K water

Drought Management in South Korea

Woosung Nam

K-water National Drought Information analysis Center (wsnam@kwater.or.kr)

1. Drought history in S.Korea

➲ Drought Cycle : 5~7year (1973~2012) ➡ Drought occurs Every year (2012~)

➲ Drought Freq : 0.36 times/y (1904~2000) ➡ 0.73 times/y (2001~2022)

1955년 1958년 1967년 1976년 1981년 1994년 1995년 2001년 2008년 2009년 2012 2013 2014 2015 2016 2017 2018 2019 2021 2022

Taebaek('08 ~ '09) Western('15 ~ '16) Southern('22 ~ '23)

2. Drought Management Policy Framework in S. Korea

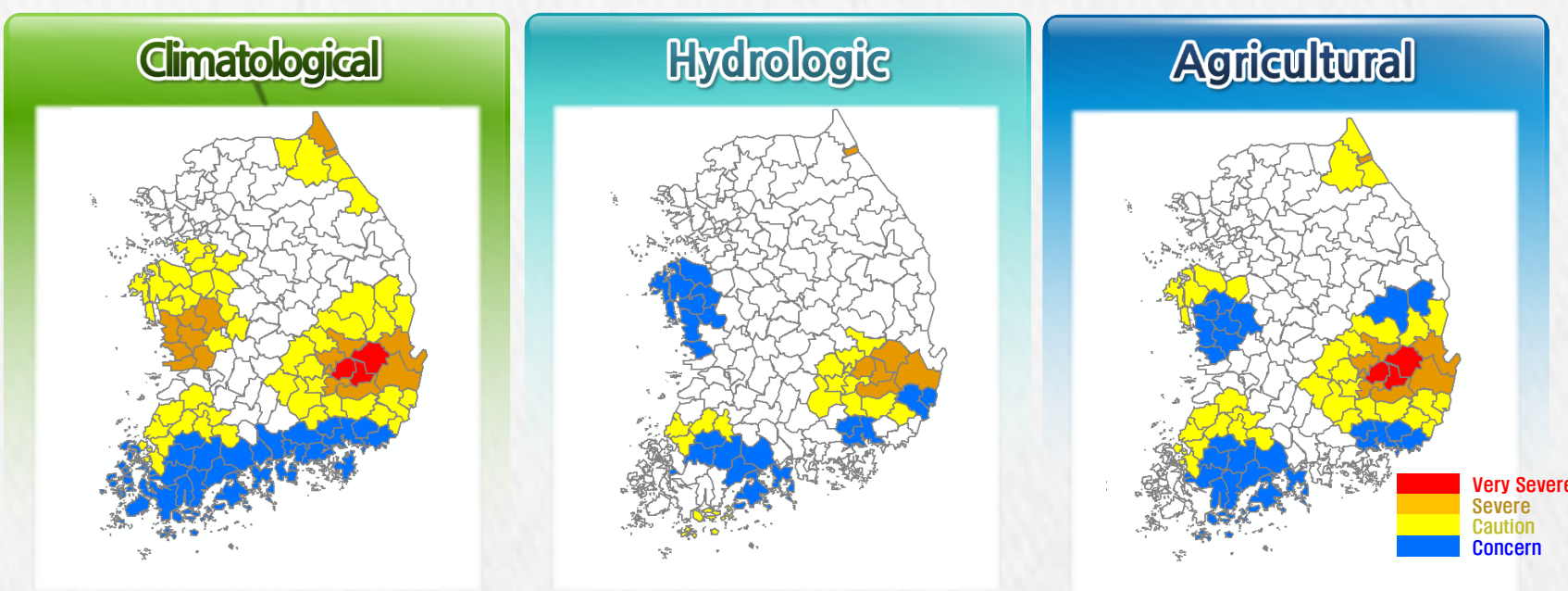| Stage	Contents
Prevention	• Inspection of vulnerable facilities • Facility maintenance • Improvement of drought early warning system • Establishment of emergency action plan • Regulation organization
Preparedness	• Organization of comprehensive disaster preparedness plans • Development and operation on disaster preparedness system • Education, public outreach, and training for drought management
Response	• Issuing disaster early warning • Control tower operation and taking emergency measures • Joint response among private, public, and military sectors
Recovery	• Taking disaster recovery measures • Relief of victims • Taking health and hygiene measures

