GEO-GLAM
Asia-RiCE: Rice Crop Estimation and Monitoring status

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GEOGLAM
Global Agricultural Monitoring

Asia-RiCE
Crop Estimation and Monitoring

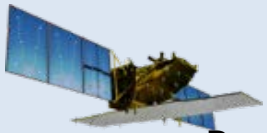
Agriculture and Food Security

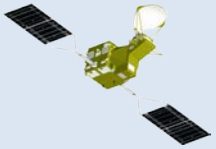
Task 5 is GEOGLAM Asia RiCE crop team activity and ground based observation / field survey network in Asia for Agriculture and Food Security.

Asia-RiCE Crop Estimation and Monitoring

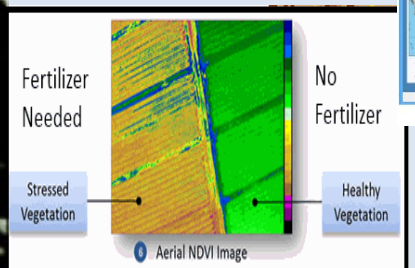
www.asia-rice.org

Observations

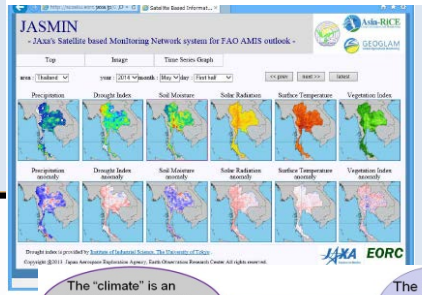


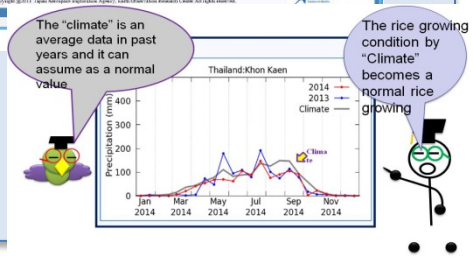


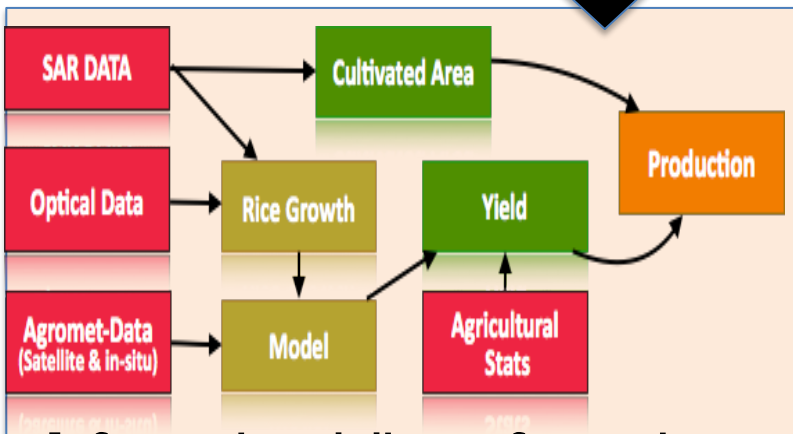
Remote sensing and filed survey



satellite agro-met information (JASMIN)



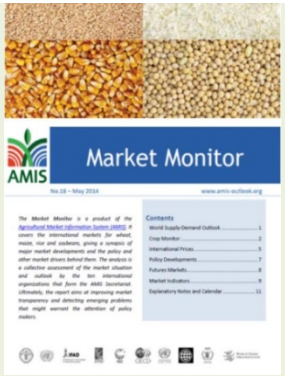




Information delivery for action

ID	Asia Rice Target Agricultural Products
P1	Rice Crop Area Estimates/Maps
P2	Crop Calendars/Crop Growth Status
P3	Crop Damage Assessment
P4	Agro-meteorological Information Products
P5	Production Estimation and Forecasting

Publish "Market Monitor" (FAO)

