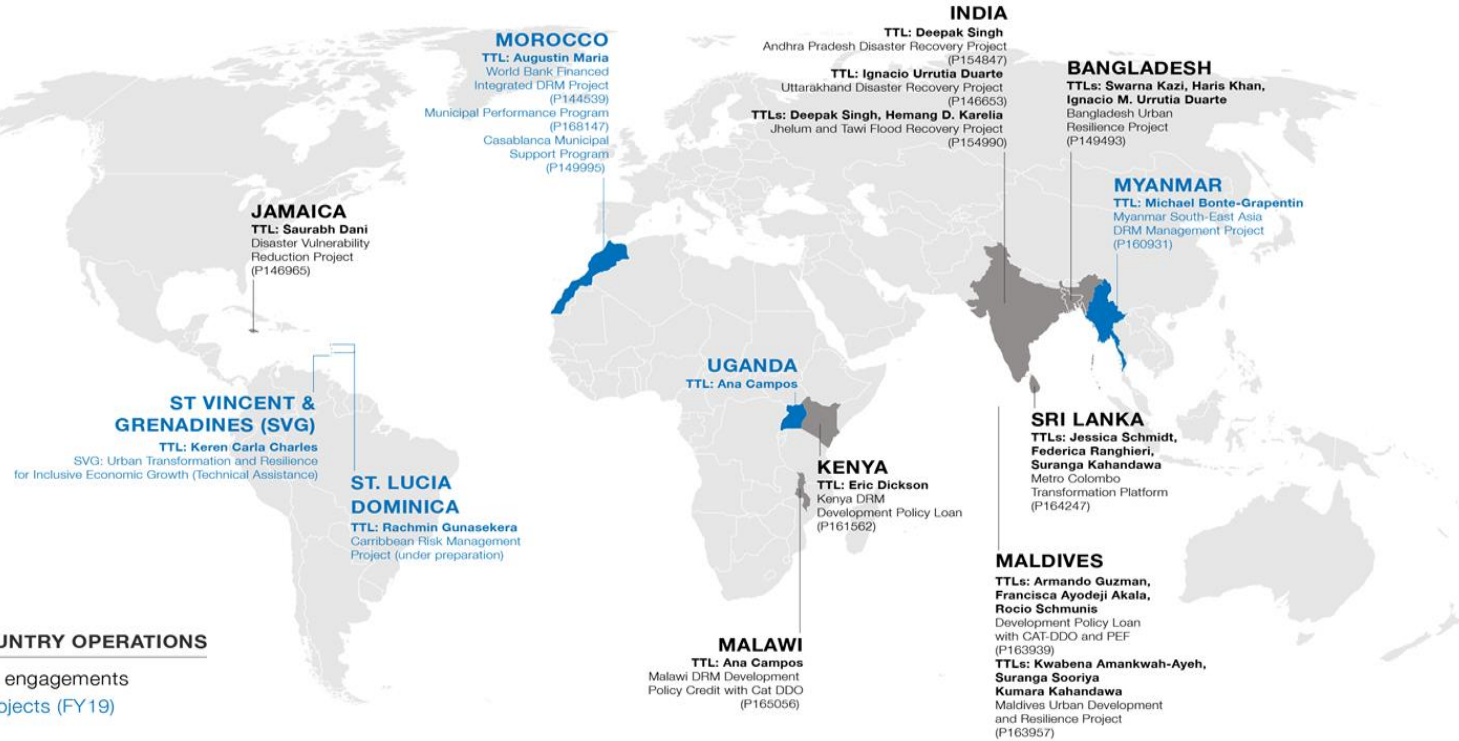




Innovative Regulatory Practices in Low and Middle-Income Countries



The Building Regulations Program at the World Bank



BRR COUNTRY OPERATIONS


- Current engagements
- New projects (FY19)

A photograph of a man walking on a wet, reflective street in an urban setting. The man is wearing a light-colored, short-sleeved button-down shirt and dark shorts. He is walking towards the camera. In the background, there are buildings, a rickshaw, and other people. The image has a reddish-pink tint. A white rectangular box is overlaid on the image, containing the title text.

