




Priorities and Assessing criteria for a Step-Change in Practical Adaptation

Lin Erda, Prof. & Dr. Ju Hui
IESD, Chinese Academy of Agricultural
Sciences



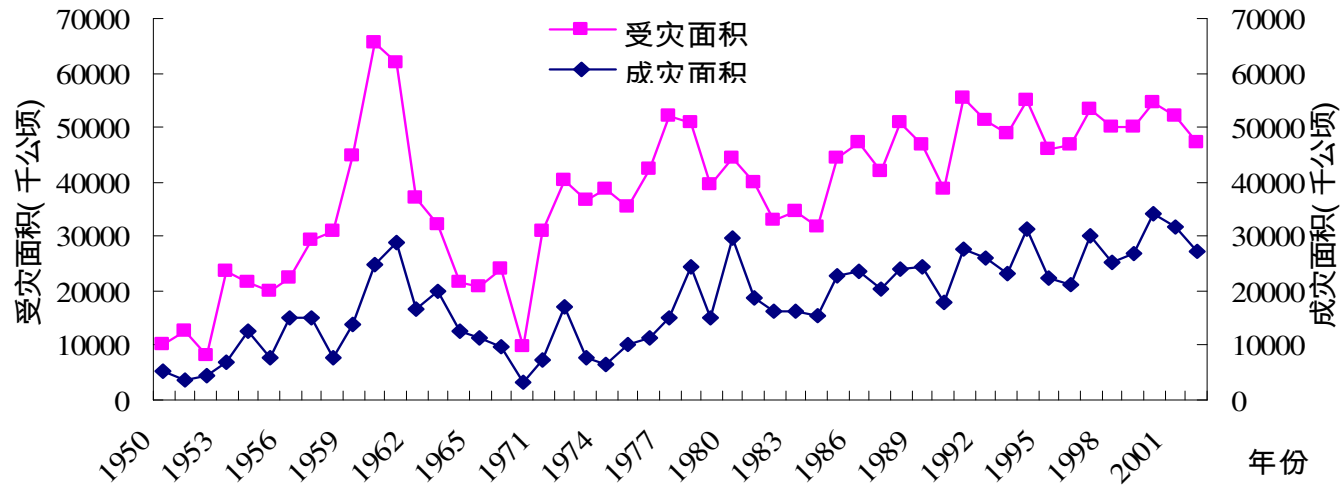
Contents

- ◆ Adapting to changes that cannot be prevented
- ◆ Big Gap of Demand and Supply
- ◆ Getting Beyond Funding to Action
- ◆ Expected Results

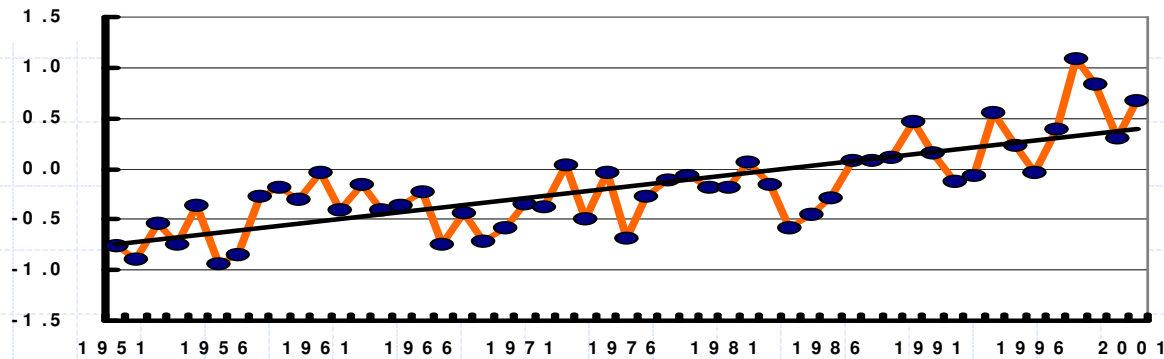
adapting to changes that cannot be prevented

- ◆ After many years in which adaptation was considered mainly a political distraction from the need to reduce greenhouse gas emissions, the global community has begun to take the issue seriously
- ◆ Even with a expected result to date to halt greenhouse gas emissions, the world now must face the task of adapting to changes that cannot be prevented.

