

Space Innovation Policy for Disaster Management Capabilities – SIPDMC

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Abstract

- Understand space-based DRM capabilities of some ASEAN countries
- Identify the technology gap between current and required levels
- Formulate innovation policy that would bridge the gap

Motivation

- ASEAN region natural disaster vulnerability
- Nascent Filipino space capability (Japanese supported)
- *NewSpace*: increased innovation in space sector
- Synergistic innovation policy: DRM + S&T goals

Research Question

What innovation policy is best suited to develop, procure and utilize key space technologies and capabilities to address the most pressing Disaster Risk Management needs of the nation, in its national and international context?

Review of relevant work



Innovation Policies – An Overview

- Classifications



Granularity of Intervention

- **Horizontal Subsidy** : E.g. 5-year national S&T plans – STEP for Singapore
- **Thematic Funding** : E.g. Apollo Program



Sectoral Development

- **Human Resource Development**
 - Technological (Supply Side): E.g. Vannevar Bush, establishment of NSF
 - Ground-Level Training (Demand-Side): E.g. HRDP DRM Project, India
 - Global Academic Partnerships. E.g. PHL Micro-Sat Program
- **Infrastructure Development**
 - E.g. Alternative Energy Development Plan, Thailand
- **Market Development**
 - E.g. Google SkyBox, Accuweather
- **Institutional Reform**
 - National Level: Centralized vs. Decentralized approaches
 - International Level: E.g. Sentinel Asia, UN Charter

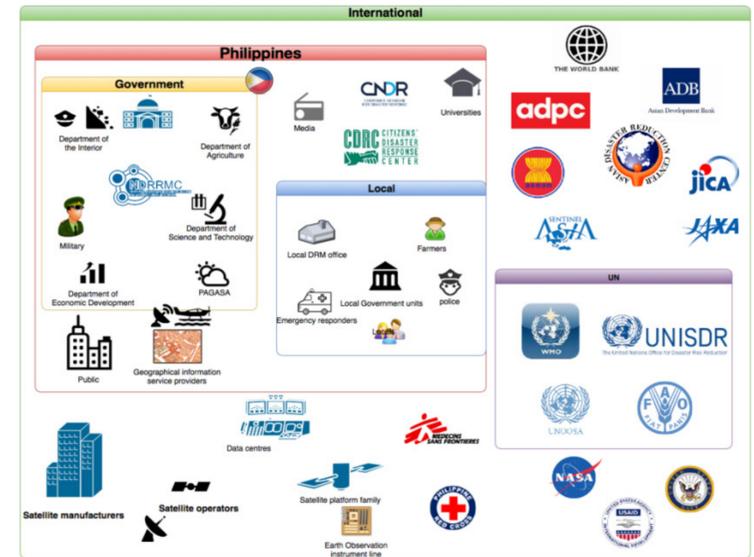


Space disaster data pipelines (illustrative only)

	Domestic gathering capacity	Existence of substitutes	Availability via international cooperation	Capacity to process to information	Overlay data & information	Dissemination & use
Visible/IR images	None	Aerial	Post-disaster	Limited	Limited	Limited
Weather	None	Stations	Yes	Yes	Yes	Improving
Radar	None	None	Post-disaster	Limited	Limited	Limited

Panorama of actors

Geographical information provision system-of-systems



Industry vertical & policy

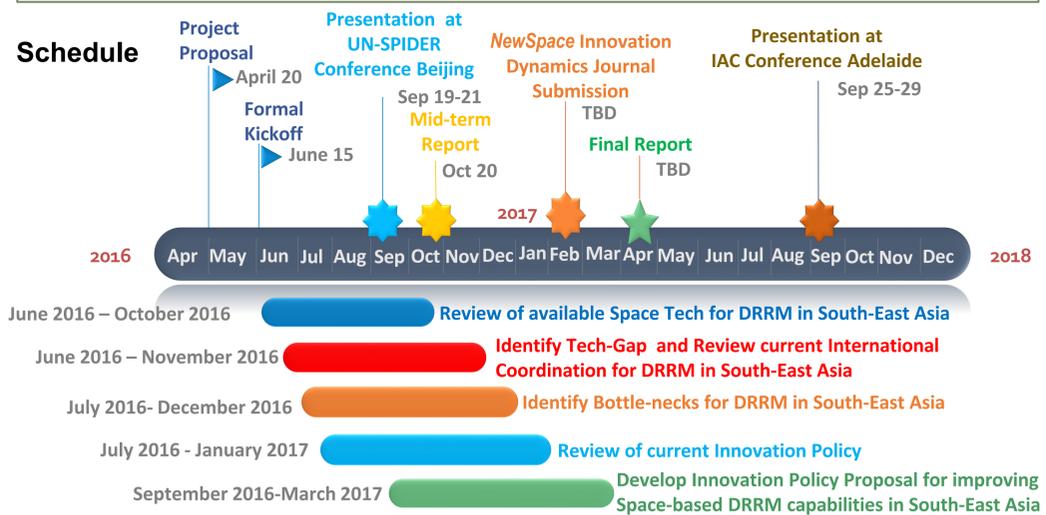
	Performance parameters	Ex. Innovation policies	Ex. Short- or Long-term effects
User Services/app	Need, growth & use case	Space data as quasi-public good	Increased user apps, public knowledge
GI Service Provider	Data, resolution, archives, fusion spectrum, age	Training programs for GI data specialists	New localized data products
Satellite Operator	Coverage, orbits, instruments, ground stations	Subsidies for instrument developers	Local instrument procurement & capabilities
Satellite Manufacturer	Satellites, launchers: sites, suppliers, tech	International collaboration for sharing platforms	Available launch berths, improved tech exposure

Lessons Learned So Far

- Inability to quickly process procured satellite data
- Lack of Skilled Human Resources for DRRM
- Coordination Gap between Government and Agencies handling DRRM

The Path Forward

- Self-capacity to develop, procure and utilize space-based assets
- Recognition of synergy between Stakeholders
- Public-Private Partnerships (PPP) to tackle DRRM



References

- 2015 UN-Spider, UNOOSA, ERIA, World Bank, ADB Reports on DRRM