Global-Sat initiative

UN World Conference on
Disaster Risk Reduction
2015 Sendai Japan

CANEUS
UN Global Sat
Disaster Risk Reduction

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Is there a need?

- There currently are active solutions for disaster and environmental monitoring capabilities through satellites

- No global partnership to coordinate and organize all the disparate efforts

- Challenges to address:
  - Data availability
  - End-to-end data flow
  - Near real-time availability

Minimum requirements

- Complete suite of sensors and satellite system

- Common data and access standards across communities

- Affordable → low barrier of entry

- Sustainable → continue operations over many years to achieve resilience

- Adaptable → high refresh-rate (6-12 months) to continually improve data gathering capabilities based on lessons learned

- Scalable → expansion to sustain growing need and achieve global coverage (space and time)

ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF RESPONSE *BY ANALYZING A COMBINATION OF REMOTELY SENSED SATELLITE, SOCIOECONOMIC AND IN-SITU DATA TO BETTER MITIGATE NATURAL HAZARD RISKS FOR THE FUTURE.*

Concept

- Common nano-satellite platform allows:
  - Data gathering system with the same telemetry and commanding
  - Production in numbers that decreases overall cost and increases predictability of performance
  - Common ground segment
  - Common launch interface and deployment system
  - Design tailored to specific requirements for reliability and mission duration
  - Availability of spares across all participants
  - Inter-satellite communication system

- Payloads built all over the world and dedicated to gather data:
  - Infrared
  - Visible
  - Panchromatic
  - Ground sensors data collection
  - Synthetic Aperture Radar
  - Etc...

- Platform / Payload Integration can be done in states that build the payloads
  - Secondary benefits for local economy