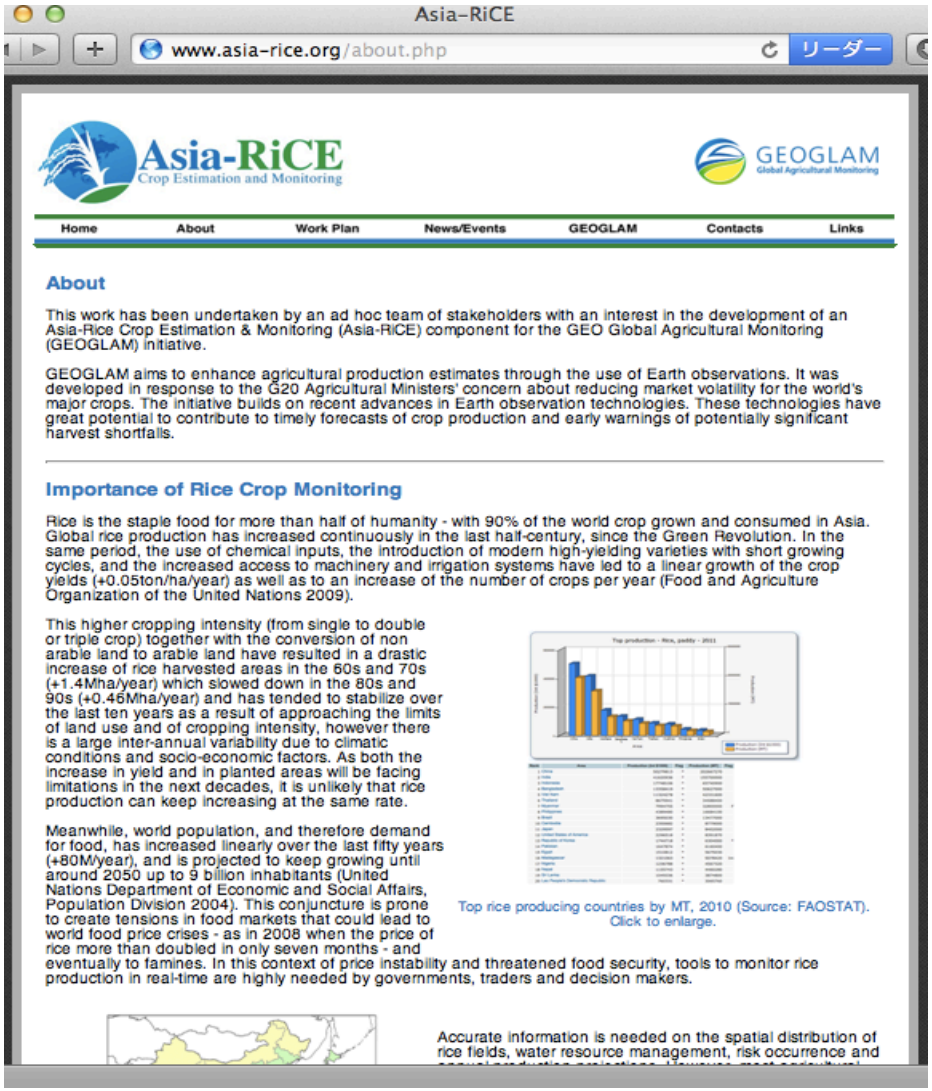


Take action

Background of GEOGLAM/Asia-RiCE

- The GEO GLAM serves as a useful input for the AMIS. (four type of commodity crops – wheat, maize, rice, and soybeans)
- Since rice is the main commodity crop in Asia, Japan Aerospace Exploration Agency (JAXA) proposes and leads the Asian Rice Crop Estimation & Monitoring project (Asia-RiCE) for GEO GLAM.
- Asia-RiCE is a collaborative effort between a number of Asian organizations.