The Building Regulations for Resilience Program: Progress in Jamaica



- The ICC MoU with Jamaica's Bureau of Standards
- The passage of the Building Act
- Partnership with CROSQ on implementing an Energy Code
- The possibility of similar regional activities in the Caribbean

The background image shows a scene of destruction in Jamaica. A large, multi-story building has been severely damaged, with its upper floors partially collapsed and debris scattered around. In the foreground, there is a large pile of rubble and debris. Two people are visible walking through the debris. To the left, there is a utility pole with wires and a sign that says "400". The sky is overcast. The entire image is overlaid with a semi-transparent purple filter. A white rectangular box is centered over the image, containing the text.

Progress in Jamaica: Carrying out a Training Needs Assessment



- What is the Training Needs Assessment?
- How was the Training Needs Assessment applied in Jamaica?
- What other resources can the ICC provide for building regulatory capacity development?

The background image shows a scene of destruction, likely after an earthquake. A multi-story building is partially collapsed, with its upper floors and roof structure exposed. Debris, including concrete blocks and twisted metal, is piled up in the foreground. Two people are walking on a path through the rubble. In the background, a tall, modern building stands amidst the ruins. The sky is overcast. The entire image is covered with a semi-transparent purple overlay. A white rectangular frame is centered over the image, containing the text.

Rapid & Reliable Building Assessment



SOFT-STORY BUILDINGS



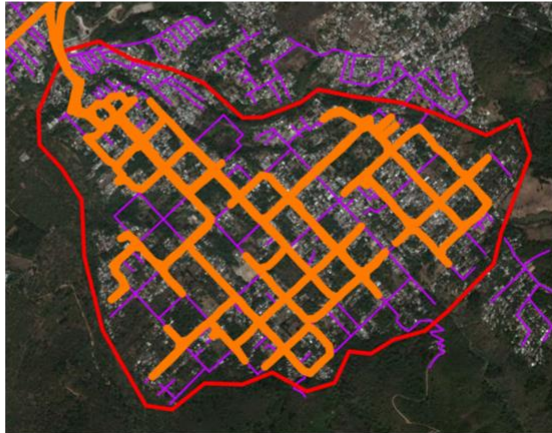
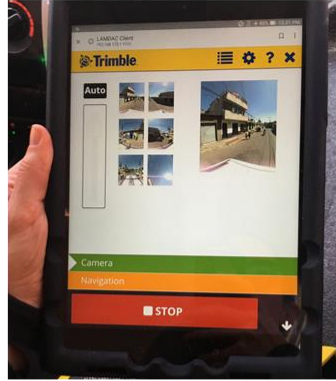
School in Mexico City

THE CASE OF GUATEMALA CITY



Streetview

- Collected using a Trimble MX7 360 camera mounted on top of an SUV
- Uploaded to Mapillary platform for 'tagging'



