Guyana's National Forest Monitoring System

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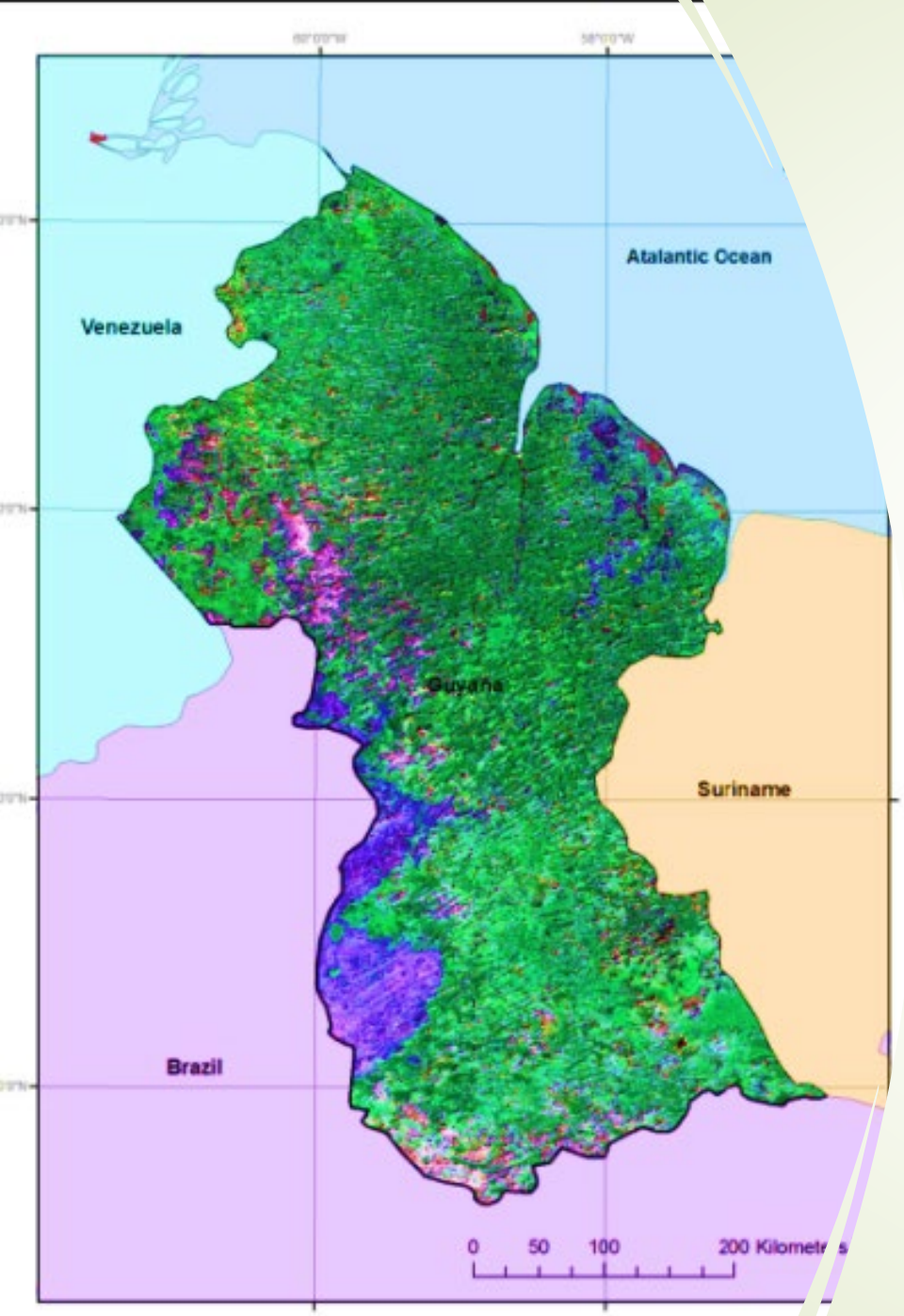
Indufor