Hazard-afflicted and disaster -affected area



temperature



Estimation crop losses for 1988-2004

by drought 75.69 billion RMB/a 1.2% of GDP
 by flood 51.16 billion RMB/a 0.8% of GDP

Adaptation will be urgent if post 2012 target is still less than expected

Sta Sc.	CO2	CO2 -e	CO2 emission peak	Global CO2 Emission changes by 2050 (% of 2000 Emission)	Global Temp. changes vs pre-indus.	Annex I Need a large amount of Emission reduction
	ppm	ppm	year	%	°C	%
I	350 –400	445 – 490	2000 -2015	-85 to -50	2.0 – 2.4	-90 more
II	400 –440	490 – 535	2000 -2020	-60 to -30	2.4 – 2.8	-80 to -60
III	440 –485	535 – 590	2010 -2030	-30 to +5	2.8 – 3.2	-80 to -60
IV	485 –570	590 – 710	2020 -2060	+10 to +60	3.2 – 4.0	-60 to -40
V	570 –660	710 – 855	2050 -2080	+25 to +85	4.0 – 4.9	-60 to -40
VI	660 –790	855 – 1130	2060 -2090	+90 to +140	4.9 – 6.1	< -40

The Impacts of climate change on ecosystems, agriculture and water of China under different stabilization scenarios and corresponding emission scenarios

RCP	RCP3		RCP4.5	
SRES	B2(A1B)		A2	
Global Warming after 2050	2°C	2.5°C	3°C	3.6°C
Ecosystem	aggravating coral bleaching in South China Sea, suffering adverse impacts on costal biodiversity	Suitable area for forest would decrease largely in Northeast China; ecosystem vulnerability getting higher in Northwest and Tibet; panda habitat decrease significantly; NEP reach a peak at 2050 then going down	Vulnerable areas in NE, S, and SW extend significantly, NE's eco-vulnerability continues seriously; in ecosystems of South to Yangtze river middle vulnerability happen; Ecologic evolution become more; Jilin and Liaoning provinces' ecosystems change into C source	Dry area would extend 30%; Eco-evolution become popular
Agriculture	Agricultural disasters increase, adverse impacts happened in main cropping regions; the yield of rice would increase in Northeast China	The yield of wheat and maize would decrease 11%、14% separately, irrigation can relief yield fall; the yield of irrigated rice would decrease 4%; food produced would be near 400kg/a.p	The yield of wheat and maize would decrease 20%、23% separately, irrigation can relief yield fall; the yield of irrigated rice would decrease 12%; food produced would be near 330kg/a.p, adaptation still can trade off decreased yield	Agro-disaster get more, adaptation costs increase largely
Water Resources	Temperature may raise 1°C in middle latitude, demand of irrigation water required would increase 6%-10%;	Run off of Yellow and Songhua river increase 11%-24%, of Yangzi and Pearl increase 5%-13%; 14 provinces and cities lack for water in northern, increased 4 provinces	Increased run off of Song, Yellow, Yangtze and Pearl rivers getting less of 50% than Under B2, Even rainfall increase, but western water still lack for 10 billion m ³ , 4%-7% of demand, water supply decrease 20%-40%; North dry and South wet will be aggravated.	

(Lin Erda, Li Yingchun, Ma Zhanyun, 2009)

Big Gap of Demand and Supply

- ◆ The United Nations Development Program's *Human Development Report 2007/2008* estimates the cost of adaptation in developing countries will reach \$86 billion per year by 2015. In contrast, current international funds dedicated to adaptation amount to less than \$1 billion total.

Getting Beyond Funding to Action

- ◆ Debates about the additionality of funding, the scale of the funding need, and appropriate operating principles for financing mechanisms have slowed the generation of adaptation funding and limited effective action.
- ◆ Approaches to categorizing, prioritizing, and assessing the effectiveness of adaptation investments are needed if funding for adaptation action is to continue to grow.

