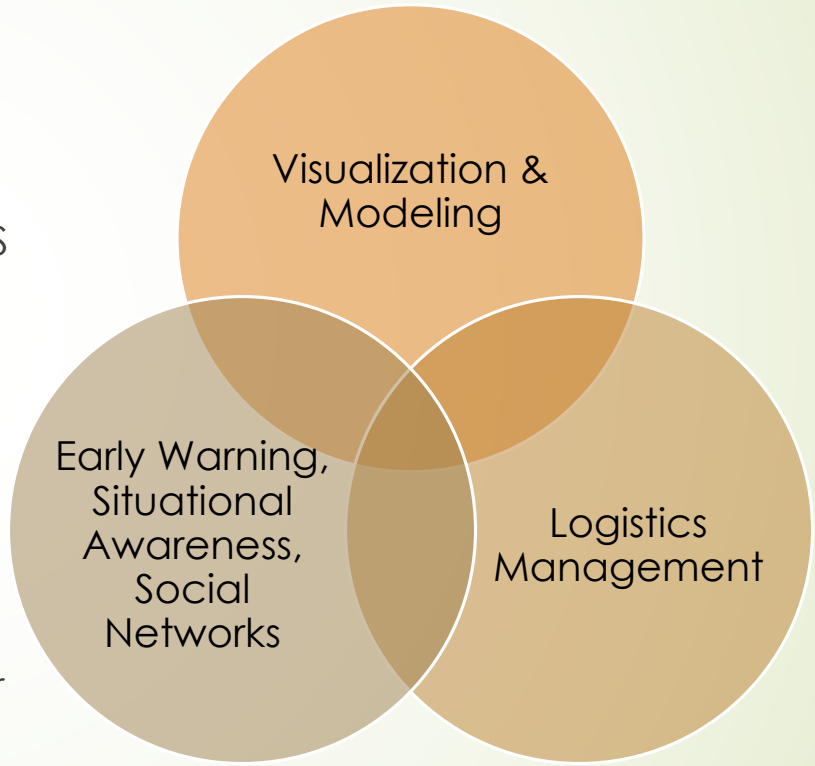
- Human centric design approaches of inter-organizational coordination mechanisms
- Critical studies, case studies and methodological considerations and design approaches of collaborative systems
- Possible use of gamification techniques for training