Guyana Forestry Commission

Ensuring Sustainable Forestry

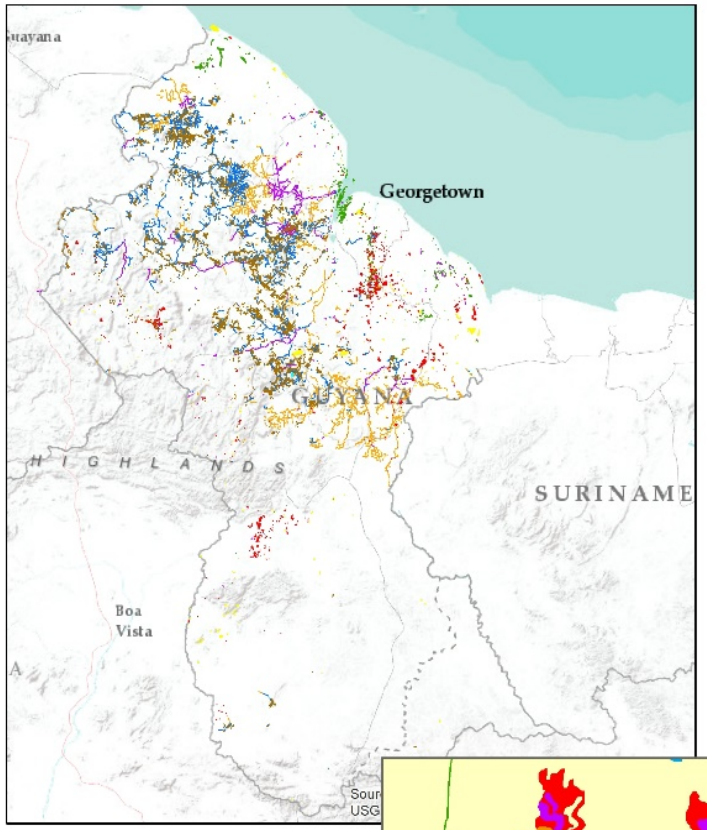


Country Profile

- The total land area for Guyana is 21.1 million hectares (ha).
- Developing country, low population (approx.. 756, 000) with 90 % living on the coast.
- Largely forested (18 million ha/ 85.3%; 2019), mostly inaccessible.
- Hinterland region significant reservoir for biodiversity and contributor to forestry/mining sector

Background

- Developed based on GoG and GoN Agreement
- Intention to map and track countrywide change at 1 Ha
- Build Capacity to allow Guyana to run and manage the system



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Legend

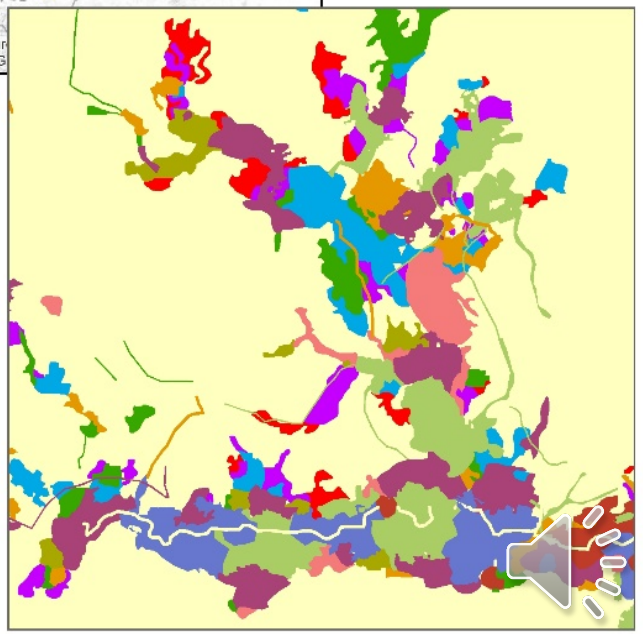
Drivers of Change

- Agriculture
- Fire
- Forestry Roads
- Infrastructure Roads
- Mining
- Mining Roads
- Natural
- Settlements