What we need

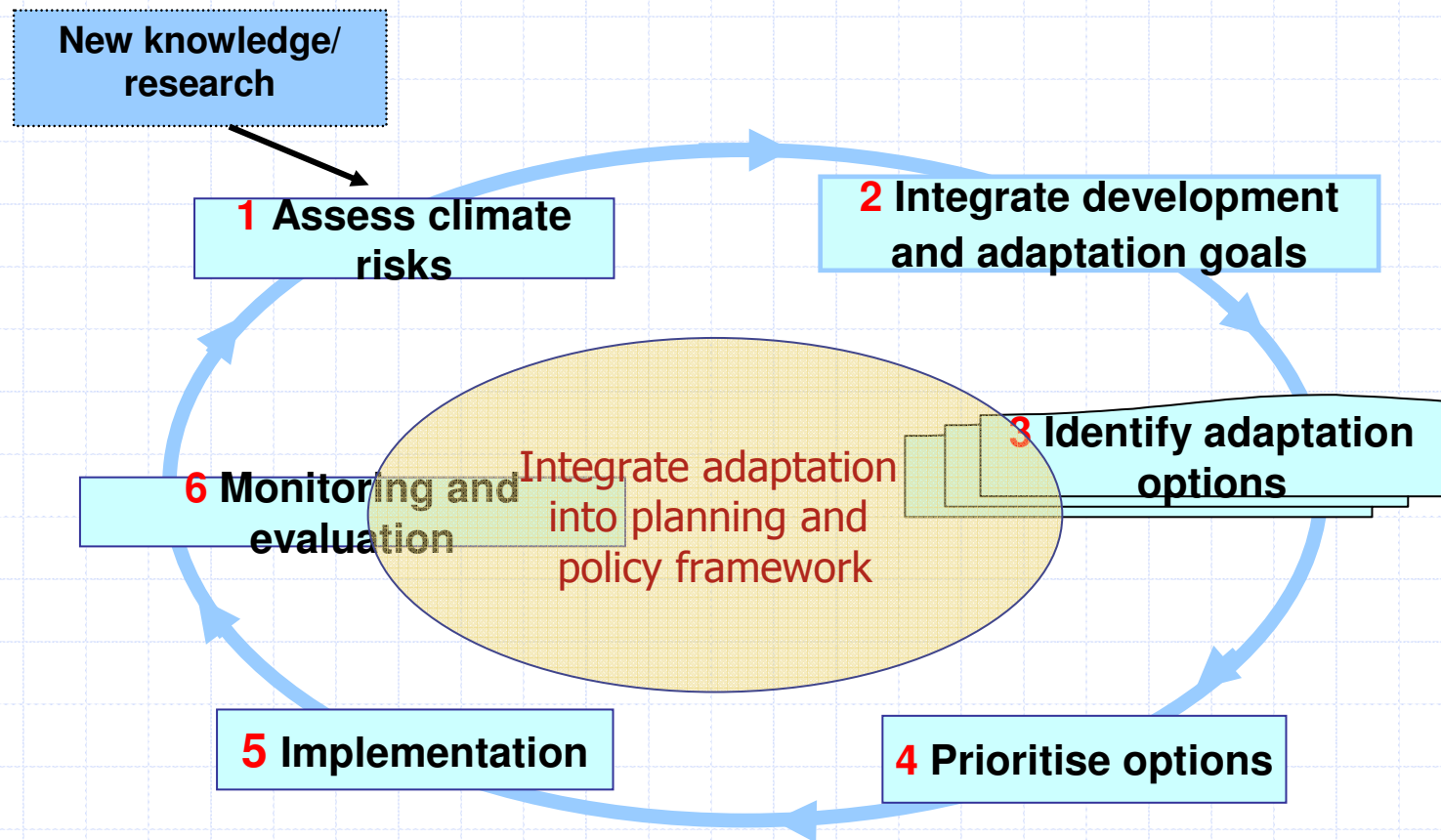
- ◆ Concrete priorities and evaluative criteria can help reassure international funders, and can provide guidance to practitioners and policy-makers at the national level.
- ◆ Evaluation itself will need to adapt as adaptation needs become better understood, those responsible for evaluation will need a mechanism through which to learn, share experience, and identify emerging best practices.

How to act

- ◆ launch a global dialogue on increase the funding and priorities for use of adaptation funding;
- ◆ build a community of practice through which researchers, evaluators and decision-makers can develop and test options for monitoring and evaluation of adaptation; and
- ◆ explore the utility of tools for prioritization and evaluation in a range of policy arenas.

