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Mid-level Evaluation of Climate Services: Seasonal Forecasts in Kazakhstan

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December 11, 2014

Climate Services Partnership

What I will cover

- Context for Mid-level Assessments
- Problem statement
- Assessment methodology
- Findings
- Options for strengthening climate services

Context for mid-level assessments

- Goal of assessments:
  - Promote widespread adoption of effective climate services
  - Improve existing climate services
- Assessment components:
  - Science: Quality and reliability of climate services
  - Institutional: Effectiveness in disseminating climate services including timeliness
  - Uptake: Use of services
- Test alternative methods to the comprehensive MaliMet assessment

Mid-level assessments

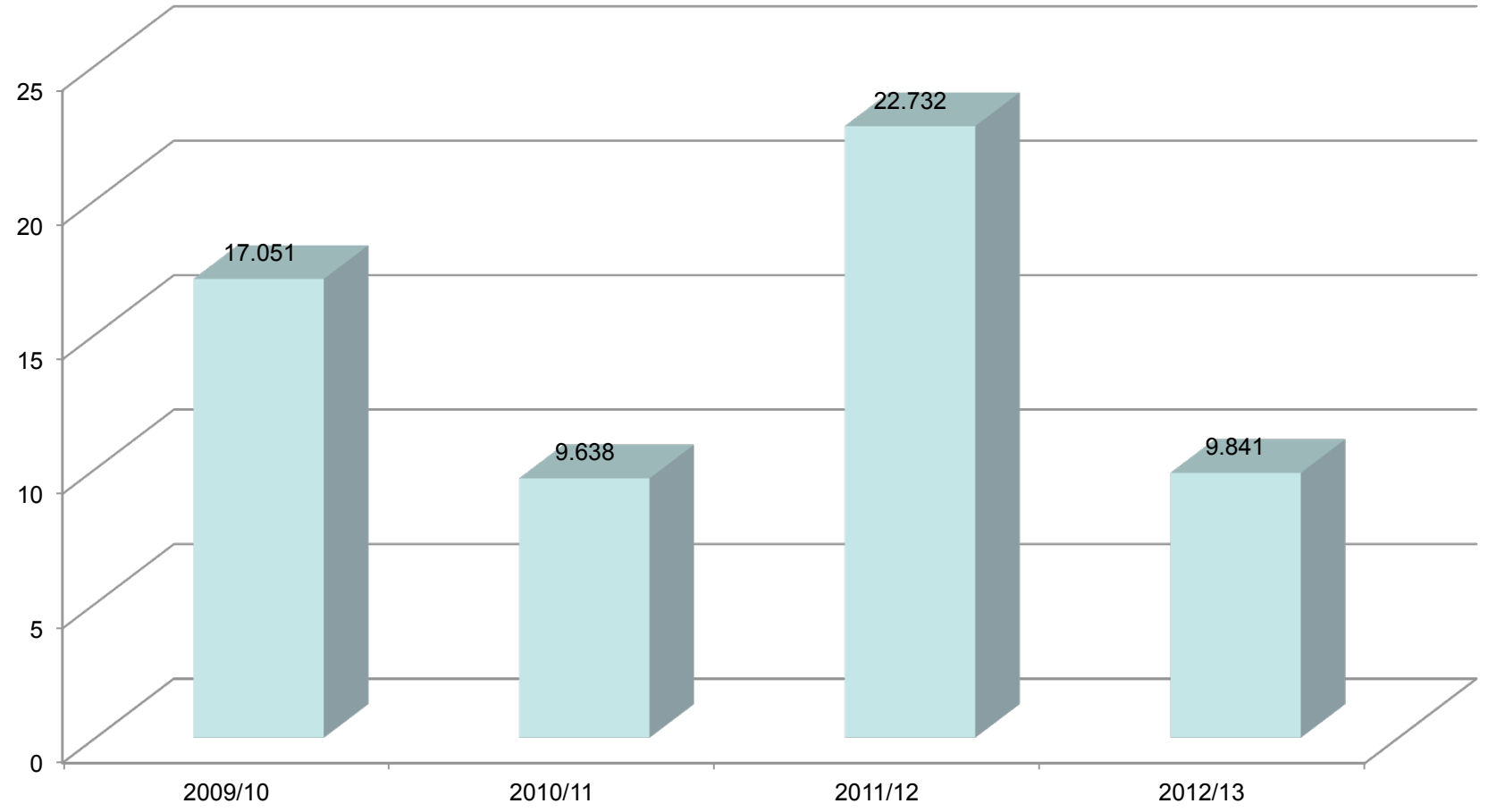
- Climate Systems Analysis Group (UCT) “Winter School”
- Drought early warning systems to support food crop systems in Indonesia
- Caribbean Agrometeorological Initiative
- Climate forecasting in Kazakhstan
  - Component of USAID’s Climate Resilient Wheat (CRW) Integration Pilot
  - Implemented by UNDP with support provided by the Climate Change Resilient Development Project (CCRD)