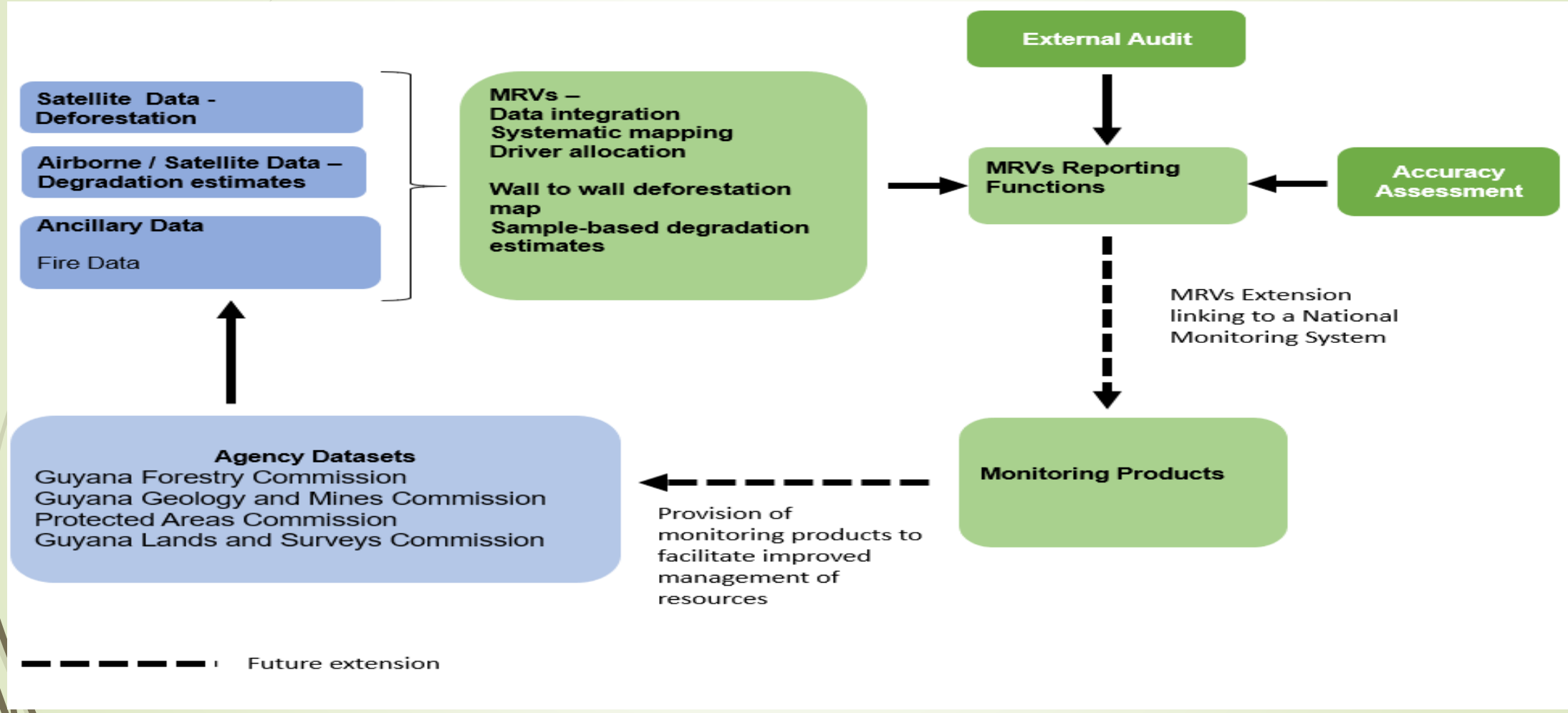
Legend

Period

- Period 1: 1990-2000
- Period 2: 2001-2005
- Period 3: 2006-2009
- Year 1:1 Oct 2009-30 Sep 2010
- Year 2:1 Oct 2010-31 Dec 2011
- Year 3:1 Jan 2012-31 Dec 2012
- Year 4:1 Jan 2013-31 Dec 2013
- Year 5:1 Jan 2014-31 Dec 2014
- Year 6:1 Jan 2015-31 Dec 2016
- Year 7:1 Jan 2017-31 Dec 2017
- Year 8: 1 Jan 2018-31 Dec 2018
- Year 9:1 Jan 2019-31 Dec 2019
- Year 10:1 Jan 2020-31 Dec 2020



Monitoring System Overview



MRVs progressive improvement timeline

Annual monitoring commences

Annual monitoring commences using commercial satellite imagery.