Viewing Innovation spaces



A Quick Survey: Available ICT applications for CBDM

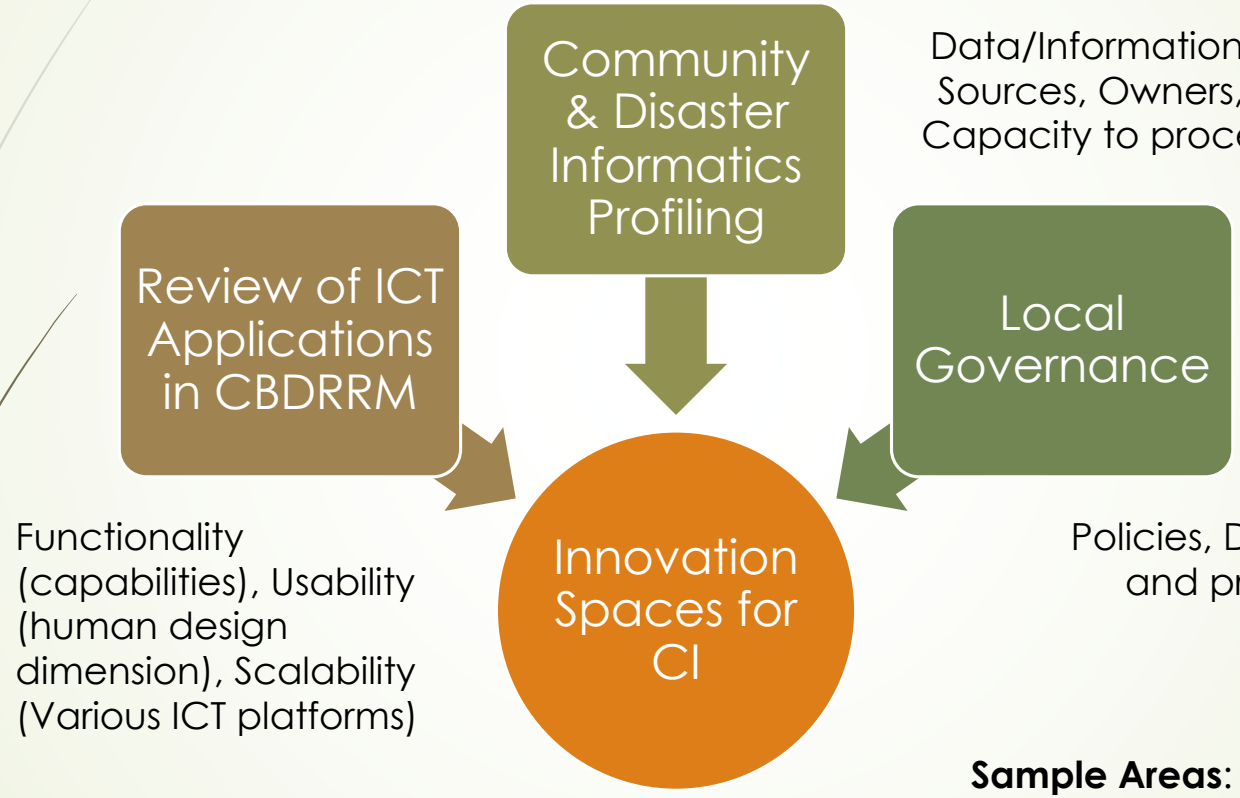
- Information Collection, Mapping, and Visualization (Ushahidi, NOAH, Sahana, UNReliefweb)
- Early Warning Systems (Tsunami Early Warning System, Wireless Sensors)
- Disaster Databases (UN Reliefweb, GDACS (Global Disaster Alert and Coordination System, NatCatSERVICE)
- Modelling and Simulations (CATSIM - Catastrophe Simulation)
- Logistics (Sahana, Ready2Help, Humanitarian Supplies Management System)
- Mobile and Related Technologies (SMS for Life, Frontline SMS, Agos, Social Media Apps)