Orange = Streets driven in El Porvenir







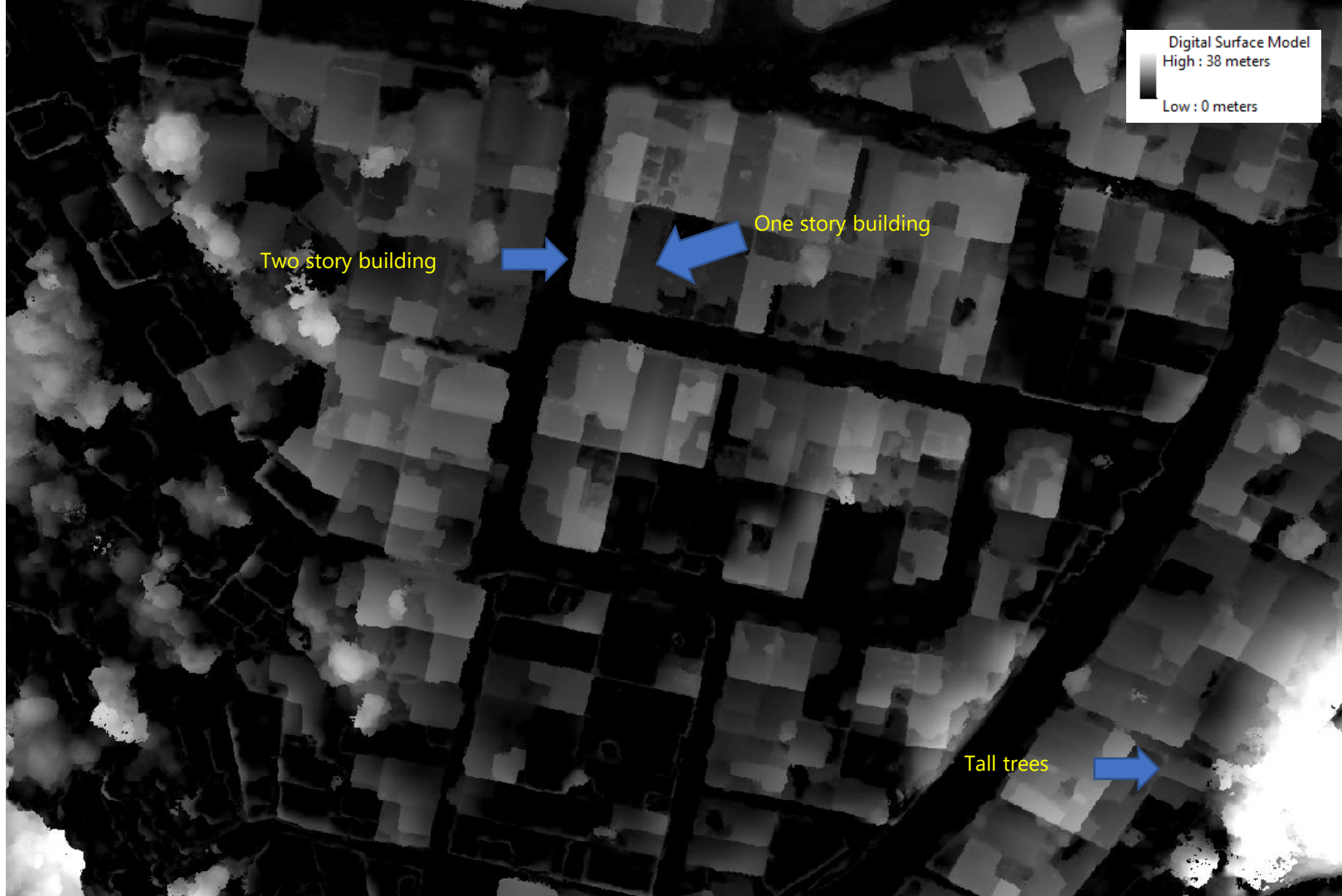
- Concrete
- Gray corrugated metal
- Other
- Red painted
- Red tile
- Rusty corrugated metal/mixed material