Deforestation mapped nationally.

2009

2011-14

Degradation Mapping Commences

Degradation mapping commences surrounding areas identified as deforested. RapidEye 5 m resolution images tasked initially across hotspot areas, extend nationally by 2012, continuing until 2014.

Airborne camera system introduced

Map accuracy determined using airborne sample-based approach. Methodology refined to provide annual estimates by driver with associated confidence limits.

Sentinel 2 and Landsat used to map deforestation from 2016 onwards

2013-17

2018-2020

MRVs Refined

MRVs refined to incorporate wall to wall mapping of deforestation and sample-based estimates of degradation.

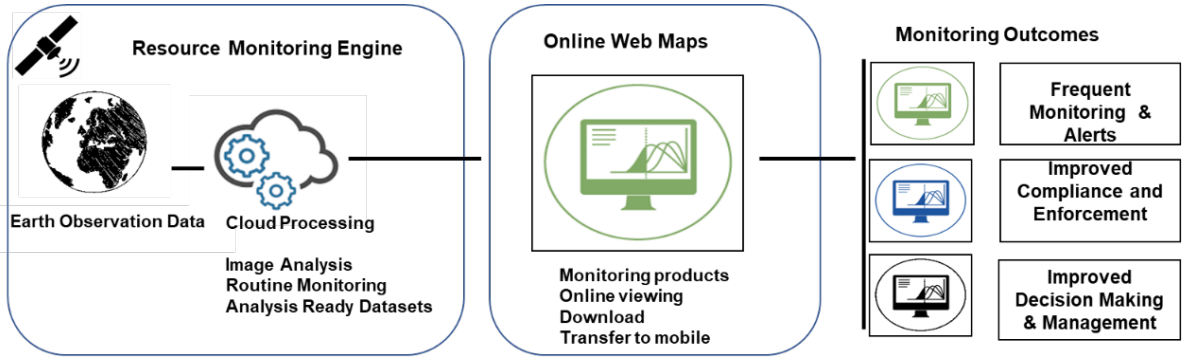
Processes adapted to operate within the cloud processing system.

Operational applications identified Cloud-based Google Earth Engine processing system run in parallel

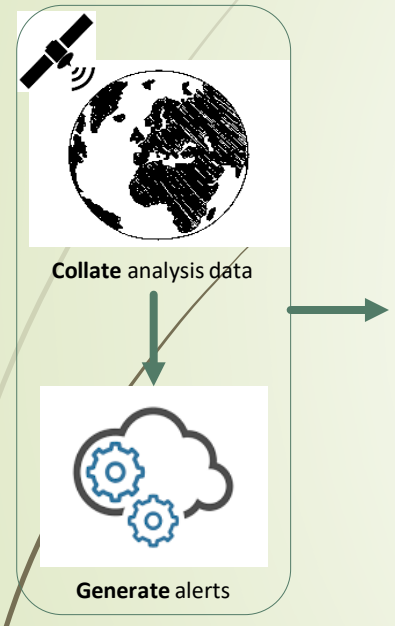
Introduction of web applications and dashboards