Reports available at http://www.climate-services.org/evaluation

Kazakhstan's Development Goals in the Wheat Sector

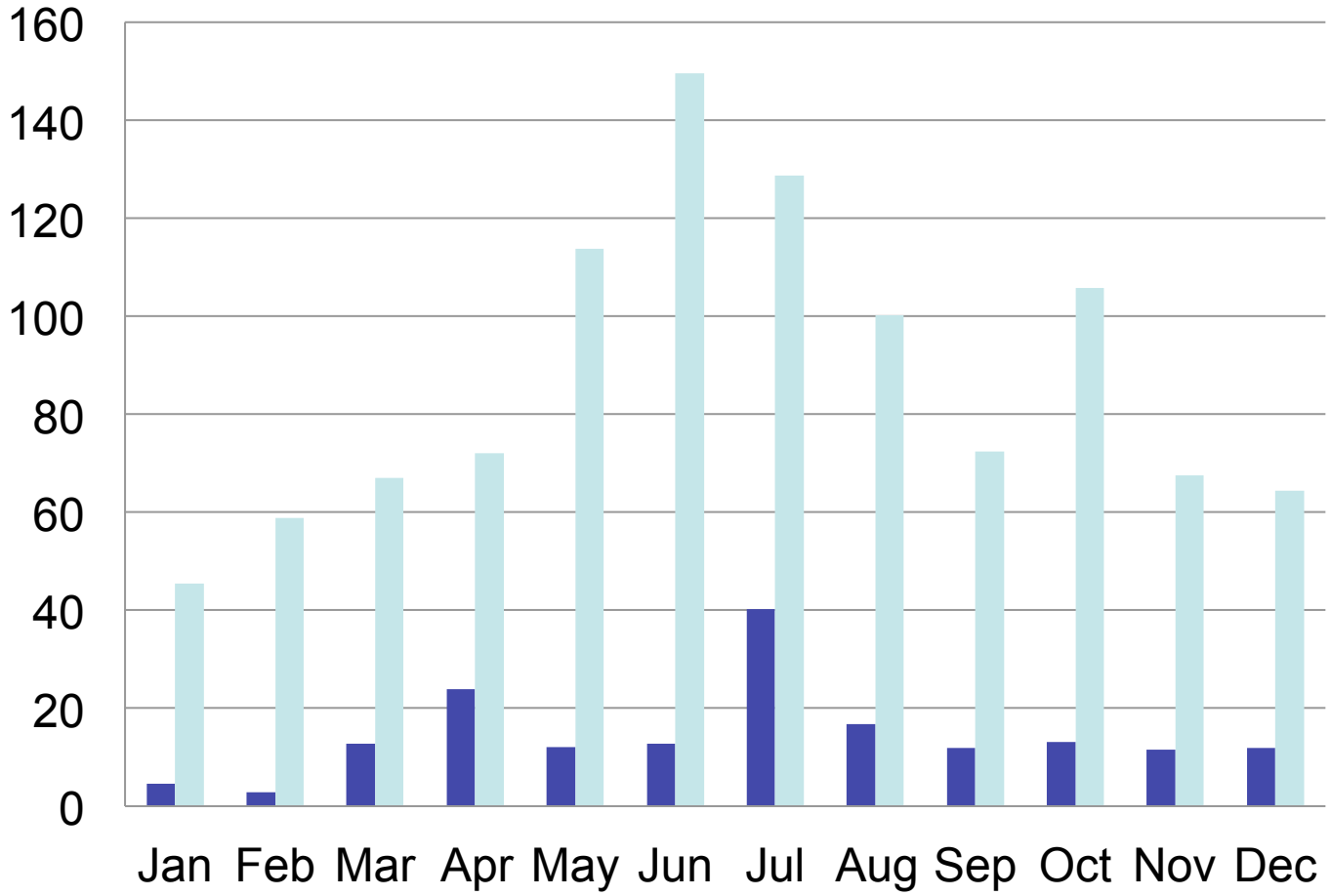
- Increase wheat production in Kazakhstan
- Strengthen food security in Central Asia
- Modernize the wheat sector
- Adapt to climate variability and change

