Emerging trends for DRM

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Workshop on ICT for Promoting Inclusive and Disaster Resilient Development

Ulaanbaatar, Mongolia

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LIRNEasia

Pro-poor. Pro-market.

IDRC CRDI

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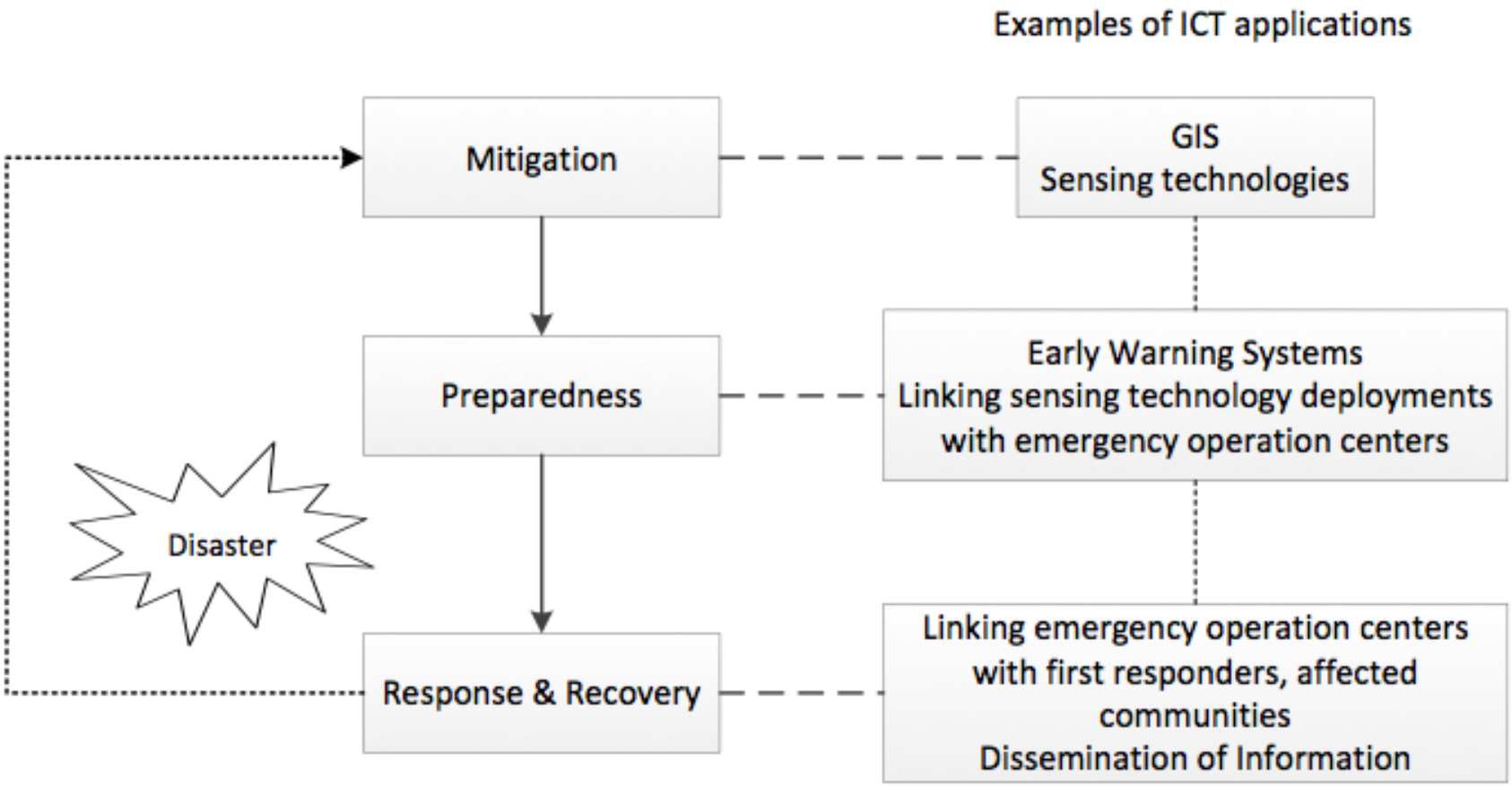
Canada

ICTs play a role in all aspects of the disaster lifecycle….