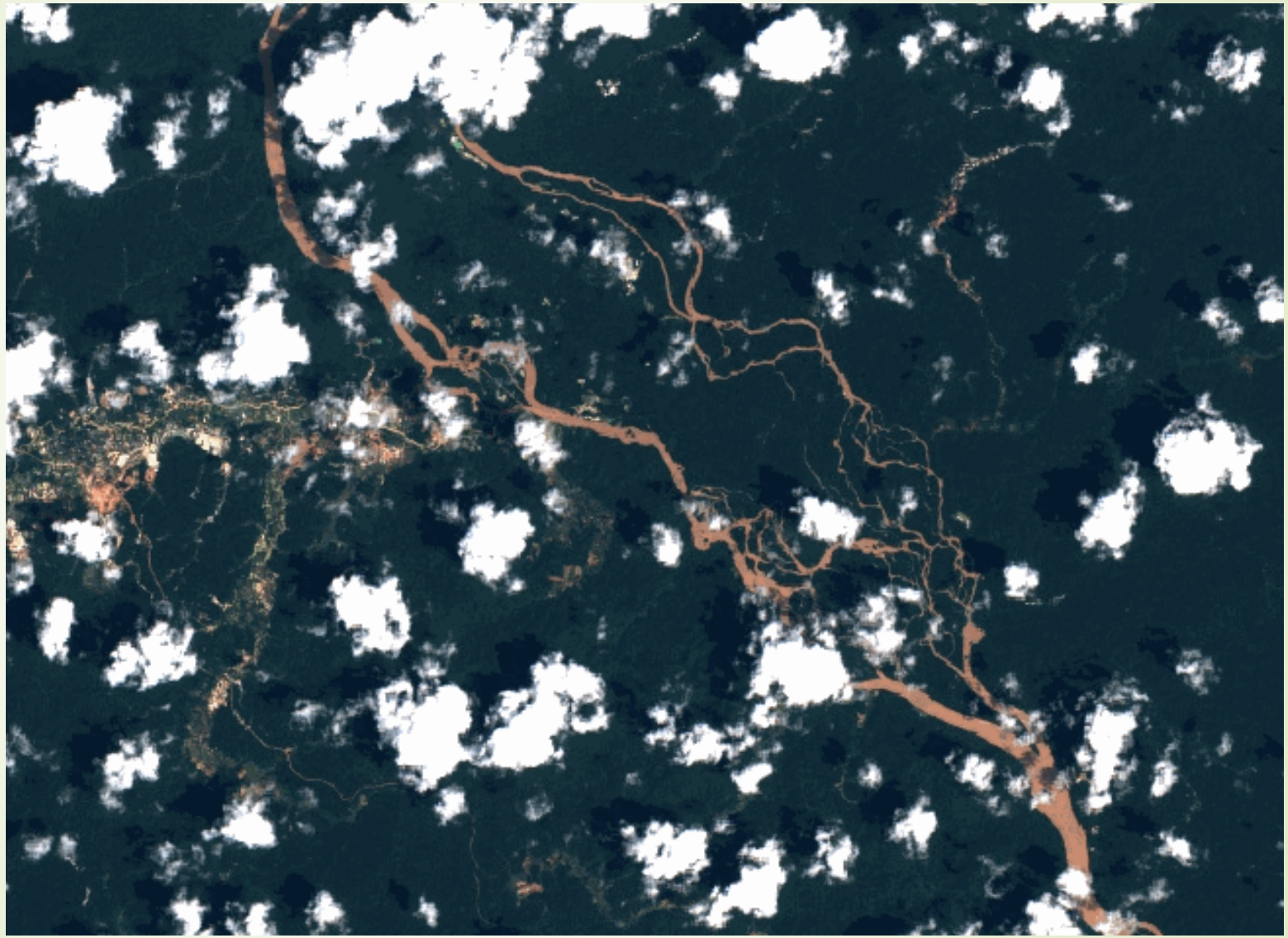
Supporting Guyana's Management and Conservation Efforts