3. Main Drought Policies in S. Korea

Drought Policy	Main Contents	Authority
Drought Early Warning System (DEWS)	• Monthly release of drought maps showing current conditions and outlooks of meteorological, agricultural and hydrologic drought	Joint Departments (MOIS)
Drought Response Task Force	• Weekly checking out nationwide drought condition and decision making for drought preparedness and response	Joint Departments (MOIS)
Comprehensive Drought Management Plans	• Annual governmental announcement of drought plans	Joint Departments (MOIS)
Designation as Vulnerable Regions to Drought	• Financial support system for designated regions vulnerable to drought	MOIS
Comprehensive Plans for Natural Disaster Mitigation	• Local governments are required to establish natural disaster such as mitigation plans every 10 year	Local Governments
Drought Vulnerability Map	• Mapping overall drought vulnerability by the assessment of exposure, sensitivity, and ability to adapt	ME / Local Governments

4. DEWS in S. Korea

- (Authorities) MOIS, ME, MAFRA, KMA
- (Update Interval) 10th every month (more often if drought gets worse)
- (Regions) 167 administrative districts in South Korea
- (Items) Current Drought Condition, 1-, 2-, and 3-month Outlooks
- (Categories) Climatological, Hydrologic, Agricultural Droughts

Climatological Hydrologic Agricultural

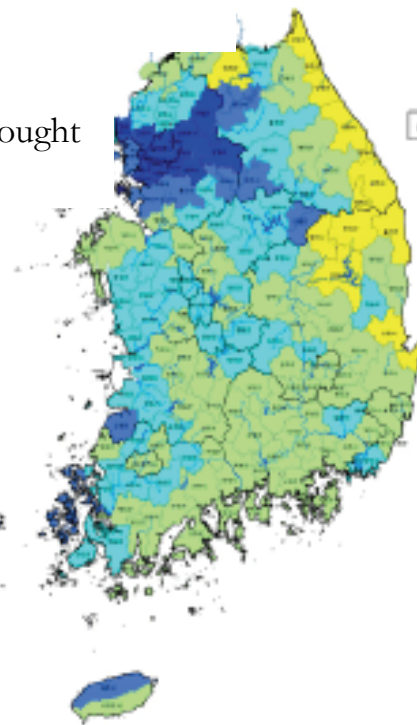Very Severe / Severe / Caution / Concern

5. Drought TF

- (Authorities) MOIS, ME, MAFRA, KMA
- (Roles) Decision making for drought response and issuing drought early warning based on meteorological, agricultural, and hydrological drought information

6. Drought Vulnerability Map

Development of Nationwide Drought Vulnerability Map to be prepared with extreme drought

Implement Basis
• 『The law about planning and management of water resources』 Article 7. Establishment of a drought vulnerability map

Implementation Plan
• (2018) Establishment of guidelines → (2019~2023) Mapping drought vulnerability maps for 4 watersheds

Utilization Plan

❶ Evaluation on drought vulnerability
- Evaluation of high-risk areas
- Analyze the weighted factors

❷ Extraction of reduction measures
- Extract reduction measures (Develop new water resources, improve utilization of existing facilities)

❸ Effect analysis
- Analyze the effects of business
- Prioritize reduction measures

❹ Formulate a policy
- Establish short/long-term drought response plans and policies

7. Response to '22~'23 Drought

Central Government

▸ (Ministry of Interior and Safety) Drought response and support of drought countermeasure such as promotion and budget, of local governments

▸ (Ministry of Agriculture, Food and Rural Affairs) Agricultural drought response

▸ (Ministry of Environment) Municipal and industrial water acquisition through conjunctive dam operation and decrease in river maintenance flow

▸ (Ministry of Trade, Industry and Energy) Operation of national industrial complex (Postponement of factory maintenance period)

Local Government

▸ Taking actions for securing water and conducting saving water campaign

▸ Crop damage monitoring

▸ Implementation of drought response measures over farming period