…but today I will concentrate on 3 emergent trends

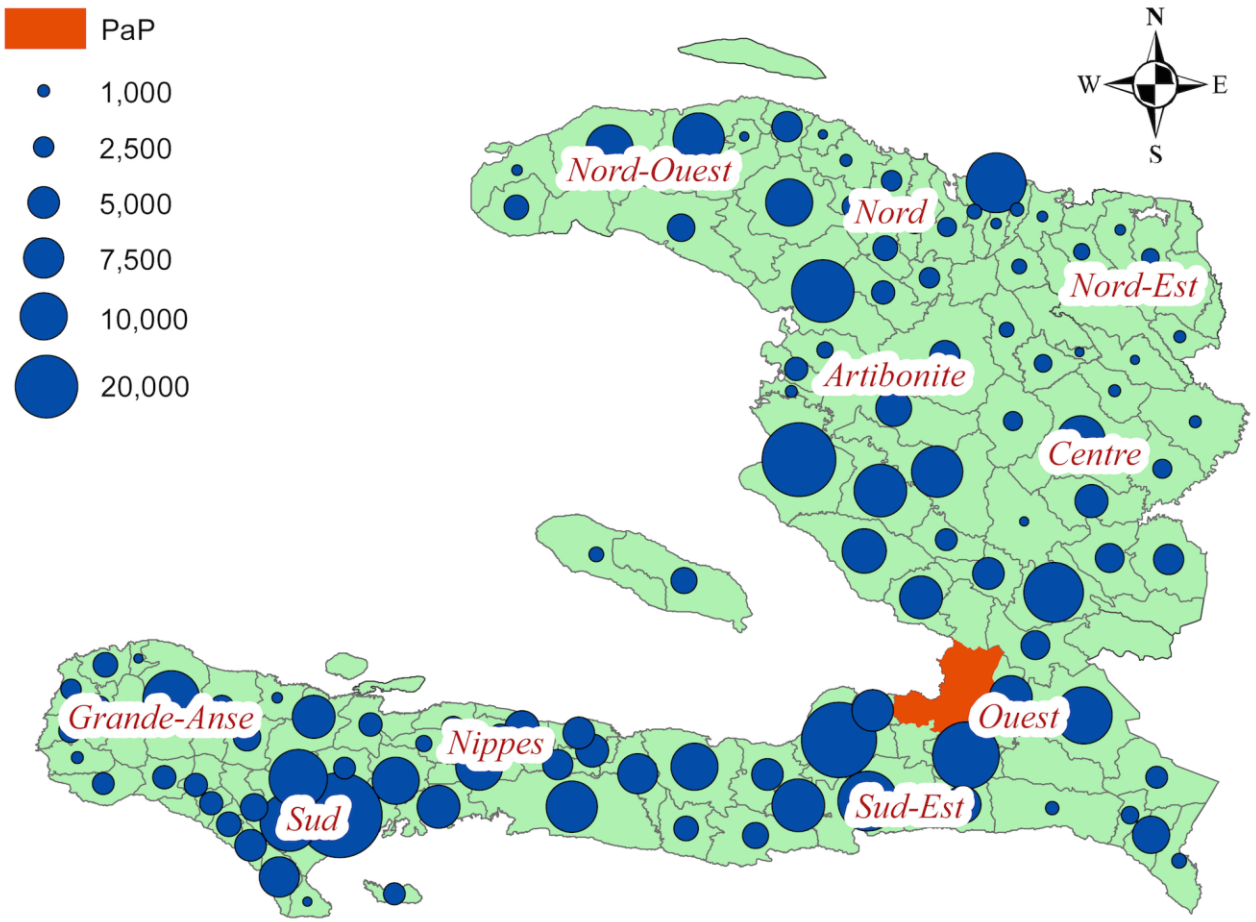
1. New data sources of relevance
   - Big data and specifically mobile network big data
2. Thinking about infrastructure holistically
   - Smart grids
3. "Antifragility"
   - i.e. coming back stronger than before

Mobile Network Big Data has a lot of relevance for DRM

- Big Data = data sets that cannot be processed using traditional data-processing applications and techniques
- It can provide timely information of relevance to disaster recovery as well as disaster risk reduction
- It can also provide timely information on human behavioral patterns such as migration, mobility, social networks, etc.

Facilitating recovery efforts: POC from Haiti

Post-earthquake distribution of Port au Prince (Haiti) population after the 2010 earthquake: The figure shows the number of people estimated to have been in Port-au-Prince (PaP) on the day of the 2010 Haiti earthquake, but outside the capital 19 days later. The circles represent the numbers of people who were displaced.