Using the CI Perspective: Challenges in the use of ICT

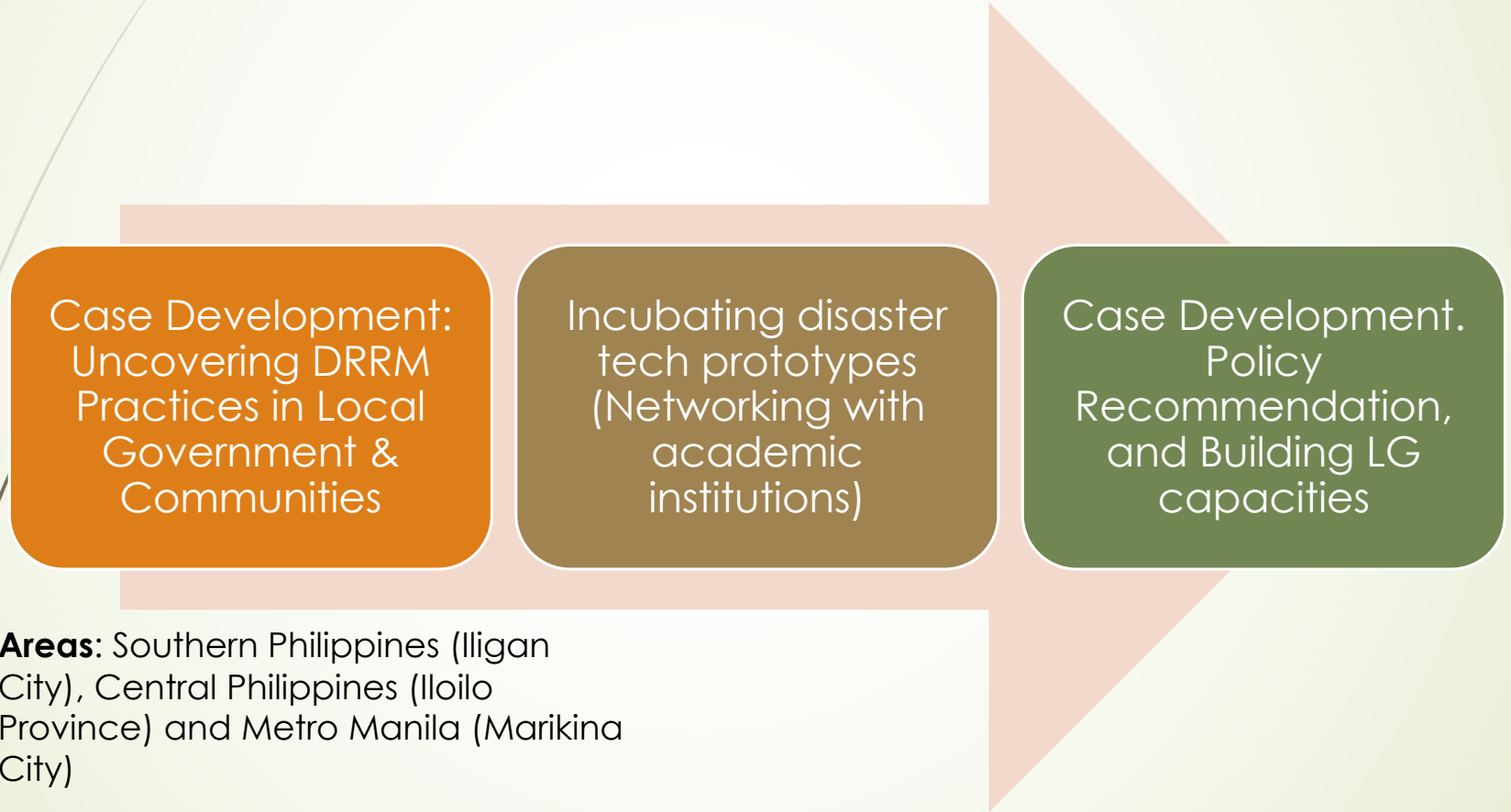
- For social media, its current use does allow for the distinction between endogenous (e.g. crime, terrorist attacks, etc.) and exogenous hazards/events (e.g. disaster events) (Palen & Anderson, 2016)
- Attention should also be given to information policy
- Issues on design and the deployment of ICT-based applications (Shankar, 2008)
- Addressing temporal limitations during disaster events
- The issue of "Actionable intelligence": Trustworthiness of the source (Shankar, 2008) (Carney et al, 2015)
- Traditional hierarchies (Civil defense/military structures) does not allow/provides minimal leeway for independent ICT users to integrate their efforts (Shankar, 2008)