An adaptation framework for China

to support national and international adaptation projects



Framework for Multi-Criteria Analysis for Adaptation Options

Criteria and Indicator	Rating
Win-win options Does option address current climate variability <i>and</i> future climate change?	1 = uncertainty 2= based only current 3= Both current and short term (3-5years) 4 = medium to long-term (more than 5 years)
Existing risk management Is the option consistent with existing risk management activities?	1= No 2= consistence in short term (extreme event) 3= consistent in long term (average change) 4= both short and long term
Cost effectiveness Can costs and benefits of 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= benefit impact

Framework for Multi-Criteria Analysis for Adaptation Options II

Criteria and Indicator	Rating
Practical considerations Is the option practical and feasible for implementer?	1 = unfeasible, impossible 2= More problematic 3= Relatively simple 4= more easily
Knowledge level How certain we are 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 option reflect local and national DRR / adaptation plans or studies?	1 = only long-term or only medium term need 2=long and medium term need 3= short term need 4= both above all
Emission Reduction Potential Does option have technology potential for c removal and GHG emission reduction	1= no, 2= low 3= Medium 4= high
TOTAL	?/36

GEF in China: Mainstreaming Adaptation Framework


Province	Climate change risk	Development target	Adaptation tech. activities	Demonstration site	Cost-Benefit	Monitoring and Evaluation
Shandong	Drought	Integrate adaptation into ADP	Small sluice, water-saving channel; balanced fertilizer, straw return, new	Yanggu, Gaomi	2 x 800k USD /Cobenefits	TBD
Anhui	Drought-flood alternated	Integrate adaptation into phase III	Drain, pool, ^{vari.} optimize soil, new varieties	Mingguang, Huaiyuan	2 x 700k USD /Cobenefits	TBD
Jiangsu	Drought-flood alternated; lack of water	Integrate adaptation into ADP	Dredge up sluice, level off land, balanced fertilizer, varieties	Suyu, Wancheng	2 x 700k USD /Cobenefits	TBD
Henan	Dry, disaster increased	Adjust agro-structure based on adaptation	Small pool, flood-management, agro-forest net management,	Liangyuan	2 x 700k USD /Cobenefits	TBD
Ningxia	Drought	Support improvement of planning	^{BS,NV.} Water saving irrigation, water-harvest, tectorial soil	Tongxin	2 x 800k USD /Cobenefits	TBD
Hebei	Lack of water severely	Disaster reduction	ground water man. Drain Biogas,	Cangxian	2 x 800k USD /Cobenefits	TBD

Adaptation Demonstrations in China

Site	Ningxia poor farming 宁夏	Forest mana. of W. Sichuan 川西	Prev. of schistosomiasis in N. Jiangsu 苏北	Recov. of Extreme E. in C Q、重庆	Recov. Of Taifeng in Guangdong 广东	Yellow river source in md QH青海
Observ. Impact 观测到影响	Dry with drought stress	Changes of diseases and pests	Temp and human disease	Extreme events	Changes of Taifeng: num. landing, inten	dryer, degenerated grassland
Future Risk 未来风险	Big gap of water demand & supply	Forest fire aggravated	Epidemic area extended north	Disaster frequency increased	Serious impacts of Taifeng	Serious degeneration
Adaptation 适应选择	Water saving, diversity of livelihood	Monitoring and pre-warming	Colligated measures	forecast, meet emergency	pre-warming and cross action	De-pasture & recover grass
Impr. of assessment 改进评估	Integrated assessment	Recover degenerated forests	Monitor of temp and epidemics.	Relation of disaster & CC	Relation of TF. & CC	Climate and grass

Expected Results

- ◆ prioritization framework and assessment criteria
- ◆ Key international funders use them
- ◆ The post-2012 United Nations climate agreement draws upon them in creating a mechanism
- ◆ The framework and criteria form the basis for the development of more location- and sector-specific planning tools and policy models.
- ◆ The community of practice fosters effective action by capturing and sharing experience in implementing and evaluating adaptation.



**Looking forward the further
cooperation for Adaptation**