Wheat production in Kazakhstan (million metric tons)



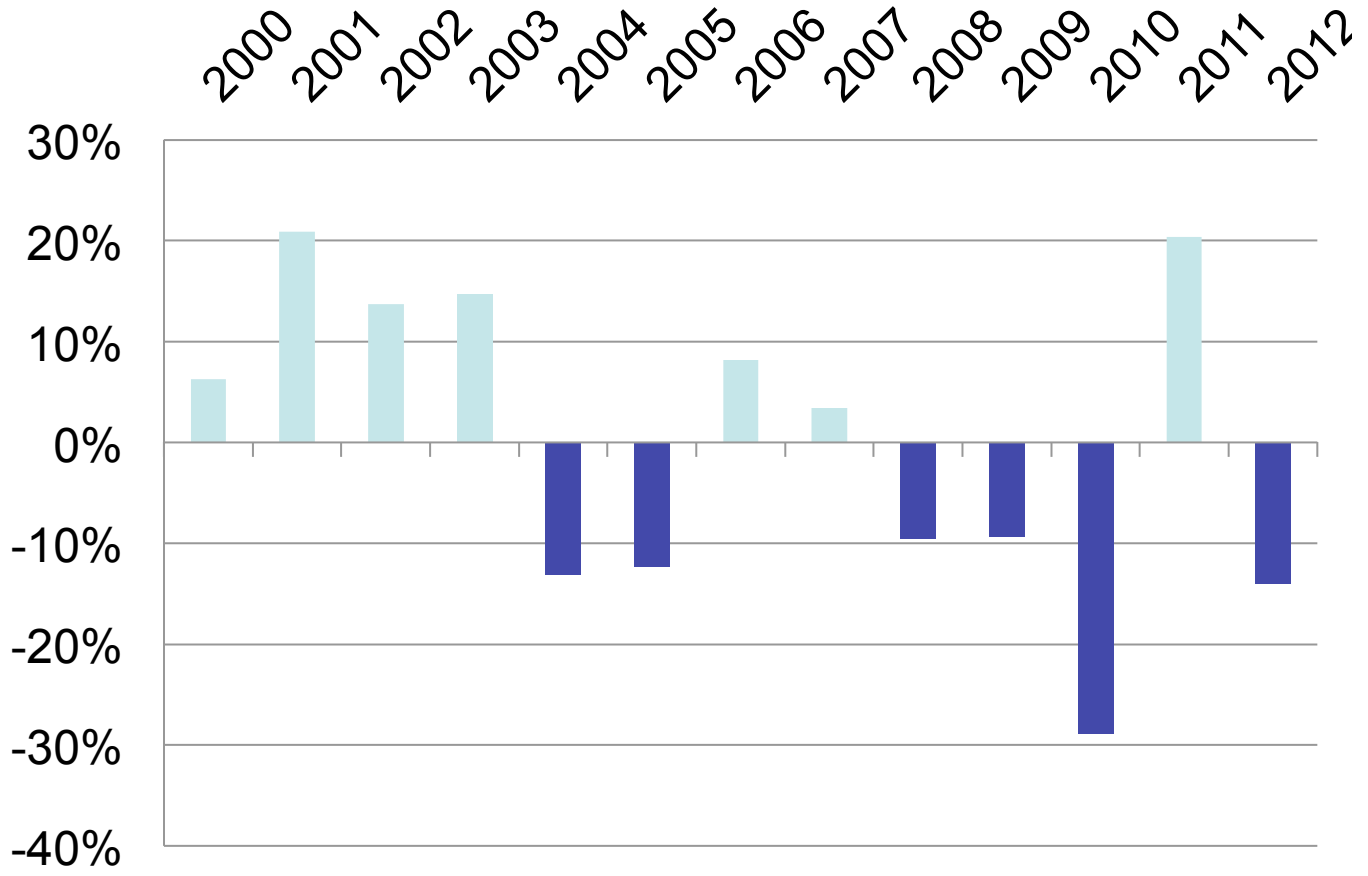
Seasonal variability in rainfall (mm)