The case for continuous monitoring



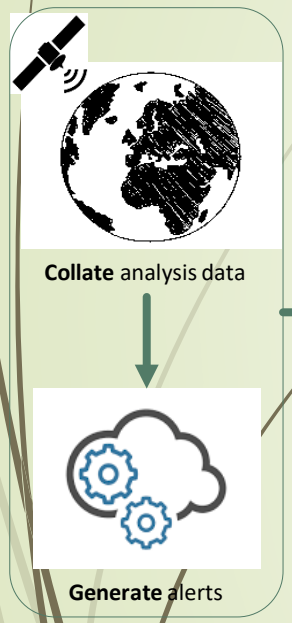
Development of Early Warning Alerts

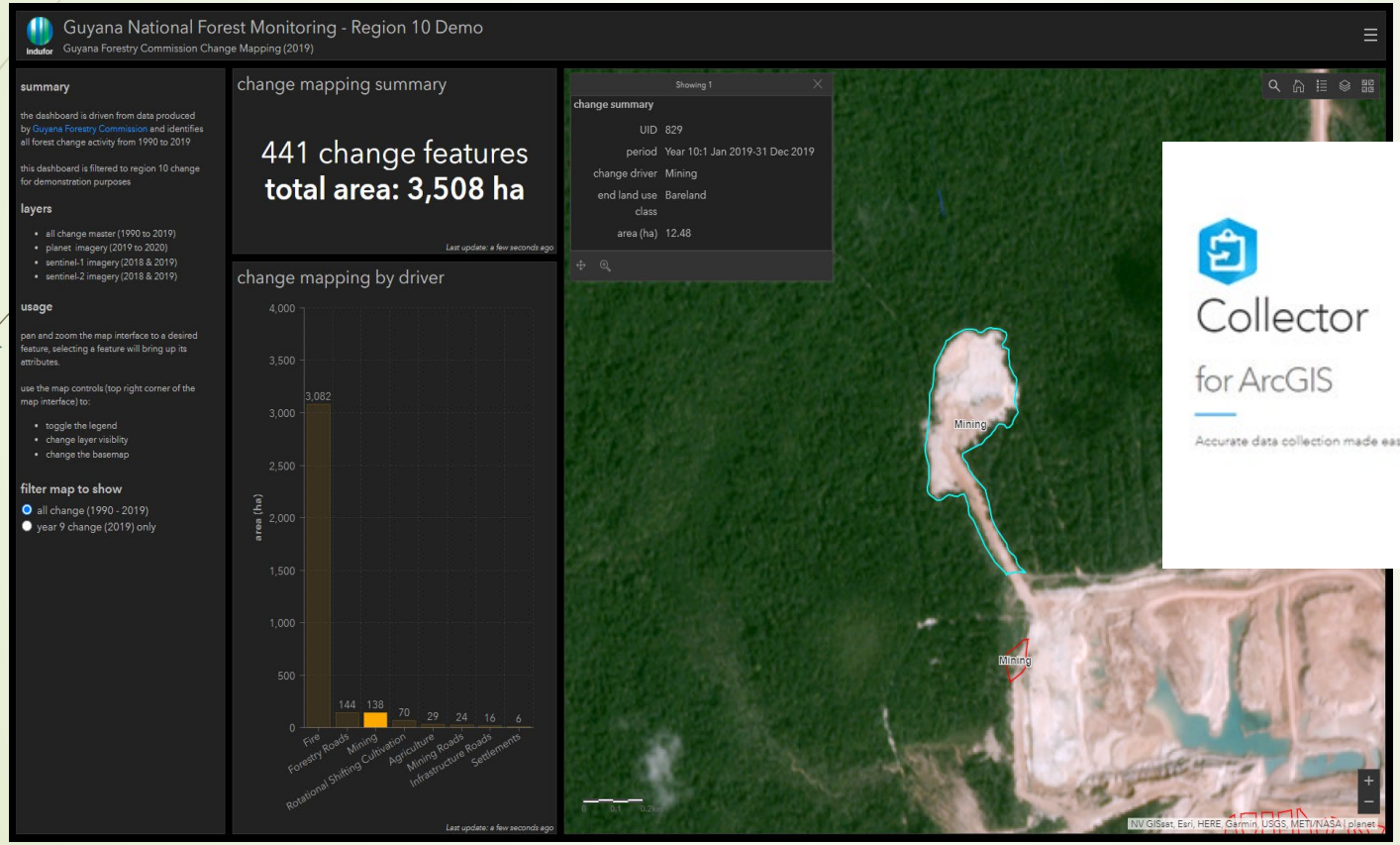




Web-based Solutions for Hosting GIS Data

Integrating change alert information with field teams





ArcGIS Collector for field data collection, customisable forms and photo attachments. Data from Collector can be synchronized to the reporting dashboard.

Key Take-aways

- Engagement and Ownership
- Emphasise on accuracy and validation
- Stepwise approach
- Clear structures and design
- Sustained in-country support
- Adaptable system
- Guyana has developed capacity on MRVs
- Increased interaction of GFC and agencies and data sharing

Thank you

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