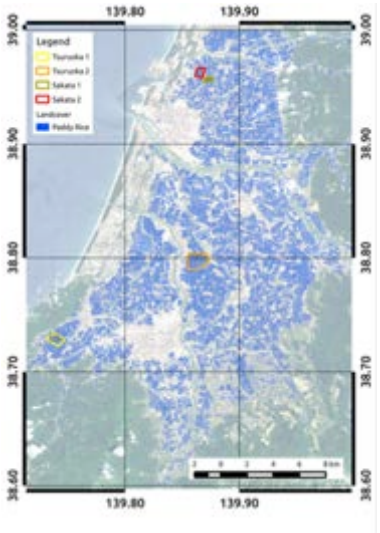
Asia-RiCE Home Page – www.asia-rice.org



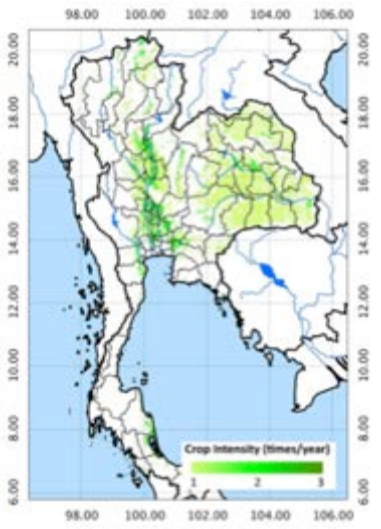
Asia-RiCE Target Agricultural Products

ID	Product
P1	**Rice Planting Area Estimates and Mapping**
P2	**Crop Calendars/Crop Growth Status**
P3	**Crop Damage Assessment**
P4	**Agro-meteorological Information Products**
P5	**Production Estimation and Forecasting**

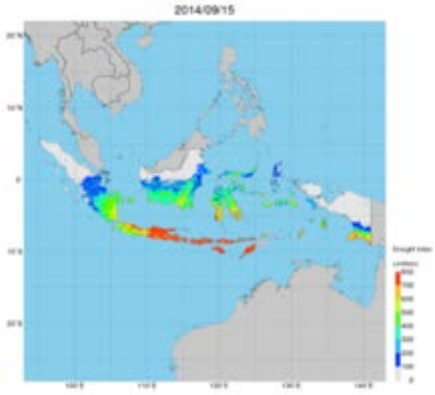
Example of Products



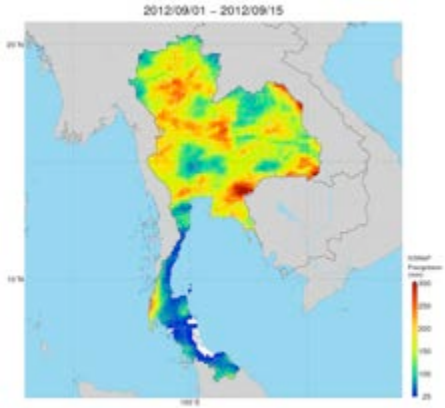
P1: Planted Area



P2: Crop Calendar



P3: Drought Warning



P4: Precipitation

Asia-RiCE Work Plan http://www.asia-rice.org/files/workplan.pdf

Asia-RiCE Crop Estimation and Monitoring

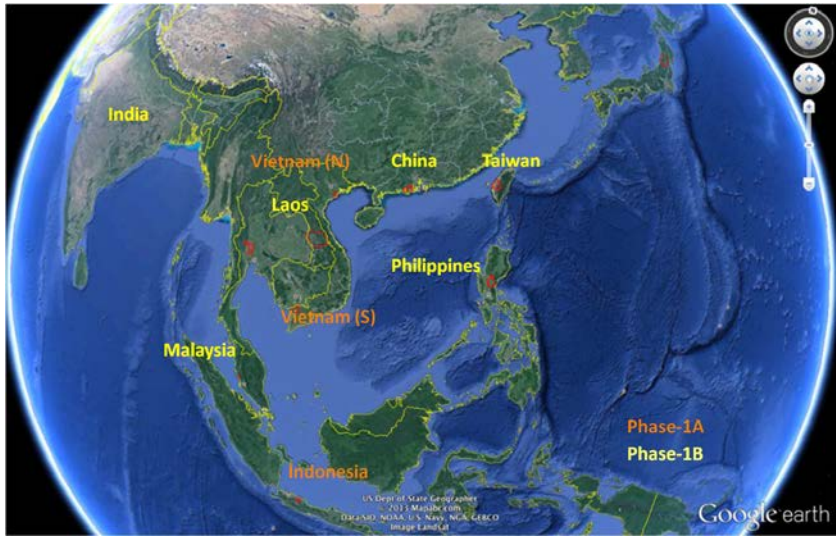
Major Achievements
- Rice Crop Area Estimates/Maps -

1. Content

- Time series SAR data from multiple providers to estimate rice planted area, growing status, etc. (Indonesia, Vietnam, Thailand, Japan and others).
- NASA/CEOS SEO developed & tested a cloud computing SAR processing (INAHOR) platform for Indonesia
- GEORIICE for Vietnam
- ADB project for 4 countries – rice crop area estimation Innovative Data Collection Methods for Agricultural and Rural Statistics results sharing finished by November 2016 with holding regional workshop