Maximum and Minimum Precipitation (mm) for Kostanay Oblast between 2000 and 2012

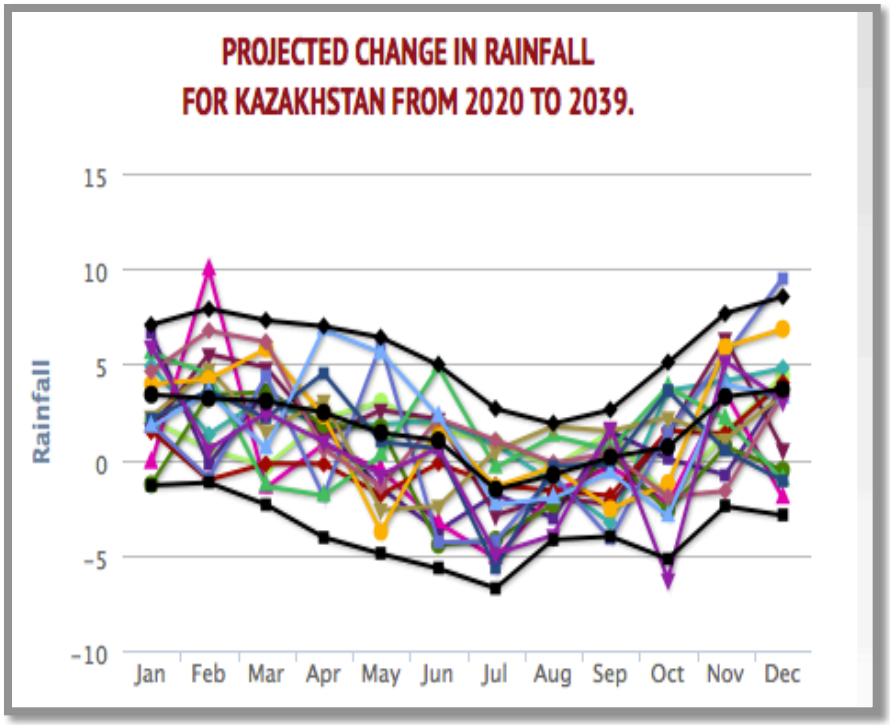


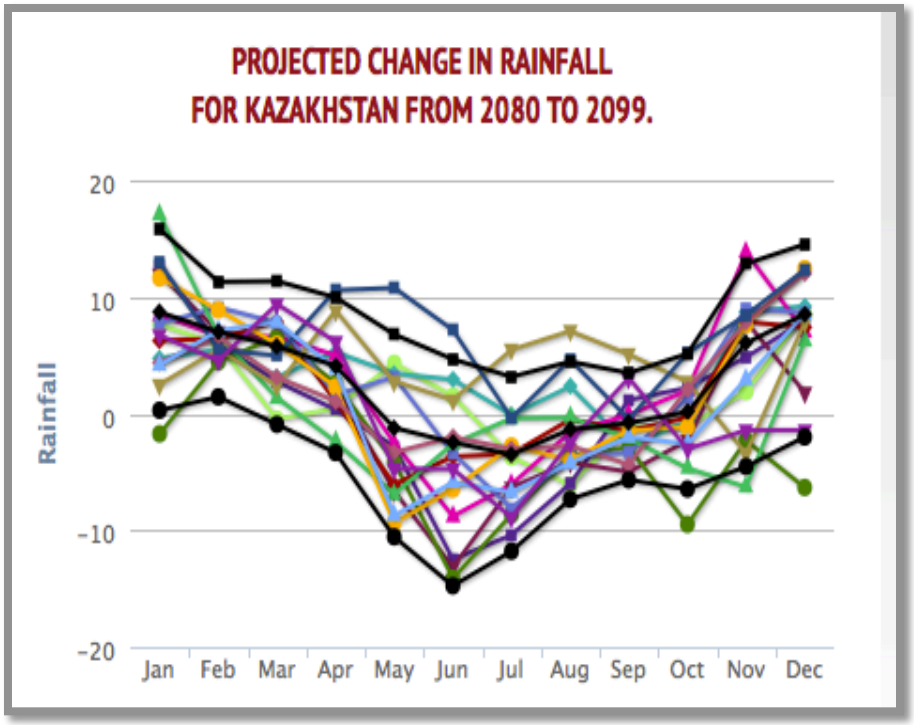
Annual variability in rainfall

Percent change in annual average precipitation and observed annual precipitation for Kostanay Oblast between 2000 and 2012