Digital Surface Model
High : 38 meters
Low : 0 meters

Two story building

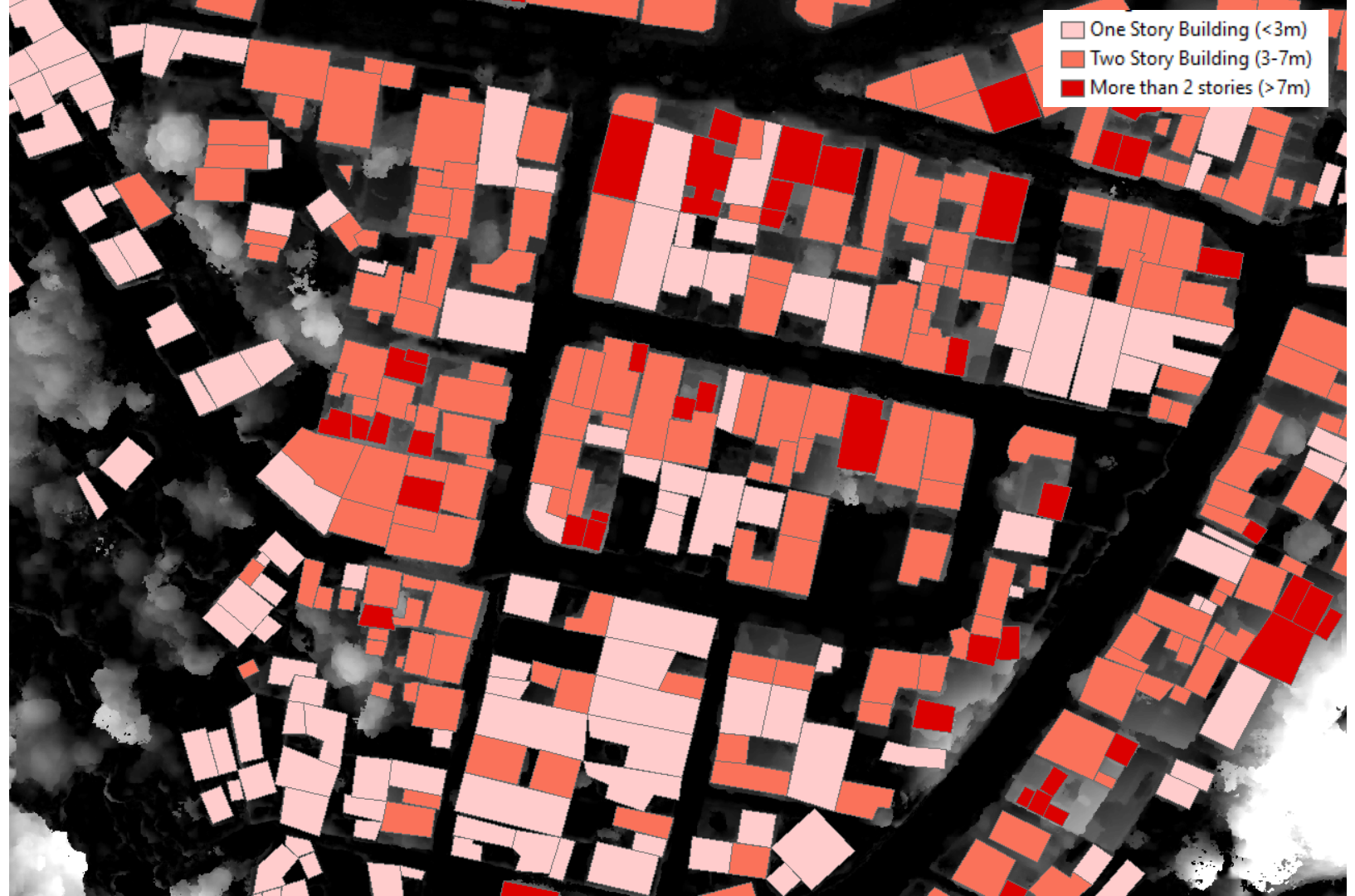
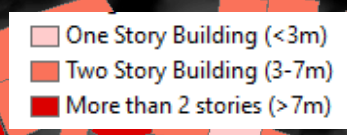
One story building

Tall trees



Calculate average pixel value (height) in each red polygon







Slope at scale



Combine data from the drone with data from the street...



Drone images..

- Single Story
- Two Story
- > Two Stories

Street images.

- Logos/Signs
- Garage
- Large Window

Possible Soft Story

Structures that are

- At least two stories high
- unconfined rooftops (corrugated metal)
- Built on a slope steeper less than 15 degrees

In this 100 hectares, there are 4,955 buildings - 503 of which should be evaluated for earthquake retrofitting



THE RESULTS

For each building we have the following characteristics –the thresholds picked are up to the decision maker/expert.



Attribute table	
Slope (degrees)	5.467
First floor windows (count)	0
Garages (count)	1
Logo (count)	3
Tagged as Soft-story?	yes
Height of building (meters)	10.3
Risk level (1-5)	

Facilitation of more effective and efficient regulation



An aerial photograph of a flooded area, likely a coastal region, showing several vehicles (trucks, cars) and buildings partially submerged in water. The image is overlaid with a semi-transparent pinkish-red filter. A white rectangular box is centered over the image, containing the title text.

The ICC in a Global Context: Forward Outlook



- Overview of ICC and World Bank engagements around the world
- Relevant ICC products and services
- Vision for ICC's growing international portfolio of engagements

A photograph of a construction site, likely for a roof or floor slab. Two workers are visible on a wooden grid of joists. One worker is wearing a red shirt and the other a grey shirt. They are surrounded by concrete walls and various construction materials. The entire image has a reddish-pink tint. A white rectangular border frames the central text.

Thank you!