Future Directions: Examining CI in CBDM



Sample Areas: Iligan City, Lanao Del Norte (Sendong, 2011); Marikina City (Undoy, 2009); Leyte (Yolanda, 2013)

Future Directions: Building Innovation Spaces



Areas: Southern Philippines (Iligan City), Central Philippines (Iloilo Province) and Metro Manila (Marikina City)

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Social ecology of internet access and use by youth in low income urban communities

Cheryll Soriano, De La Salle University

Linking Poverty and the Environment:
Evidence from Slums
in Philippine Cities

Marife M. Ballesteros

SUMMARY

Climate Change, Disaster Risk, and the Urban Poor

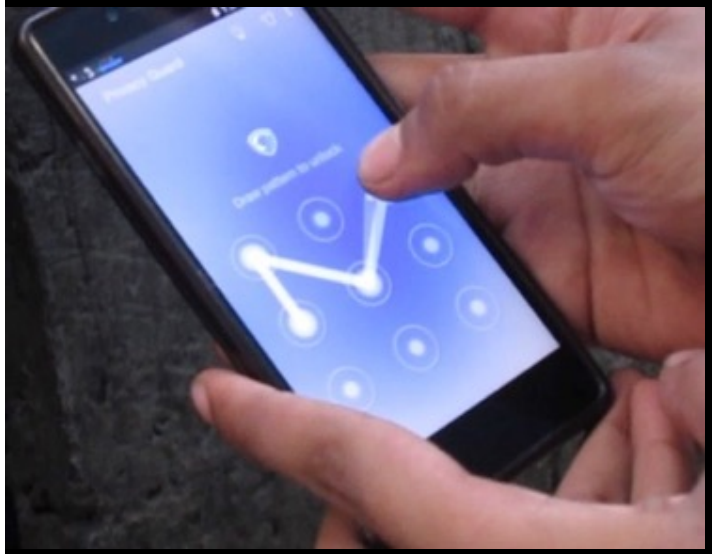
Cities Building Resilience for a Changing World