Projected changes in precipitation





Between 2020 and 2039:

- Annual rainfall will increase during the winter (November to March)
- Rain in the summer months will decrease compared to historical rainfall patterns

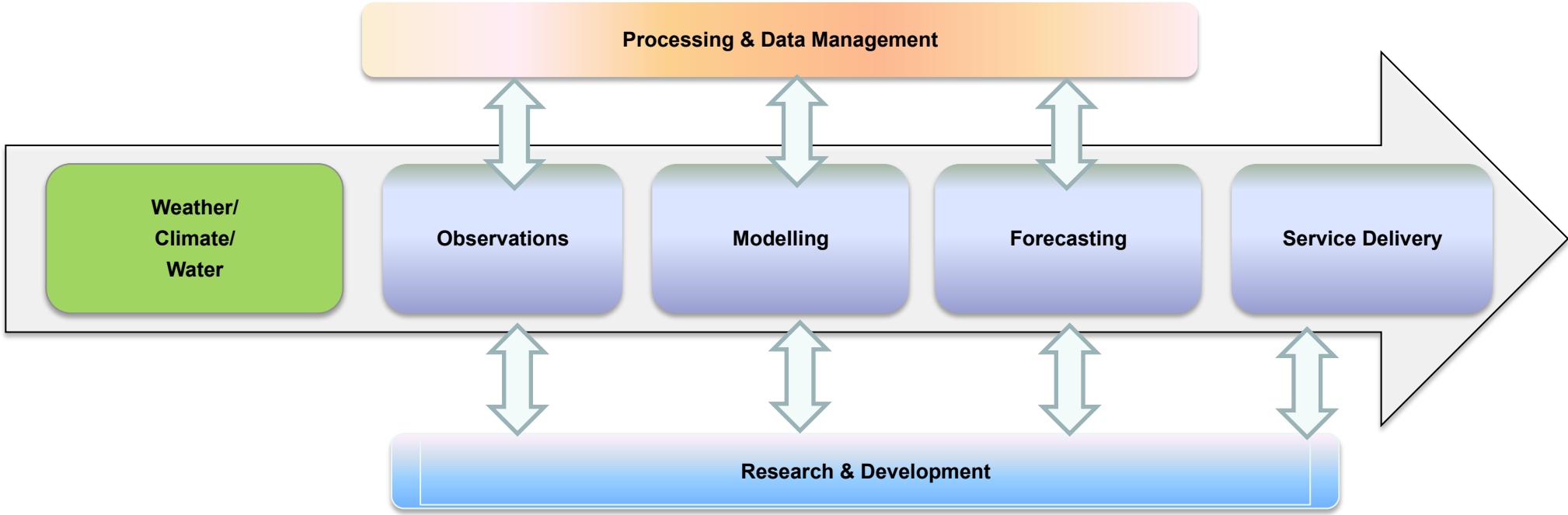
Between 2080 and 2099:

- Even larger increases in winter rainfall are projected
- Even larger decreases in summer rainfall are projected

Assessment methodology

- Stakeholder workshops and surveys:
  - National and local stakeholders including wheat producers
  - Informal survey of farmers by UNDP/CRW staff
- Climate Services Roundtable:
  - Self-assessment by Kazhydromet and the National Space Institute
  - Review of forecast methodology and results by Tony Barnston, IRI/Columbia
- Independent review of climate services for agricultural users funded by UNDP/CRW

Value chain for climate services: Findings

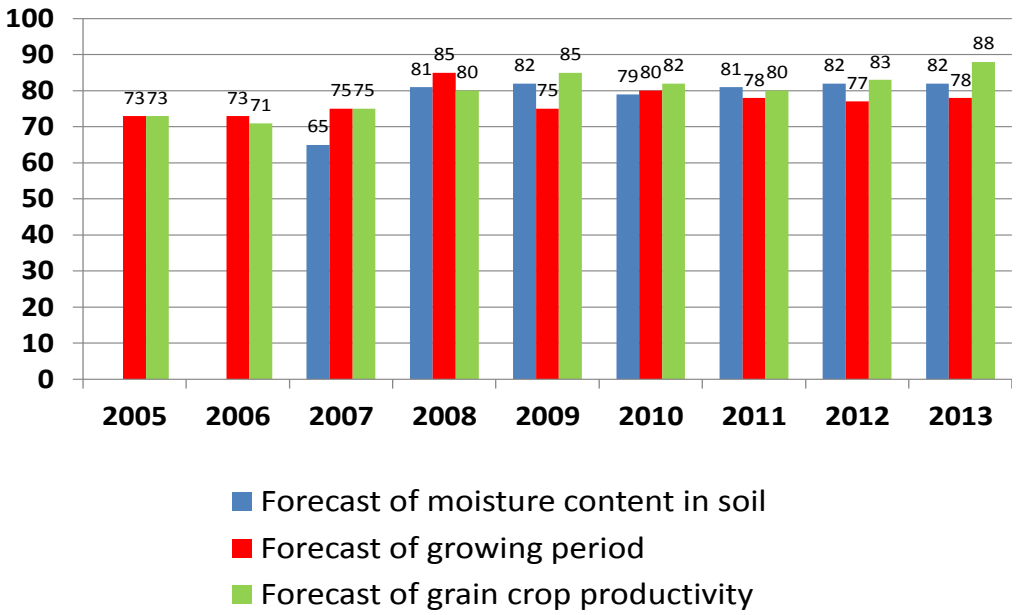


- Issues in Kazakhstan:
  - Gaps in observational network
  - Data recovery needed; more rapid preparation of drought index and climate forecasts needed
  - Forecast reliability

