

**Modalities of the Regional Mechanism on  
Drought Monitoring and Early Warning  
and  
Progress of its Service Node in China**

**WU Guoxiang**

**Senior Advisor  
National Remote Sensing Center of China**

**Regional Cooperative Mechanism  
on Drought Disaster  
Monitoring and Early Warning**

- **A collaborative capacity of RESAP for operational use of satellite EO data based, products and services for drought monitoring and early warning in the Asia-Pacific region**
- **To support agriculture drought related decision-making, assisting address major development challenges: global climate change adaptation, food security and disaster reduction**

## Why a Cooperative Mechanism

- After > 25 years capacity building efforts, almost all regional countries
  - Have understood importance of space information and relevant technology for disaster reduction
  - Have built technical and institutional capacities in use of such technical tools, at different levels
- In most developing countries, such capacities remain far from operational when work individually
- Collaborative approach is the solution
  - For share of and easy access to appropriate P/S that suit technical and institutional capacities of less capable members **for actions**, and
  - For adoption of successful practices and technologies

## Why Monitoring and Early Warning

- For rescue, relief and subsequent actions *after major sudden disasters*, many initiatives are providing satellite data and products --
  - International Charter, Sentinel Asia, RESAP, ...
- M/EW is considered more important for actions before natural hazards become major disasters
  - Typhoon Committee, supported by WMO and ESCAP provides M/EW for meteorological disasters, as a\n example of regional collaborative EO capacity
- There needs EO based operational M/EW for other hazards in the region
  - The region has the best available satellite resources

## Why Drought

- Recently, occurred more frequently and severely
  - As a subsequence of global climate change
- Most serious eco-social impact to the region
  - Agriculture based economies
  - Increasing vulnerabilities to drought
    - Population increasing, land use change, urbanization, ...
  - Worsening food insecurity
  - Affecting efforts for achieving MDGs and SDGs
- Creeping disaster
  - Most warning signals might be ignored until it is too late
  - Continued monitoring should be carried out from beginning of major crop seasons
  - Disaster reduction actions could be taken

## To give Precious Leading Time

- To assist prevent impending drought hazards from becoming major disasters
  - through better preparedness and response
    - Organizing water resources for irrigation and consumption/rationing
    - Delayed or changed planting of agricultural crops, including drought resistant crops instead
    - Organizing food resources to prevent famine and market turmoil
- Technical maturity demonstrated
  - Easier to be started with
  - May accumulate experiences for other disasters

## Regional Cooperative Mechanism on Disaster Monitoring and Early Warning

- **A operational mechanism in the A-P region**
  - An international partnership
  - Build on Regional Space Applications Programme of ESCAP (RESAP) platform
- **A distributed network**
  - comprising service nodes, beneficiary bodies and ad hoc secretariat
- **To build regional collaborative capacity**
  - Supporting development of national operational capacities for disaster reduction
  - Taking drought as its initial target

## Modalities of the Mechanism (1)

### **National consultation – Needs a pilot project?**

- On requests with likely commitment
- Participation of Service Nodes and stakeholders
- Identifying components and work plan

### **Pilot project – Capacity development for both Service Nodes and Beneficiaries**

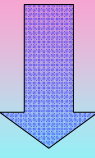
- With committed resources
- Verification and selection of monitoring indices
- Development of localized P/S
- Customize analysis and management systems
- Operational validation and reporting system
- Recommendation of policies for institutional capacity

## Modalities of the Mechanism (2)

As part of regional collaborative operational capacity, provision of M/EW P/S

- **General monitoring products**
  - Low-resolution satellite data based indices for monitoring drought prone areas
- **Watching and alerting products and services**
  - **Medium-resolution satellite data based interim products for alerted areas**
  - **Needs support of timely *in-situ* observations**
- **On request, provision of advanced services**
  - **Dedicated products and analytical services**
  - **When necessary, higher resolution**

**Sharing of relevant practices**

Role of interim satellite data based P/S				
Partners	Technical resources	EO satellite data		
<b>Satellite data providers</b>		System-corrected images		<b>Primary P/S</b>
<b>Local service providers</b> (including technical supporting team of end users)	Application models and methodology		Information extracted thematic products	<b>Interim P/S</b>
	Locally available information		Other processes by-less capable LSP	
<b>End users</b> from central to field levels	User systems and practices	Decision-making needed		<b>Final P/S</b>
		Used for decision making		

## Space Information Usages

Function	General monitoring	Watching	Alert-warning	
Service functions	Identifying risky areas	Monitoring identified high risky areas	Impact estimation, DRR planning, early-warning	
Spatial resolution	1000 – 250m		250-25m, or higher when necessary	
Service provider	Mechanism service nodes	Service nodes & local ones	Mechanism service nodes	Local service provider
Models	Cross-checking of fundamental physical models	Combined multi-model analysis	Localized M/EW models	Detailed local M/EW models
Local profile and in-situ information	Historical information expected	Historical information necessary	Historical and in-situ information crucial	
Service provision by Mechanism	Automatically for agreed vulnerable areas	On request for identified high risk areas	On request for alerted areas	
Result delivery	To national focal points by Mechanism		To governments at necessary action levels by national focal point	

## Modalities of the Mechanism (3)

### Training and advisory services

- Regional and sub-regional courses for decision makers
  - Operational services of the Mechanism, best practices on policies, institutional arrangement, decision supporting tools
- Technical training courses, sub-regional, national, hand-on levels
  - On operational products and services
  - On-request, national training for operation personnel
- National advisory services on both technical and institutional aspects

## Service Nodes (1)

### To be hosted by RESAP members

- Volunteering to provide operational services
  - with governments' commitments
- Having capacities in:
  - Easy access to EO satellite data
  - Expertise in development and integration of multi-model methods for drought disaster identification, vulnerability analysis, impact estimation, ...
  - Operational provision of satellite data based P/S
  - Provision of advisory, joint development and training opportunities

## Service Nodes (2)

- As pillars of the distributed Mechanism
  - Each maintains a portal for request and delivery of products / services
- Operationally serve agreed countries
  - Agreement through consultation among service nodes and beneficiaries
    - Multi-nodes cooperation encouraged
- Following standardized operation procedure (SOP)
  - Indices selection, verification, risk identification
  - Product and service request, response, process, delivery and utilization

## Beneficiary Bodies

- **Members of RESAP, including**
  - **Space agencies committed to**
    - Develop and provide localized services
    - Provide in-situ information for watching and alerting products and services
  - **National government organs with responsibility and coordination capacity for drought disaster reduction**
    - Local services would be further delivered to affected local governments
- **International organizations dealing with drought disaster reduction in the region**

## Ad hoc Secretariat of the Mechanism

**To be operated by Space Applications Section of ESCAP secretariat**

- **To organize national consultation and advisory activities**
- **To develop pilot projects and mobilize necessary**

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_6162](https://www.yunbaogao.cn/report/index/report?reportId=5_6162)