- All data collected and available /distributed both raw and post-processed to the participating countries
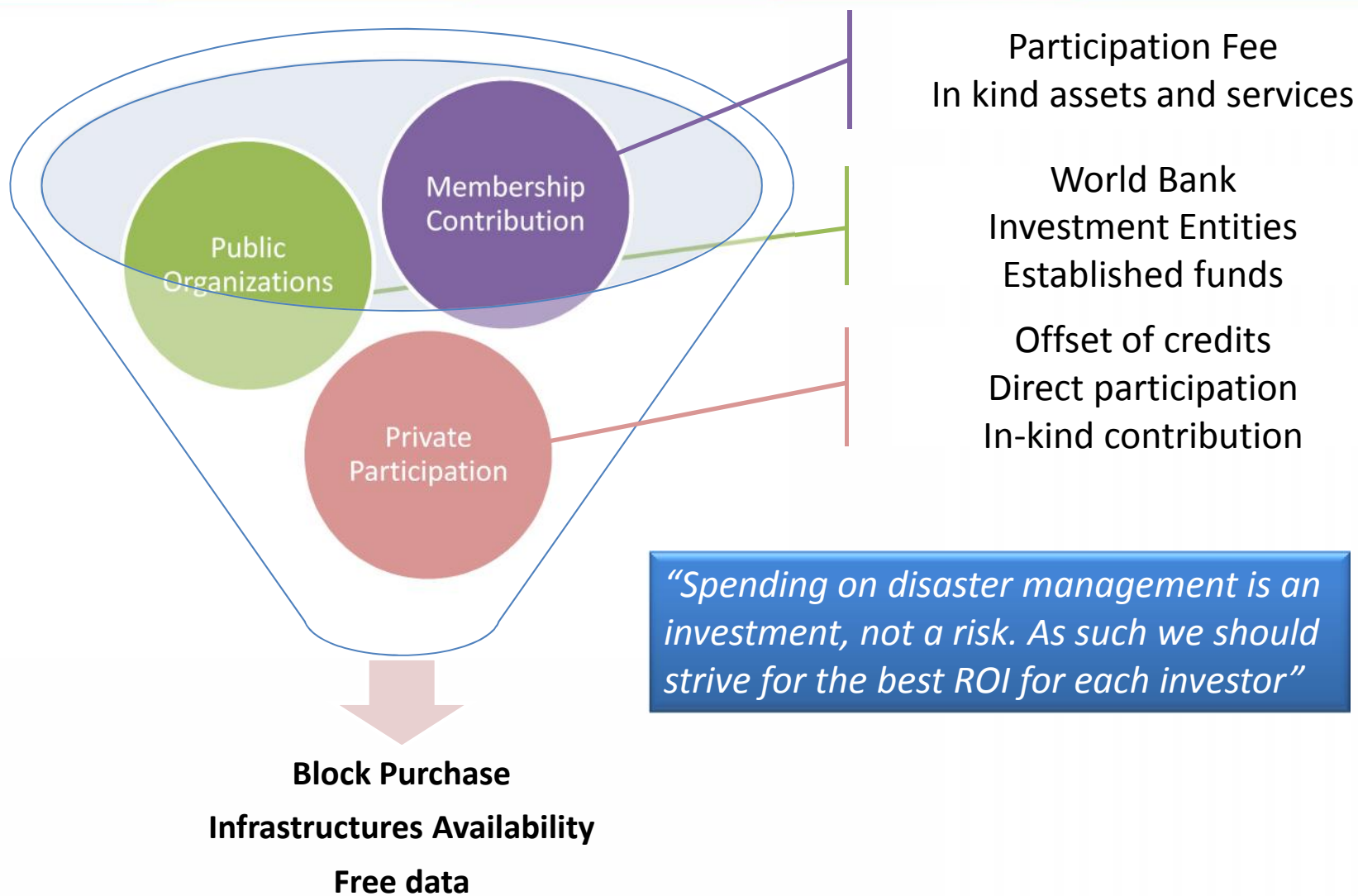 - Leverage on each other
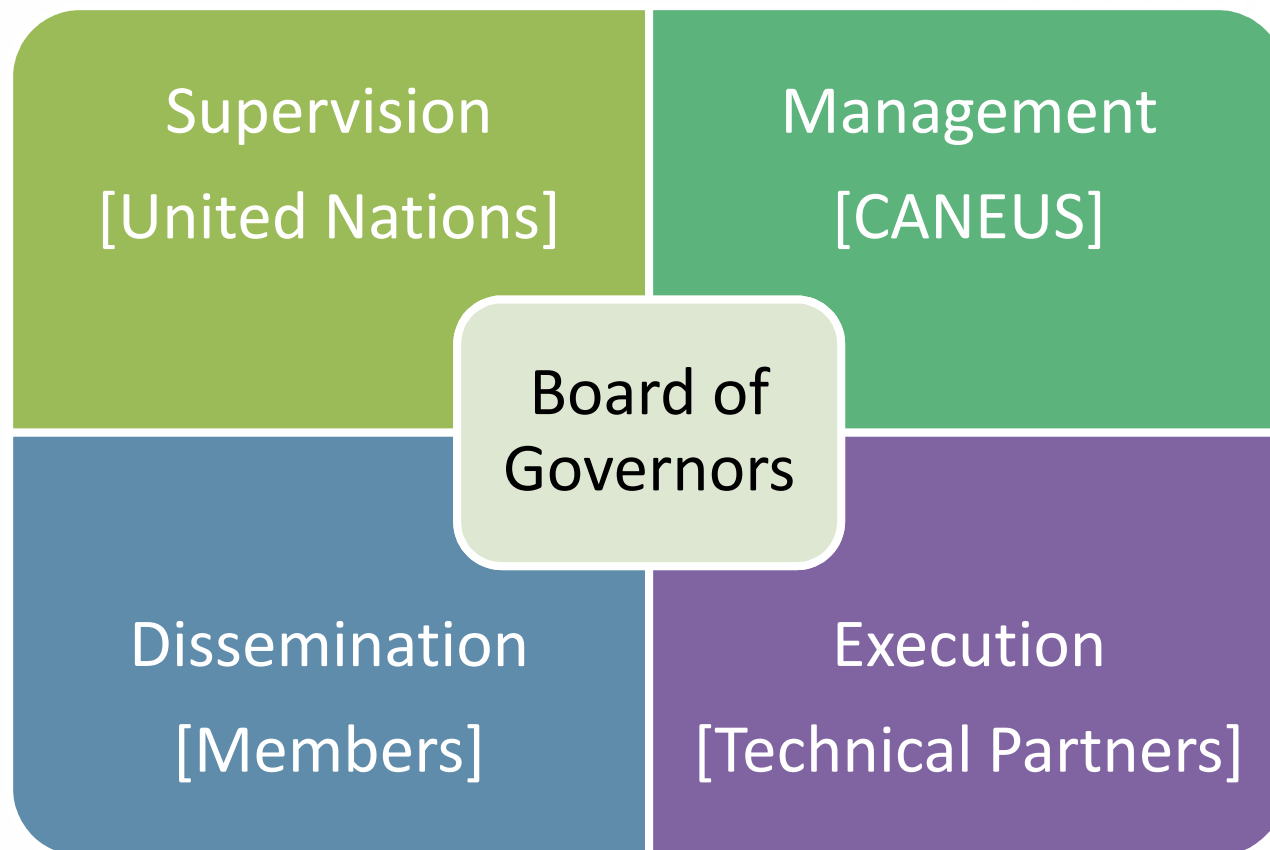
AFFORDABLE

