

China's Climate Change Adaptation

A Brief Introduction

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Contents

- **China's Vulnerabilities**
- **China's Adaptation Policies and Actions**
- **Experience sharing (Case Study)**



**Floods
(Xinjiang, 2007)**

**Mudslides
(GanSu Province,
August, 2010)**



**Fog and Haze
(Beijing Jan, 2013)**



China's Vulnerabilities



**Drought & water shortage
(Yunnan, March, 2010)**



**Increasing
fall
(Tibet)**



**Extreme Cold
(Sichuan)**



**Super typhoon
(Hainan, Nov, 2013)**



North and northeast: shortage for water resources

Northwest : desertification

Southeast : Storm tide, typhoon

Tibet : Glacier melting

South : Flood

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National Strategies on Climate Change

- The Five Year Plans
- National Plan for Addressing Climate Change (2009)
- China's Plan for Addressing Climate Change 2014-2020 (2014)
- China's Intended Nationally Determined Contribution (2015)
- National Work Plan on GHG Emission Control 2016-2020 (2016)

Adaptation Policies and Actions on National Level

- National Plan for Meteorological Disaster Prevention 2009-2020 (2010)
- National Climate Change Adaptation Strategy (2013)
- National Plan for Disaster Prevention and Reduction 2016-2020 (2016)

Sectorial and Regional Adaptation Plans and Actions

- City Climate Change Adaptation Action Plan (2016)
- Forestry Sector Adaptation Action Plan 2016-2020 (2020)
- Notice on Carrying Out Climate Change Adaptation Pilot Cities (2017)
- Provincial Climate Change Adaptation Plans (e.g. Fujian Province, 2015)

Sectoral Adaptation Regulations & Policies

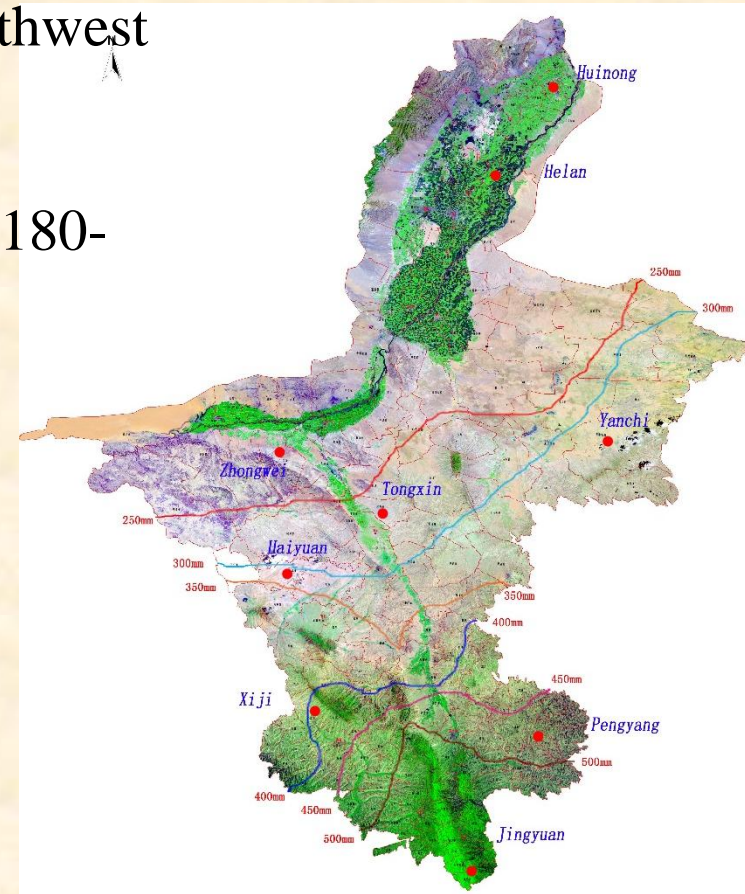
Field	Regulations & Policies	Year
Overall	Guidance for local climate change planning	2011
	National overall strategy to adapt to climate change	2013
Forestry	Action points of forestry response to climate change in "12 th five-year "	2011
Ocean	Marine sector response to climate change work plan(2009-2015)	2009
	"12 th five-year " National Climate Change Technology Development Plan (maritime sector)	2011
	Marine sector response to climate change and long-term development plan (2011-2020)	2011
Science and Technology	China's Scientific and Technological Actions on Climate Change	2007
	"12 th five-year " National Climate Change Technology Development Plan	2012
International cooperation	International cooperation in combating climate change Interim Measures on Management	2010
	Ministry of Transport and external cooperation in combating climate change Interim Measures on Management Regulations	2010
Meteorological	"12 th five-year " special plan on climate change	2011
	Meteorological department technical guidance manual climate change Version 3.0	2011
	Implement the China Meteorological Administration, National Climate Change Action Plan programs	2011
	CMA on the strengthening of the provincial meteorological department guidance to address climate change	2008