2. Target area and period

- Phase 1 (from 2014).
  Technical demonstration sites (100x100km) in Asia countries & focus on development of provincial-level rice crop area estimations.
- Phase 2 (from 2016).
  Wall-to-Wall: 1) Low mekong region – Vietnam and Cambodia, 2 9 Top 10 rice production provinces in Indonesia, Add new countries : Myanmar and Cambodia. JECAM coordination



PALSAR-2 observation area

Indonesia
Subang

Japan
Yamagata

Vietnam(S)
An Giang

Chinese Taipei

Thailand
Sphan Buri

Malaysia
Barat Laut Selango

Data distribution system for Asia-RiCE KC4

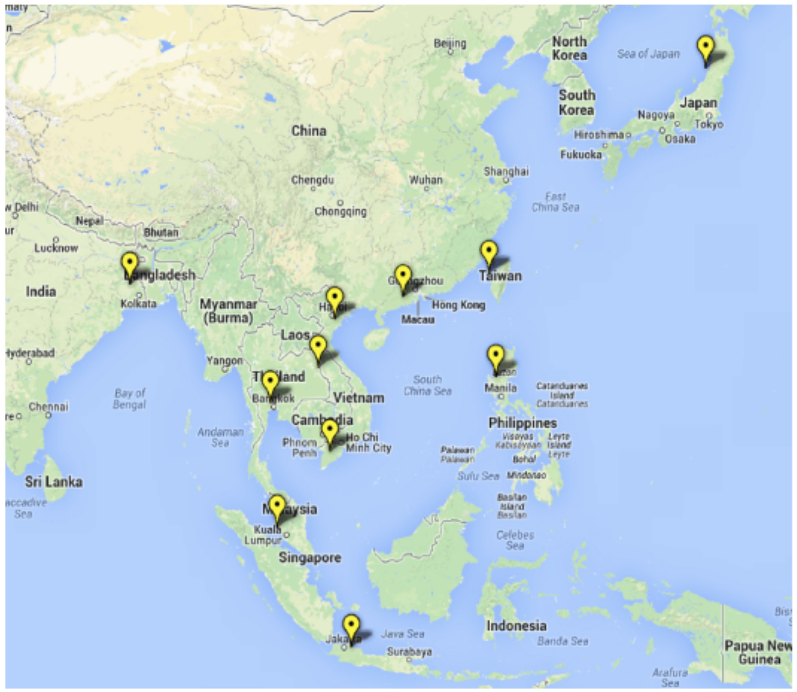
K&C4 ALOS-2 PALSAR2 Data Distribution System for Asia-RiCE

JAXA Explore to Realize

Description

This is a online ALOS-2 PALSAR-2, Japanese Synthetic Aparture Radar (SAR), data distribution system for implementing the Asian Rice Crop Estimation and Monitoring (Asia-RiCE) as a component of the GEO Global Agricultural Monitoring (GEOGLAM). ALOS-2 data are provided by JAXA under the framework of Kyoto & Carbon4 (K&C4) Initiative.

Asia-RiCE Technical Demonstration Sites (Asia-RiCE TDS)



Asia-RiCE Crop Estimation and Monitoring

-Chinese Taipei
-India
-Indonesia
-Japan
-Lao P.D.R.
-Malaysia
-Philippines
-Thailand
-Vietnam_North
-Vietnam_South
-Argentina (GEOGLAM JECAM Site)

ALOS-2 Related Links

-ALOS Research and Application Project of JAXA/EORC
-Product/Data Format Info.
-Calibration Info.

Last update : September 03 2015 07:29:34
Managed by Earth Observation Research Center (EORC), Japan Aerospace Exploration Agency (JAXA)

- Since AUIG-2 account is provided for PI only, we have to distribute data to CI after getting the products by AUIG-2.
- We developed a web system to distribute PALSAR-2 data to CI.
- The system requires ID & password so that CI can't get other country's data.