ADAPTABLE

SUSTAINABLE

SCALABLE

Potential financial framework

Participation Fee
In kind assets and services

World Bank
Investment Entities
Established funds

Offset of credits
Direct participation
In-kind contribution

"Spending on disaster management is an investment, not a risk. As such we should strive for the best ROI for each investor"

Membership Contribution

Public Organizations

Private Participation

Block Purchase

Infrastructures Availability

Free data

Roles and Responsibilities

Supervision [United Nations]	Management [CANEUS]
Dissemination [Members]	Execution [Technical Partners]

Board of Governors

Complement and differences from existing efforts

- GlobalSat is a constellation of diverse instruments (hyperspectral, IR, SAR, etc..) and ability to do data exfiltration from sensors on the ground
  - DMC and other commercial efforts are all separate systems. To get different type of information you need to reach out to all of them separately, which increases costs and overhead.

- GlobalSat solution is part technical product and part educational and empowerment
  - Focus is on capacity building

- GlobalSat can assimilate information of other space assets to enhance data processing and interpretation
  - E.g. Leverage on recent agreement between UNOOSA and DigitalGlobe

- GlobalSat puts the local entities in the driving seat and empower them into a self-sustainable system for them to manage.
  - Current solutions usually put private companies on the driving seat.

Implementation timeline

2015

- March 2015 → gather inputs from community

- March to May 2015 → Continue work with financial institutions, possible members, and UNOOSA to refine concept and release white paper

- May 2015 → formal proposal for consideration at International Conference on Earth Observation in Bonn

- May to September 2015 → gather membership and financial support, establish Board of Governors and select commercial partners

- September 2015 → official rollout of the program at the Fifth United Nations International conference on Space based Technologies for Disaster Management in Beijing

2016

- Execution
  - First batch of satellites launched within one year through leverage on commercially available solution for platforms and payloads
  - Initial data management infrastructure in place by first launch
  - Growth and refinement by 6-12 months iterations

GLOBAL INITIATIVE WITH TANGIBLE ACTIONS AND RESULTS

Workshop expectations

Answer to the following questions:

- What changes are needed to this concept to address the global framework needs?

- Which are the first countries / regions to target?

- Who are the main stakeholders to include in the formulation phase?

- Which are the best financial mechanisms to consider?