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Agriculture Sector Adaptation in Ningxia

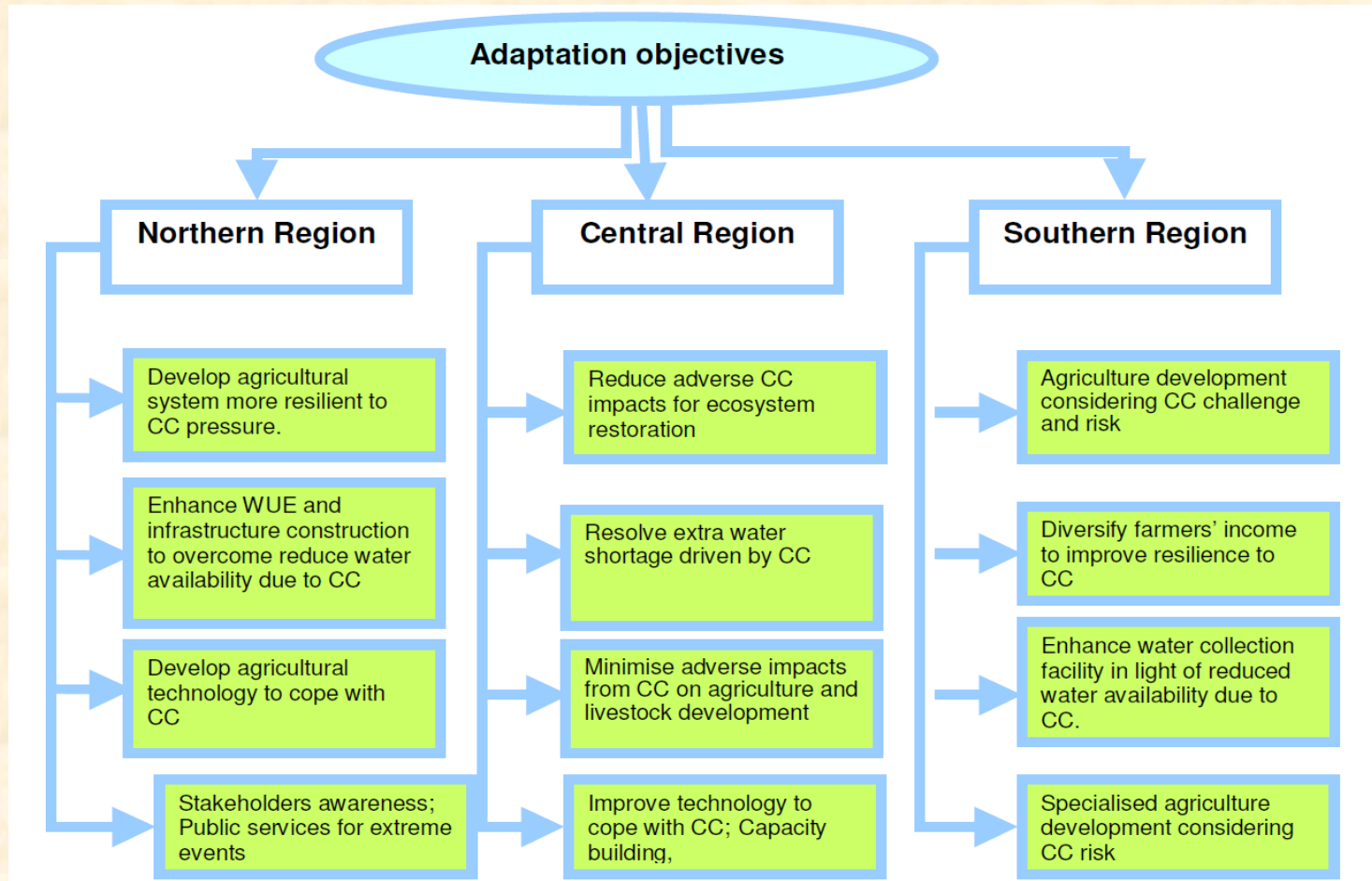
Background

- Ningxia Autonomous Region: located in northwest China
- Arid/semi-arid climate, annual precipitation 180-620mm
- Various farming forms
 - Northern irrigation area
 - Middle arid area
 - Southern rainfed mountainous area
- Impoverished rural area



Agriculture Sector Adaptation in Ningxia

Sub-regional adaptation work objectives



Methods

- Participatory Rural Appraisal (PRA) method used
- Five parts are included in the questionnaire:
 - Basic information about households
 - General information on agricultural activities
 - Climate variability and its impact on livelihoods
 - Adaptation measures and their costs
 - Farmers' views on opportunities for government support

Agriculture Sector Adaptation in Ningxia

Identified effects by the project

Strategies and Planning

- Development of Regional adaptation plans and strategies
- Improving enforcement and regulation of existing guidelines