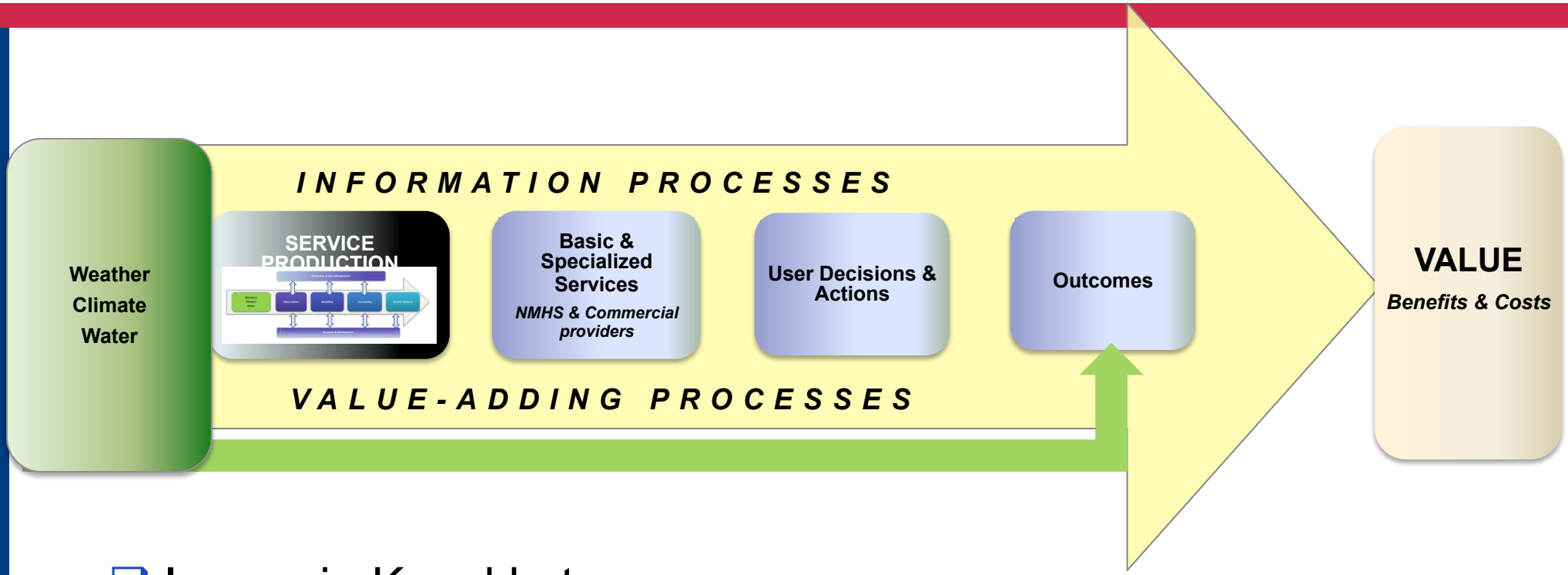
Forecast reliability

- Seasonal forecasts:
  - Announced as “below normal,” “normal,” or “above normal”
  - Temperature: 60-62% accurate; precipitation: 57-60% accurate