Major Achievements
- Monthly rice crop outlook / Agro-meteorological Information Products -

Asia-RiCE Crop Estimation and Monitoring

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AFSIS ASEAN Food Security Information System

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Asia-RiCE Crop Estimation and Monitoring

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GEOGLAM Global Agricultural Monitoring

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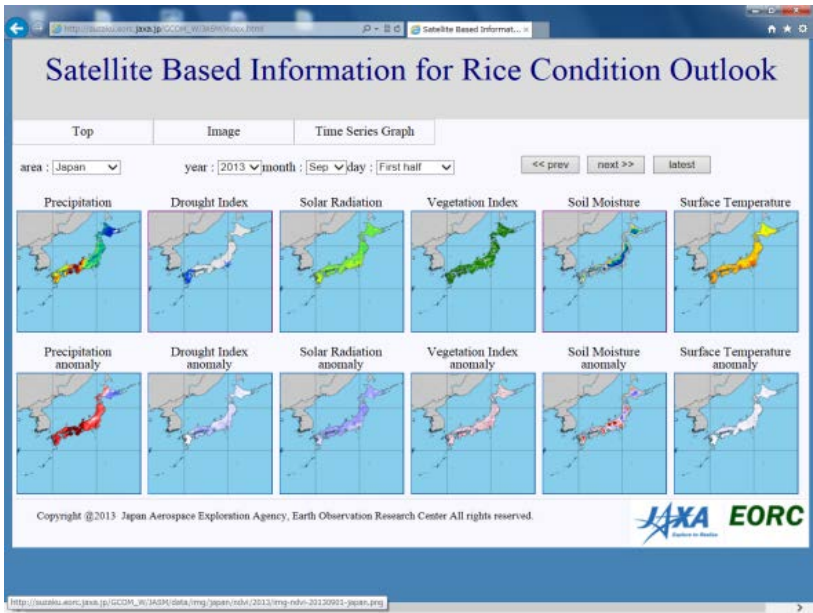
AMIS Agricultural Market Information System

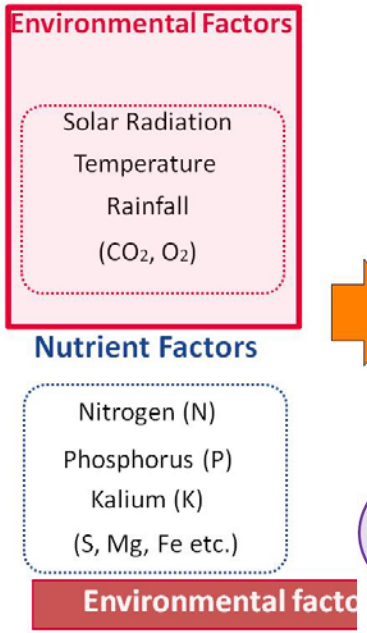
Provision agro-meteorological information derived from satellites with NDVI

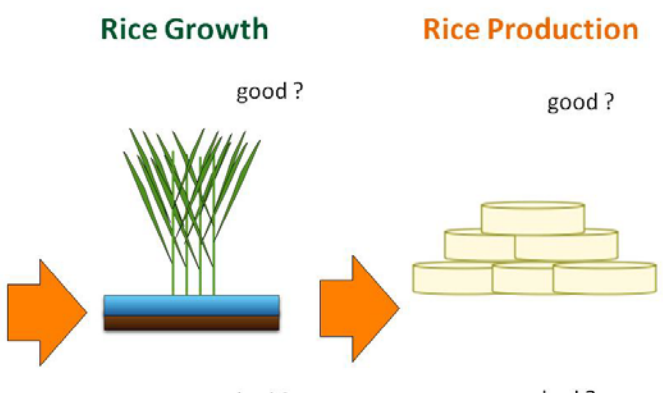
Worked with ASEAN food security information system (AFSIS) to provide crop condition overview information and outlooks for FAO AMIS through GEOGLAM

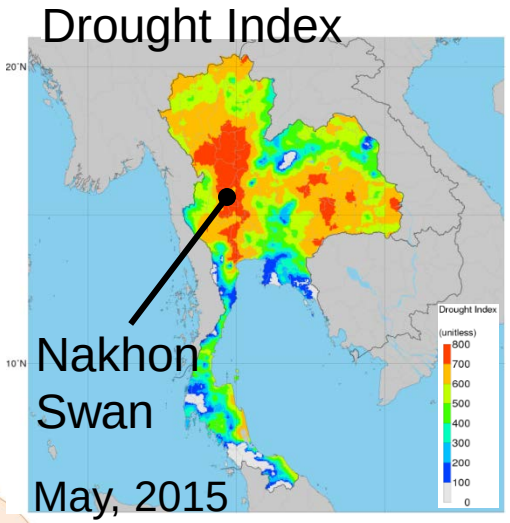
- The JAXA/RESTEC teams developed the JASMIN (agro-met information provision system for outlook) tools