Agriculture Sector Adaptation in Ningxia

Identified effects by the project

- **New agricultural technology and agricultural extension services**
 - Practical agriculture technique training
 - Technology dissemination for dry land farming system
- **Crop management practices**
 - Reducing spring wheat areas
 - Increasing potato and mulching maize areas
 - Slope field shift to terrace
- **Water saving techniques**
 - Drought resistant varieties
 - Deep ploughing
- **Poverty alleviation**
 - Subsidize farmers who return crop land to grass or forestry
 - One million farmers training: government invest 10 million Yuan to help farmers get qualified certification for off-farm job

Agriculture Sector Adaptation in Ningxia

Identified potentials by the project

- **Raising awareness about climate change issues**
- **Research, monitoring and data**
- **Education, training, and dissemination about climate change risks**

Introducing / strengthening early warning systems

- **Weather forecasting**
- **Build capacity to respond to climate hazards at individual and institutional level**

Agriculture Sector Adaptation in Ningxia

Multi-criteria analysis to priorities specific activities

Criteria	Rating
Win-win options: Does the option address current climate variability <i>and</i> future climate change?	1 = uncertainty 2= based only current 3= both current and short term (3-5 years) 4 = medium to long-term (more than 5 years)
Existing risk management: Is the option consistent with existing risk management activities?	1= no 2= consistent in short term 3= consistent in long term (average change) 4= both short and long term
Cost effectiveness: Can costs and benefits of the option be easily determined?	1= very difficult 2= difficult 3= easy 4= very easy
Adaptive flexibility: Does the option focus on narrow range of future scenarios, or allow flexibility of response?	1= no, irreversible 2= limit flexible 3= flexible 4= very flexible and easy
Unintended impacts: Potential negative spin-off impacts beyond targeted activity?	1= adverse impact 2= uncertain 3= no impacts 4= beneficial impact
Practical considerations: Is the option practical and feasible for the implementer?	1= unfeasible, impossible 2= more problematic 3= relatively simple 4= more easily
Knowledge level: How much certainty is there in predicting a particular change in hazard and its impact?	1= uncertainty (less 10%) 2= low certainty (10%~20%) 3= medium certainty (about 50%) 4= high certainty (more than 80%)
Policy coherence: Does the option reflect local and national disaster risk reduction / adaptation plans or studies?	1= only the long-term or only the medium-term needs 2= long and medium term needs 3= short term needs 4= both above all
Total score	

Adaptation measures - Drought

Plastic film



Plastic film+ Gravel



Methods for Combating Drought



Water cellar



Rain water harvest

Water Saving Methods



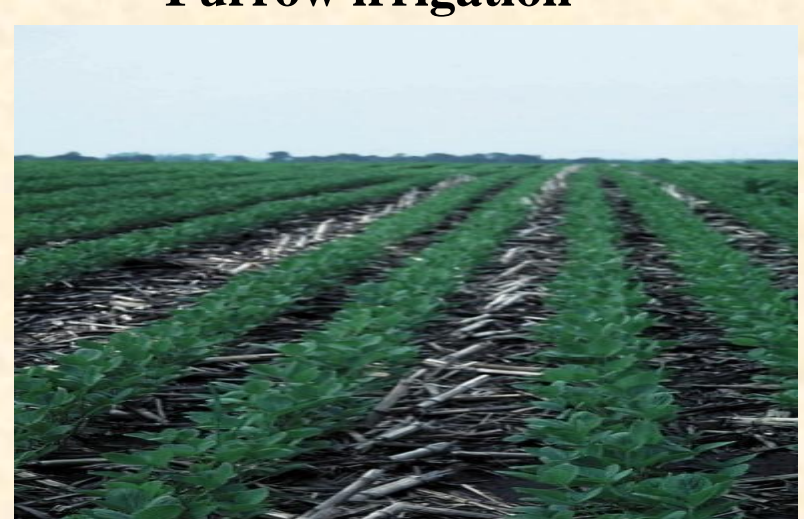
Hole irrigation



Furrow irrigation



Anti-leakage ditch



Conservation tillage

Cost-benefit Evaluation of Some Adaptation Methods

Practice	Cost ¥ /ha	Benefit
Harrowing	450~750	40% increase in yield
Film mulching	390~750	20~40% increase in yield
Gravel covering	4810	8430 ¥ /ha
Water cellar	500-1000 ¥/cellar	680-800 ¥ /year saved
Terrace	3000	30-50% increase in yield

Agriculture Sector Adaptation in Ningxia

lessons learned

- A good ‘entry point’ for discussions on adaptation in the long-term is through reducing vulnerability to existing climate hazards.
- There is a need for coordinated management across sectors.
- From data to tools (nature system impacts monitoring, vulnerability assessment, risk assessment and management, adaptation technology and actions)
- From basic science research to adaptation technology development

Thank you for your attention

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