THE WORLD BANK

INTERNET ACCESS MODALITIES IN SLUMS

place-based experiences with ICT

"mobile internet"



"Computer shop"

"pisonet"

Media ecology emphasizes "the characteristics of an overall technical, social, cultural and place-based system in which components are not decomposable or separable" (Horst, Stephenson & Robinson, 2010, p. 31)

MOBILE INTERNET

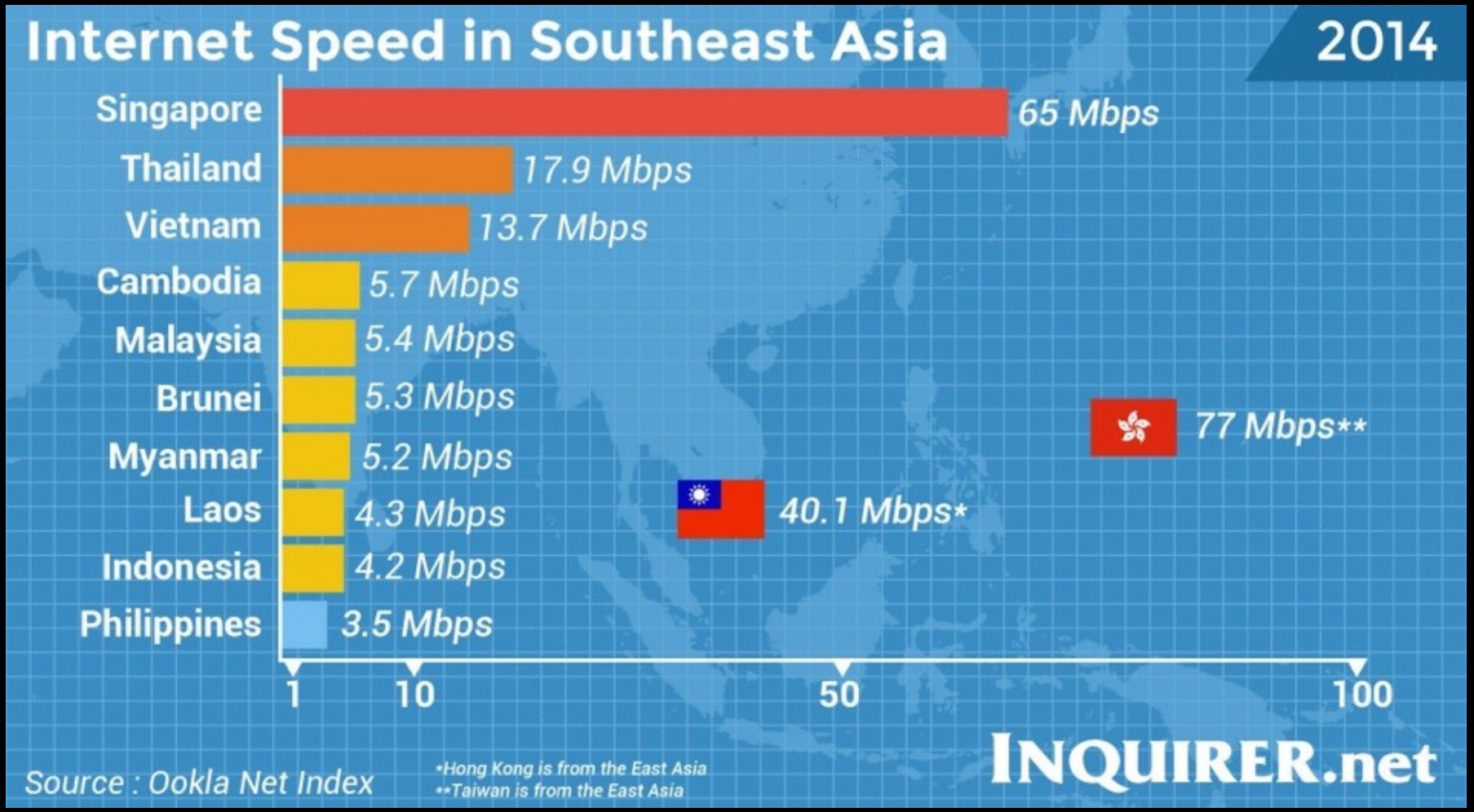
Owned, shared, borrowed, pawned

"The bottom of the pyramid (BOP) in the Philippines spends the highest on mobile phone services, more than double the percentages for neighboring Asian countries such as India, Sri Lanka and Thailand" (Aguero et al., 2011, p. 23)

MyPhone Unit	Price in Pesos*	Cherry Mobile Unit	Price in Pesos**	SKK Unit	Price in Pesos**	Torque Unit	Price in Pesos**	Samsung Unit	Price
Rio Junior TV	P1,499	Ace	P1,299	A20	P1,999	Droidz One TV	P2,600	Galaxy V	P4,999
My21	P1,999	Onyx	P1,499	A23	P2,199	Droidz Easy	P1,849	J2	P6,999
My22	P2,999	T11i	P1,499	Griffin	P3,599	Sky	P2,999	Grand Prime	P9,299
Uno	P3,999	T11	P1,599	Radiance	P4,999	Droidz Duo	P2,999		
Rio 2 Lite	P4,999	W6i	P1,680			Swivel	P4,999		

