Monitoring SDG’s from Space

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See a better world.
“Man must rise above the Earth—to the top of the atmosphere and beyond— for only thus will he fully understand the world in which he lives”.

Socrates
(470-399 BC)
Space today ....

EVERY SINGLE SATELLITE ORBITING THE EARTH
Context and Fit For Purpose
30m GSD of Rakaia River, New Zealand (a la Landsat MS)

1 hectare
6m GSD of Rakaia River, New Zealand (a la RapidEye)

1 hectare

Why so much variability in the fields?

Dark Spot?
2m GSD of Rakaia River, New Zealand (a la VHR MS)

Why so much variability in the fields?

Dark Spot?
50cm GSD of Rakaia River, New Zealand (a la VHR pan sharpened)

1 hectare

Crops have been harvested.

Manmade Object

43 47 47S, 172 8 13E

23 Feb 2011
Earth has been captured at detailed resolution many times
But detailed maps are still sparse in most of the world....

Heat map showing the edits (in yellow) entered into OpenStreetMap as of 2014. Although detailed maps now exist for the US, Western Europe and Indonesia, most places in the world remain dark and largely unmapped.
The way maps were made ...
The ways maps were made, on foot, time and resource consuming ...

It took 60 years and 600 people died of malaria

100ft Surveyor Chain

$\Delta 1^\circ F = \Delta 0.007$in
Leveraging imagery to create a baseline for SDG’s

By First Making the Invisible, ... Visible
Create a detailed imagery baseline of the nation
Leverage imagery as the baseline
And answer foundational questions ...
Extract settlement boundaries

Settlement and Administration Boundaries Layers

Feature Extraction
Monitor and document activities to measure progress of SDG’s

<table>
<thead>
<tr>
<th>Year</th>
<th>Cultivated Area (Ha)</th>
<th>% of Crop Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>4432</td>
<td>22%</td>
</tr>
<tr>
<td>2012</td>
<td>875</td>
<td>4%</td>
</tr>
<tr>
<td>2013</td>
<td>4126</td>
<td>14%</td>
</tr>
</tbody>
</table>
Monitor and document activities to measure progress of SDG’s
Linking gGovernance with Sustainable Development Goals

- Food Sustainability
- Land Sustainability
- Water Sustainability
- National Security
- Infra-Structure Planning
- Natural Resources Management
- Utilities
- Environment
How can we do this at scale?

- **Content**
  - DigitalGlobe has made ½ meter resolution image mosaic of most of the world (almost cloud free)
  - Extract information layers using a combination of automated, semi-automated and manual techniques
  - Architect solutions that are designed for consistency for 2030 and beyond

- **Platform**
  - Chose from variety of platforms ranging from cloud to behind the firewall options for NSDI

- **Technology**
  - Leverage technology as a service, using a cadre of geospatial tools from GIS, GPS, BIM, Remote Sensing to view/analyze/make decisions

- **Policies**
  - Create policies that promote sharing of information within the nation as well as across the borders, catering to all stakeholders: citizens, local governments, and international organizations
Thank You.

See a better world.