Exhibit 8. Dynamics of agroforecast reliability

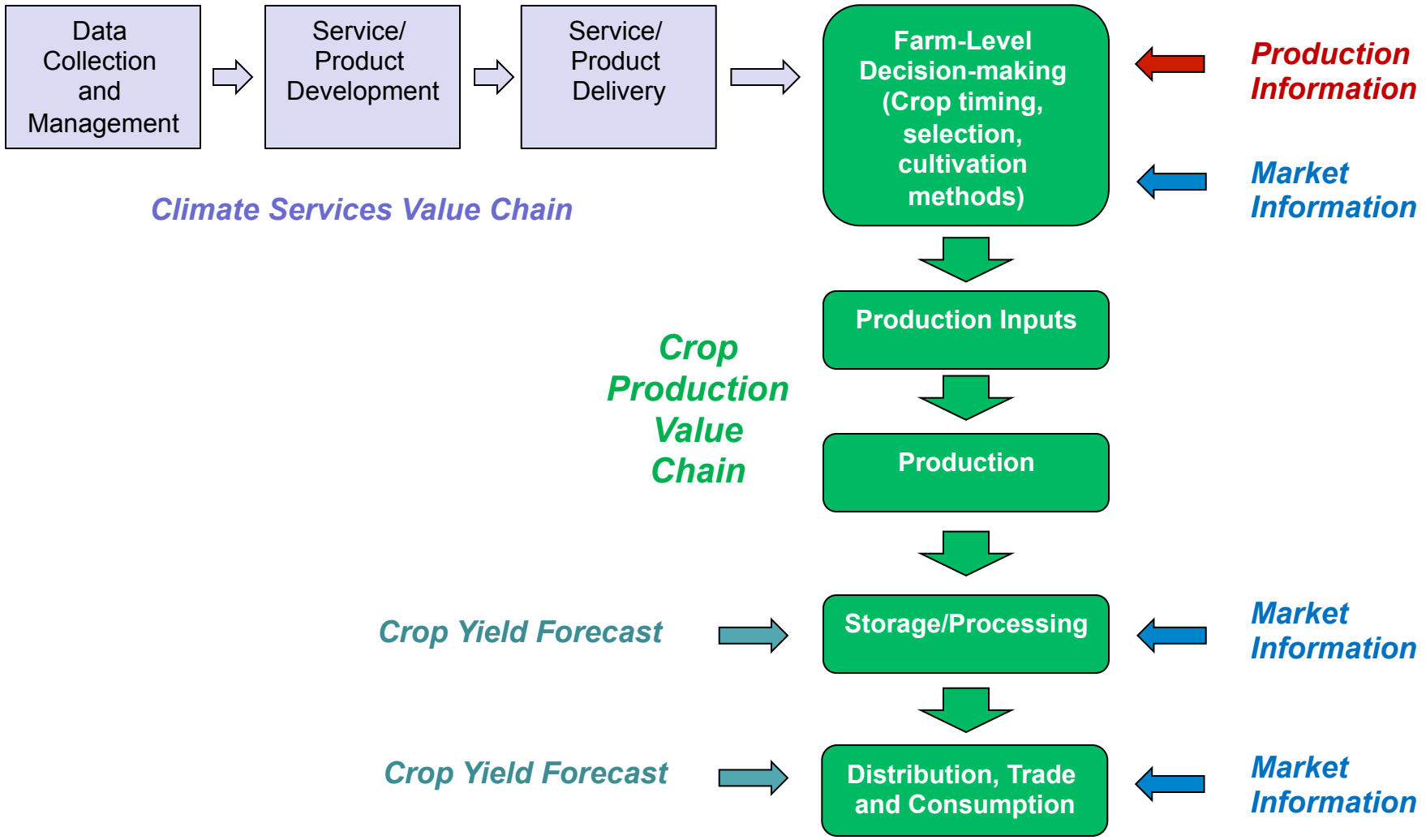


Value chain linked to user community



- Issues in Kazakhstan:
  - Kazagroinnovation (agricultural extension) only provides recommendations on planting dates
  - Growers have limited capacity to alter seasonal planting decisions in response to climate information

Value chain linking climate services to crop production



Options for strengthening climate services

- Options:
  - Expansion of the observational network
  - More effective collection and processing of data
  - Improved monthly and seasonal forecasts for temperature and precipitation
  - Improved visualization and dissemination of CS products to growers
- Challenges:
  - Earning growers' trust
  - Helping growers act on forecasts
  - Expanding options to act on forecasts