P1,000 = 17 GBP

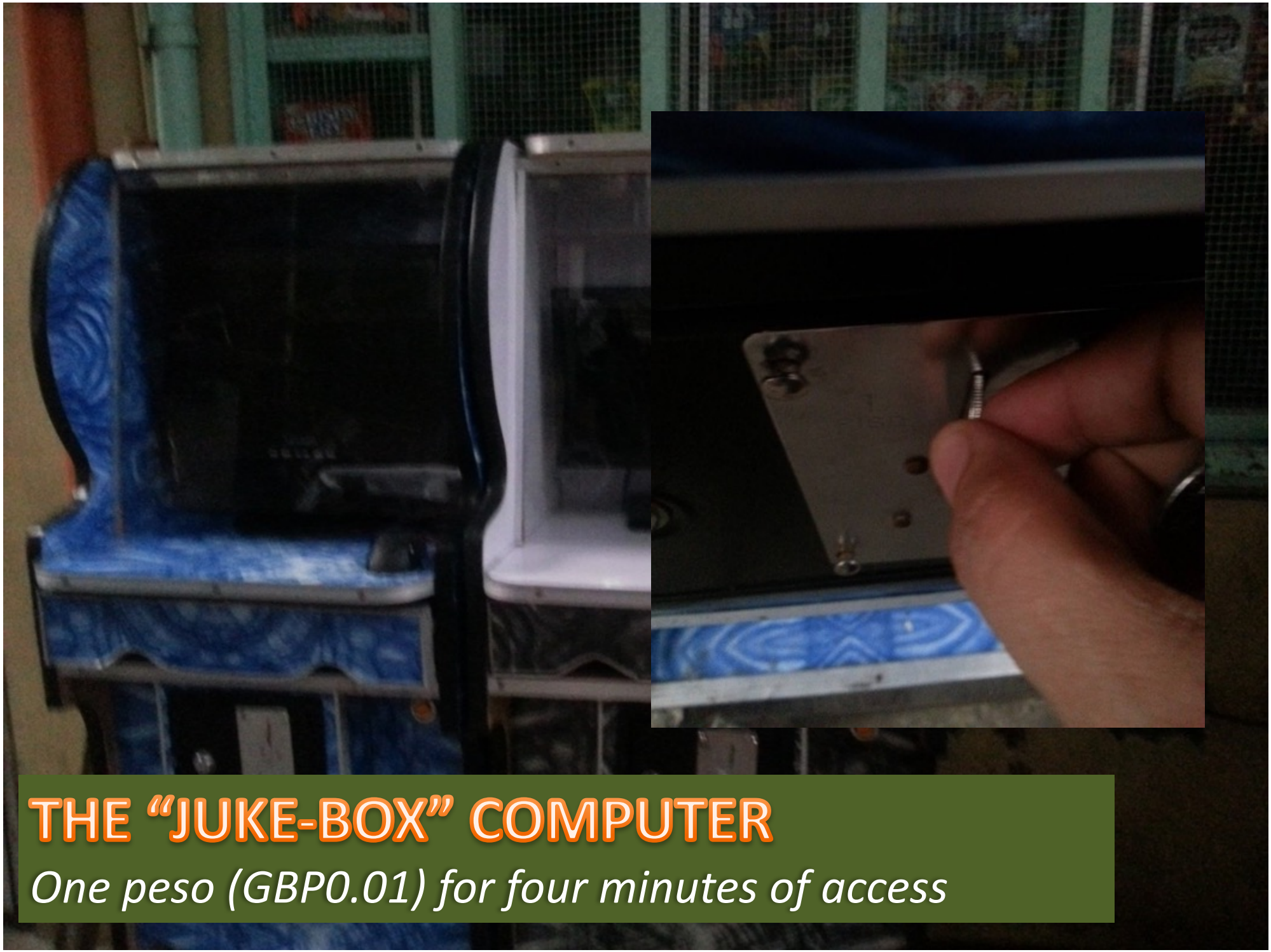
*Second-hand units also very common



Average internet speed in March 2015: 2.5mbps

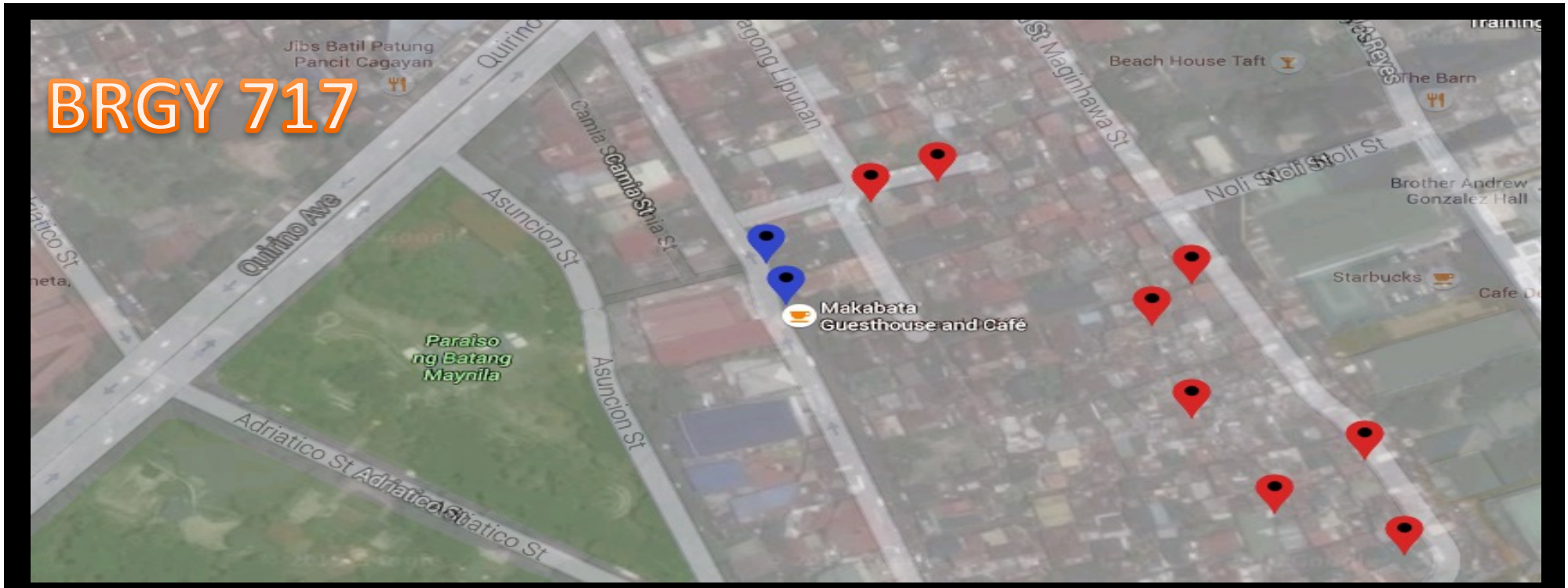
PISONET

The most sachet of sachet internet access modalities



THE “JUKE-BOX” COMPUTER

One peso (GBP0.01) for four minutes of access


BRGY 717
Jibs Batil Patung Pancit Cagayan
Quirino Ave
Camia St
Asuncion St
Paraiso ng Batang Maynila
Adriatico St
Makabata Guesthouse and Café
Beach House Taft
The Barn
Noli St
Brother Andrew Gonzalez Hall
Starbucks


BASECO

RETHINKING MOBILITY

Nature of pisonet approximates some of the flexibility afforded by mobile internet

THE COMPUTER SHOPS

POLITICS / ASSYMETRIES OF ACCESS

Varying access modalities and differing experiences of use

	Pisonet	Computer Shop	Mobile Internet
Value	• P1 = 4-7 mins	• P20 – 60 mins • P10 – 30 mins	Varied promos •Postpaid Wi-Fi – P999 •3G – P50/3 days •Free FB & Viber
Context of Access	• Location – mostly outdoors --alleys • Conditions of Access – wooden planks; open to public; open to elements	• Location – Indoors; computers in cubicles • Conditions of access - Plastic chairs and (most w/) air-conditioning; tables with cubicles • With manager	• High flexibility in time, space, and condition of access
Content	• 'Unregulated' internet • Often no word processing (no USB slot); no voice chat facility	• Some regulation / blocking (i.e. porn; video streaming)	• Speed and reliability of internet access regulate what people do with mobile internet • Free FB(limited images, content)