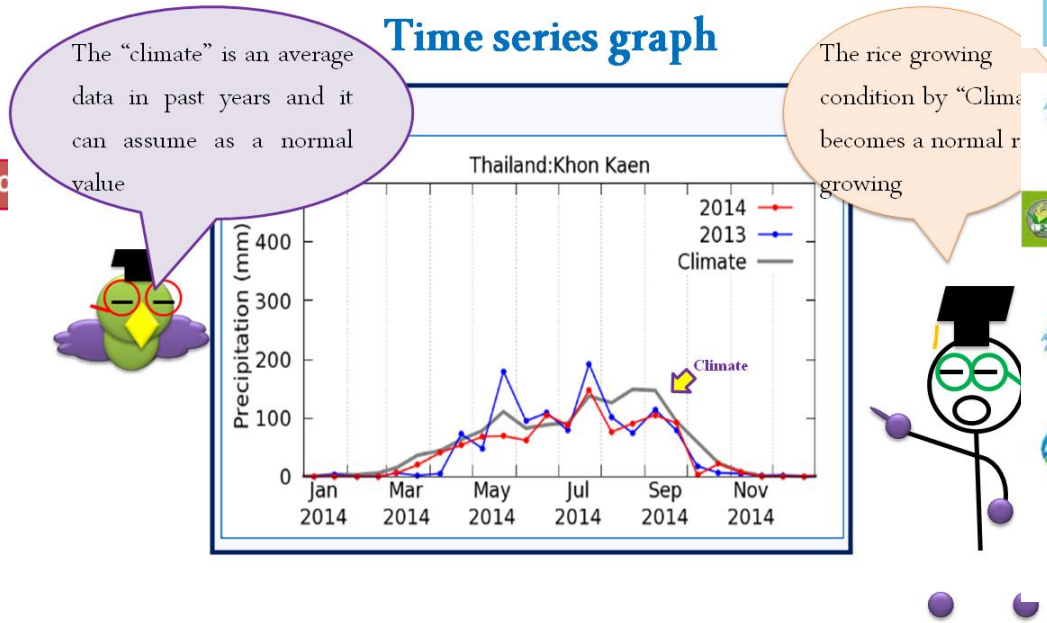
Major Achievements
- Monthly rice crop outlook / Agro-meteorological Information Products -