Source: Bengtsson, L., Lu, X., Thorson, A., Garfield, R., & von Schreeb, J. (2011). Improved response to disasters and outbreaks by tracking population movements with mobile phone network data: a post-earthquake geospatial study in Haiti. PLoS Medicine, 8(8), e1001083. doi:10.1371/journal.pmed.1001083

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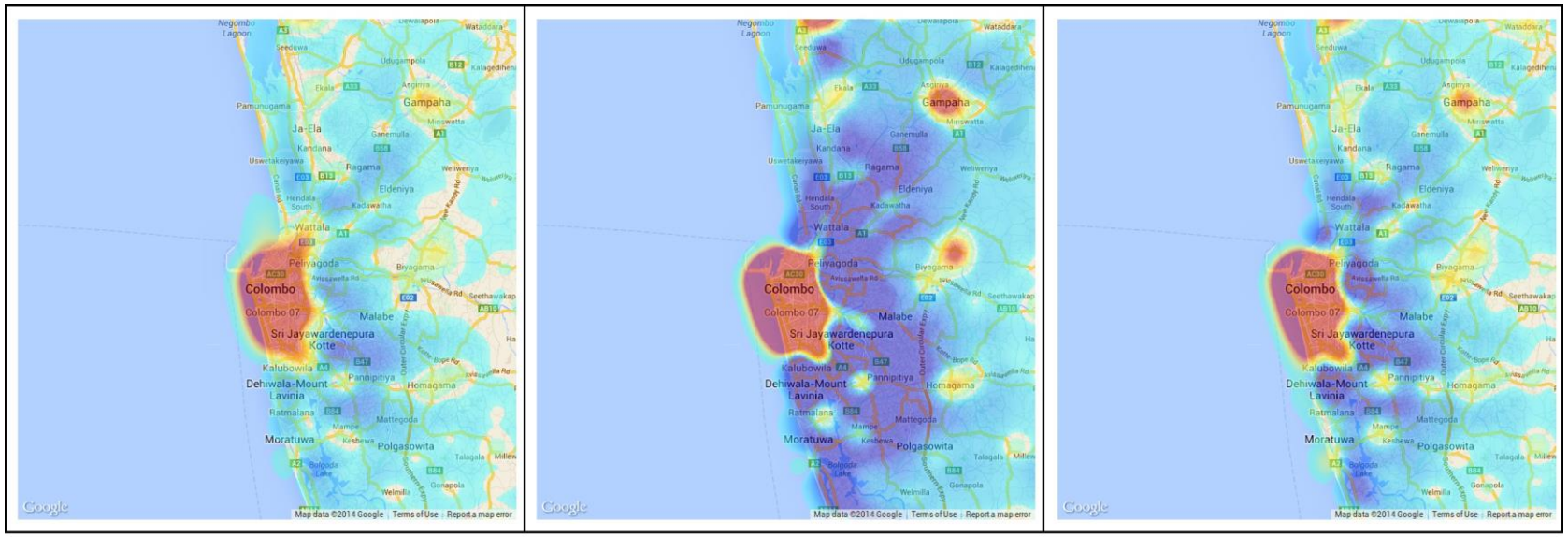
MNBD for planning: Population density changes in Colombo region

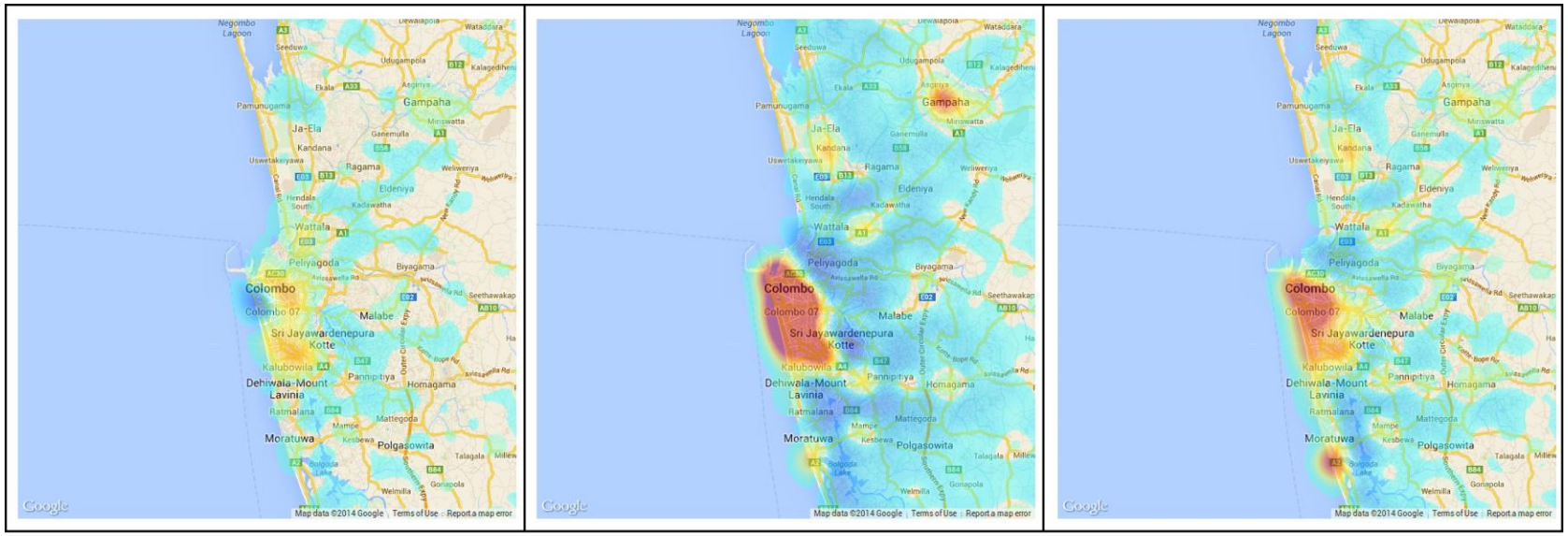
Pictures depict the change in population density at a particular time relative to midnight