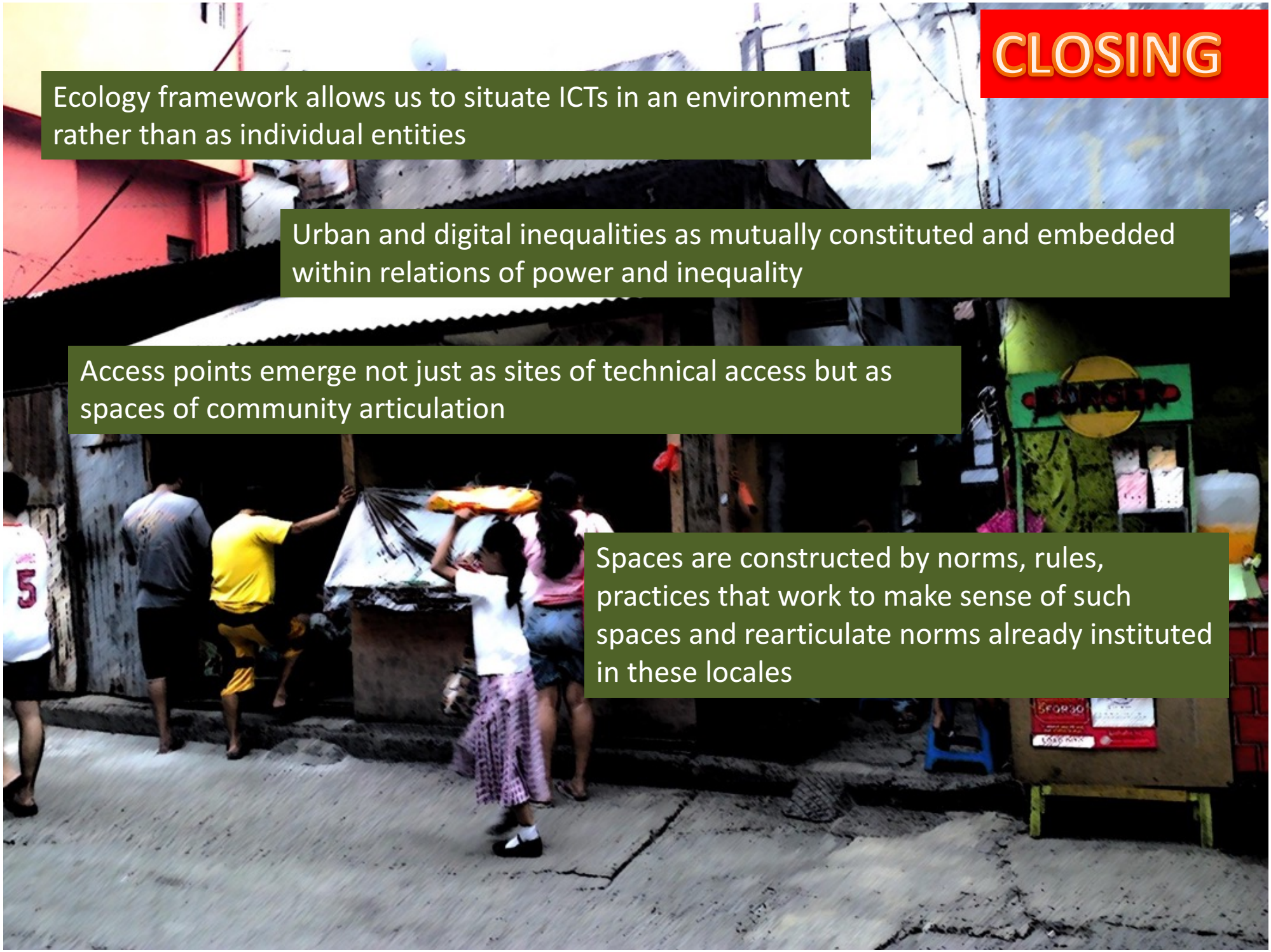
Table 01 – Value and context of access

	Pisonet	Computer Shop	Mobile Internet
Users	• Used by all ages, but primarily by: Kids 5-12, adolescents 13-20	• Adolescent 13-20 (sometimes school kids not allowed) • Adults 21-60	• Youth aged 13 onwards (younger ones have access but usually not ownership)
Uses	• Facebook, YouTube, gaming, Google search (educ., casual info search) look for jobs; a few government services	• Gaming, Facebook, YouTube, skype, research, printing; typing; targeted tasks (i.e. filing some govt forms, making assignments)	• Broader range of sites visited but mostly Facebook & FB chat, YouTube, gaming, Google search; music; those with touchscreen have broader uses
Context of use	• Often shared	• Networked; shared; "private"	• Owned, shared, borrowed

Table 02 – Users and Uses

	Pisonet	Computer Shop	Mobile Internet
Security & Privacy	• Basic anti-virus • Little to no security due to auto-shutdown • No 'privacy' –along slum alleys	• Clean up user data • Monitoring system and anti-virus • Some form of 'privacy' via cubicles; curtains	• Users define security features based on literacy
Norms of use	• Minimal restrictions • "Come and go" (intermittent) • "Creative regulation" of use	• Manager-driven regulation of use • Difft rules: no food and drinks; no online games; no smoking; no peeping; no shared access; some airconditioned shops prevent "smelly or street kids" from entering	• Personal / interpersonal regulation of use • Influenced by older sibling; taught in values education; few parental mediation • "Come and go" use (intermittent)

Table 03 – Security, privacy, and norms of use



CLOSING

Ecology framework allows us to situate ICTs in an environment rather than as individual entities

Urban and digital inequalities as mutually constituted and embedded within relations of power and inequality

Access points emerge not just as sites of technical access but as spaces of community articulation

Spaces are constructed by norms, rules, practices that work to make sense of such spaces and rearticulate norms already instituted in these locales