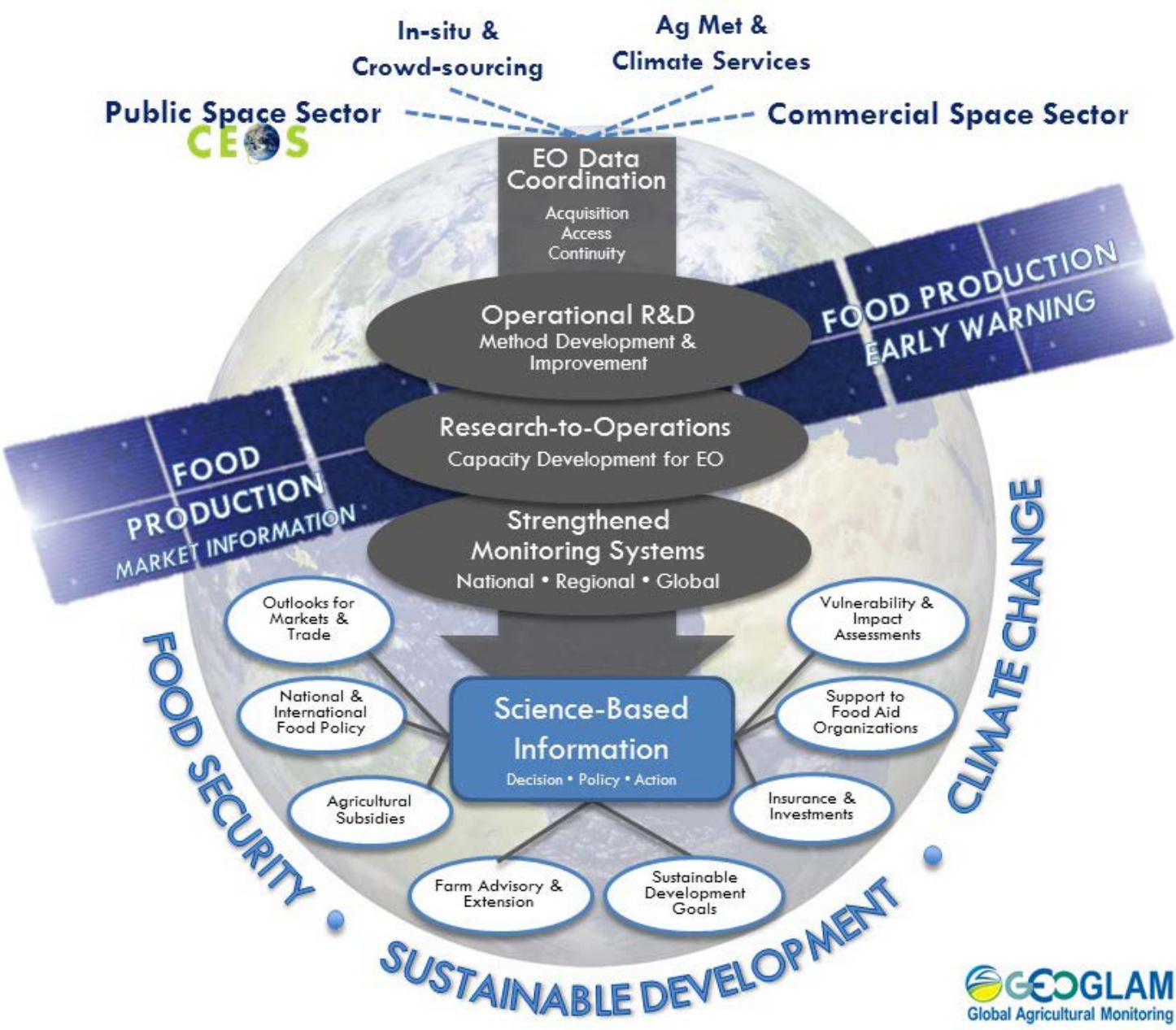
Red color = high number



Asia-RiCE Strategic Issuess

- Contribution to UN SDG2 through how and with who? Indicator (GEO-FAO->>>>) for end hunger, ahieve food security and improved nutrition, and promote sustainable agriculture)
- Secure observation, continued and easy data access: Share observation / acquisition plan of multiple satellites at one site to conduct information validation for rice growing and production estimation (especially for wall-to-wall (whole country – country scale) starting from main crop area of Indonesia, Vietnam, and Thailand) in cooperation with CEOS
- Need Support ICT environment with applications for data archive and processing
- Expand SDMS / cloud computing system to do practical use for end users such as Ministries of Agriculture -> in cooperation with CEOS Data Cube and Servir-Mekong
- Promote EO data and related information sharing (especially ground base data and base line map such as LULCC / rice crop mask, rice crop calendar, etc.)
- Promote cross validation for outlook and rice crop growing and production estimation -> Develop standard ground observation data collection method guideline
- Promote regional coordination (need donor such as ADB, UN-ESCAP, MRC, CEOS, and GEO support, and contribution/endorsement from national monitoring systems)
- Sustained institutional support to promote satellite data usage & validation (many Asian countries are developing countries)

New Draft Organizational Framework for GEOGLAM



How GEOSS can / should contribute to SDGs

- **To understand current and future perspectives of food production and consumption**
- **To map current activities onto action items for SDGs**
- **To prioritize current activities for SDGs**
- **To discuss how agriculture related observations and data are important for SDGs**
- **Etc.**

SDG 2: End hunger, achieve the food security and improve nutrition, and promote sustainable agriculture.

- By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round
- By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons
- By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment
- By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality
- By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed
- Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries
- Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round
- Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility

Agri-GEOSS

AGRICULTURE THEMATIC COMMUNITY

- **Support of the SDG 2: End hunger, achieve the food security and improve nutrition, and promote sustainable agriculture.**
- **Support the development of a Latin American Regional GEOGLAM.**
- **Greater collaboration between US and Canada on GEOGLAM activities.**
- **Enhance current GEOGLAM monitoring activities to better encompass the priorities of Latin America (e.g. regionally important crops).**
  - **Early Warning Crop Monitor (for countries-at-risk)**
  - **(eventually) Rangeland & Pasture Productivity (RAPP) Monitor**
  - **(eventually) full GEOGLAM Crop Monitor (all crops of national/regional importance)**
- **Continue to develop the Rangeland & Pasture Productivity (RAPP) sub-Initiative (www.geo-rapp.org)**
  - **Australian leadership; large focus on South America.**
  - **Further grow Community of Practice.**
  - **Seek participation of aquaculture and fisheries.**