Weekday



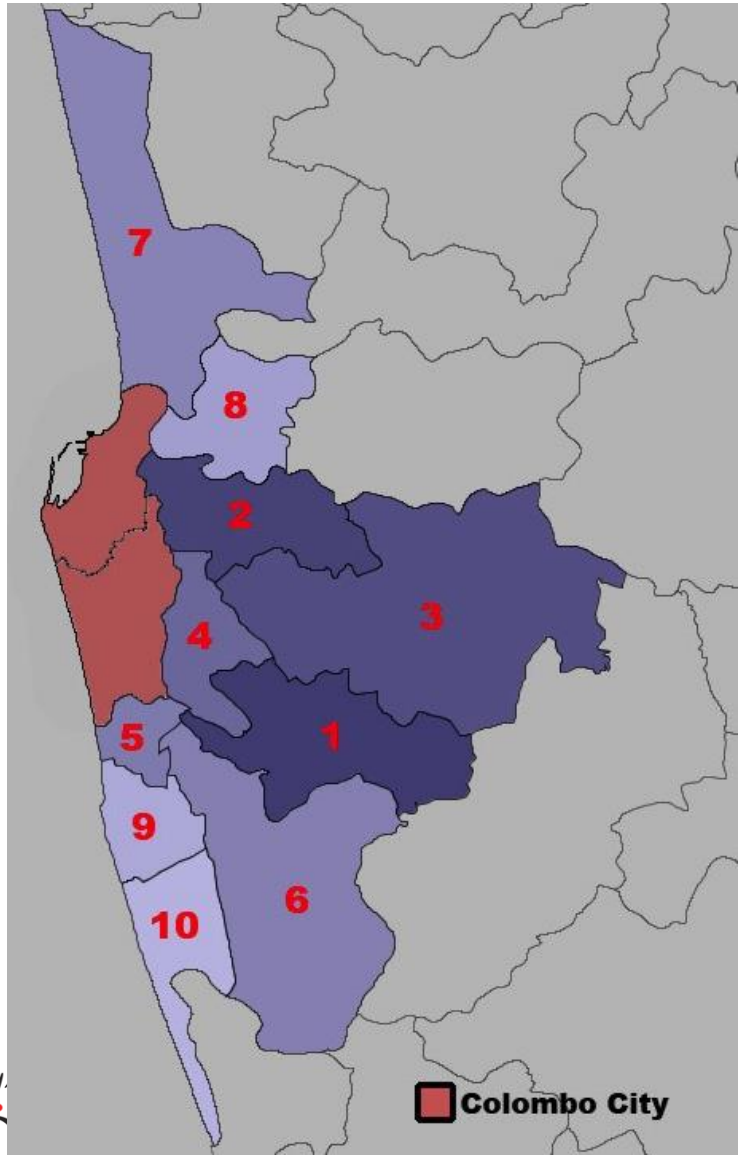
Time 06:30 | Time 12:30 | Time 18:30

Sunday



Decrease in Density ← → Increase in Density

MNBD for planning: 46.9% of **Colombo City's** daytime population comes from the surrounding regions



Colombo city is made up of Colombo and Thimbirigasyaya DSDs

Home DSD	%age of Colombo's daytime population
Colombo city	53.1
1. Maharagama	3.7
2. Kolonnawa	3.5
3. Kaduwela	3.3
4. Sri Jayawardanapura Kotte	2.9
5. Dehiwala	2.6
6. Kesbewa	2.5
7. Wattala	2.5
8. Kelaniya	2.1
9. Ratmalana	2.0
10. Moratuwa	1.8

MNBD can help track the spread of infectious diseases (e.g. malaria in Kenya)

The figure represents a visual mapping of malaria transmission routes. Each settlement was allocated to one of twenty regions by a clustering based on homogenous malaria risk and geography (the different color dots). Regions near Lake Victoria (LV), in Nairobi (Nairobi), the central areas (Cen), and along the coast (C) are labeled accordingly. The background yellow and red colors, represents areas of high malaria prevalence (in red) and those of low prevalence (in yellow)