



UNECE 5<sup>th</sup> Workshop on Transboundary Climate Change Adaptation  
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# **MRC Climate Change and Adaptation Initiative - Development of Regional Climate Change Scenarios and the Mekong Adaptation Strategy and Action Plan**

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Initiative (CCAI)

# Outline

- ❑ Climate Change in the Lower Mekong Basin (LMB)
- ❑ MRC Climate Change and Adaptation Initiative
- ❑ Development of the Regional Climate Change Scenarios
- ❑ Formulation of the Mekong Adaptation Strategy and Action Plan (MASAP)

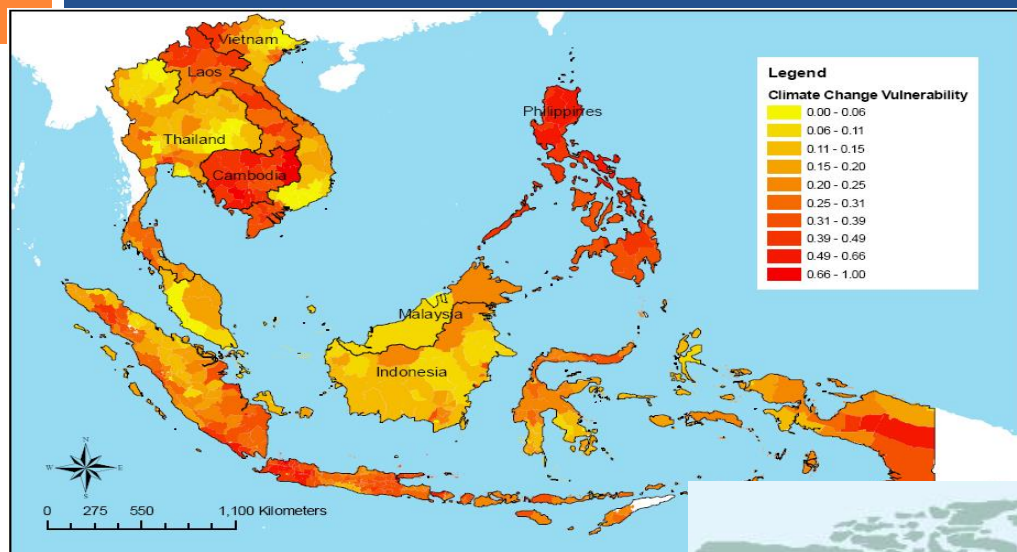
# Lower Mekong Basin

Administrative boundaries



- 795000 km<sup>2</sup>
- 475,000 million m<sup>3</sup>
- 4800km
- 8<sup>th</sup> longest
- 30<sup>th</sup> i.t.o. basin size
- 10<sup>th</sup> i.t.o. discharge.

# Vulnerable to climate change



Relative vulnerability of coastal deltas by the population potentially displaced by current sea-level trends to 2050 (Extreme = >1 million people displaced; High = 1 million to 50,000; Medium = 50,000 to 5,000). Source: IPCC (2007)





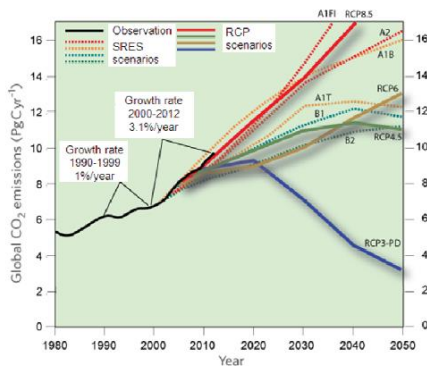
Relative vulnerability of coastal deltas by the population potentially displaced by current sea-level trends to 2050  
 (Extreme = >1 million people displaced; High = 1 million to 50,000; Medium = 50,000 to 5,000). Source: IPCC (2007)

# MRC-Climate Change and Adaptation Initiative (CCAI)

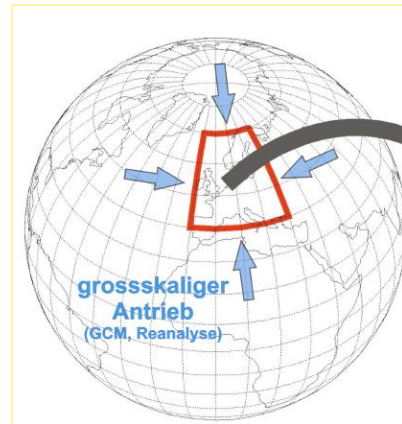
A regional collaborative initiative (2009-2025) to support the MRC Member Countries in adapting to the impacts & new challenges posed by climate change

# Development of regional climate change scenarios

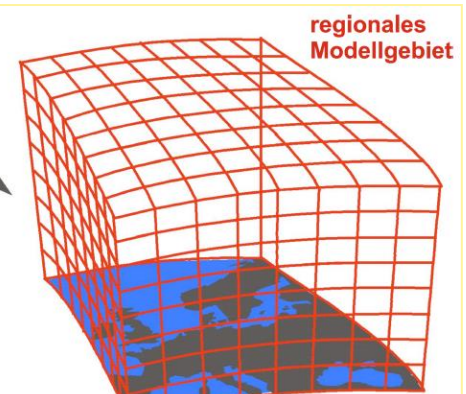
## Emission scenarios



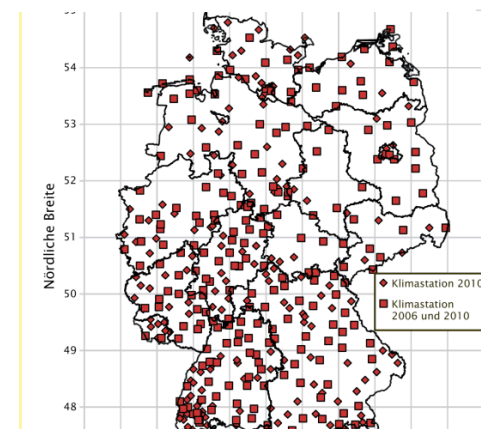
## Global circulation model



## Downscaling



## Regional climate model



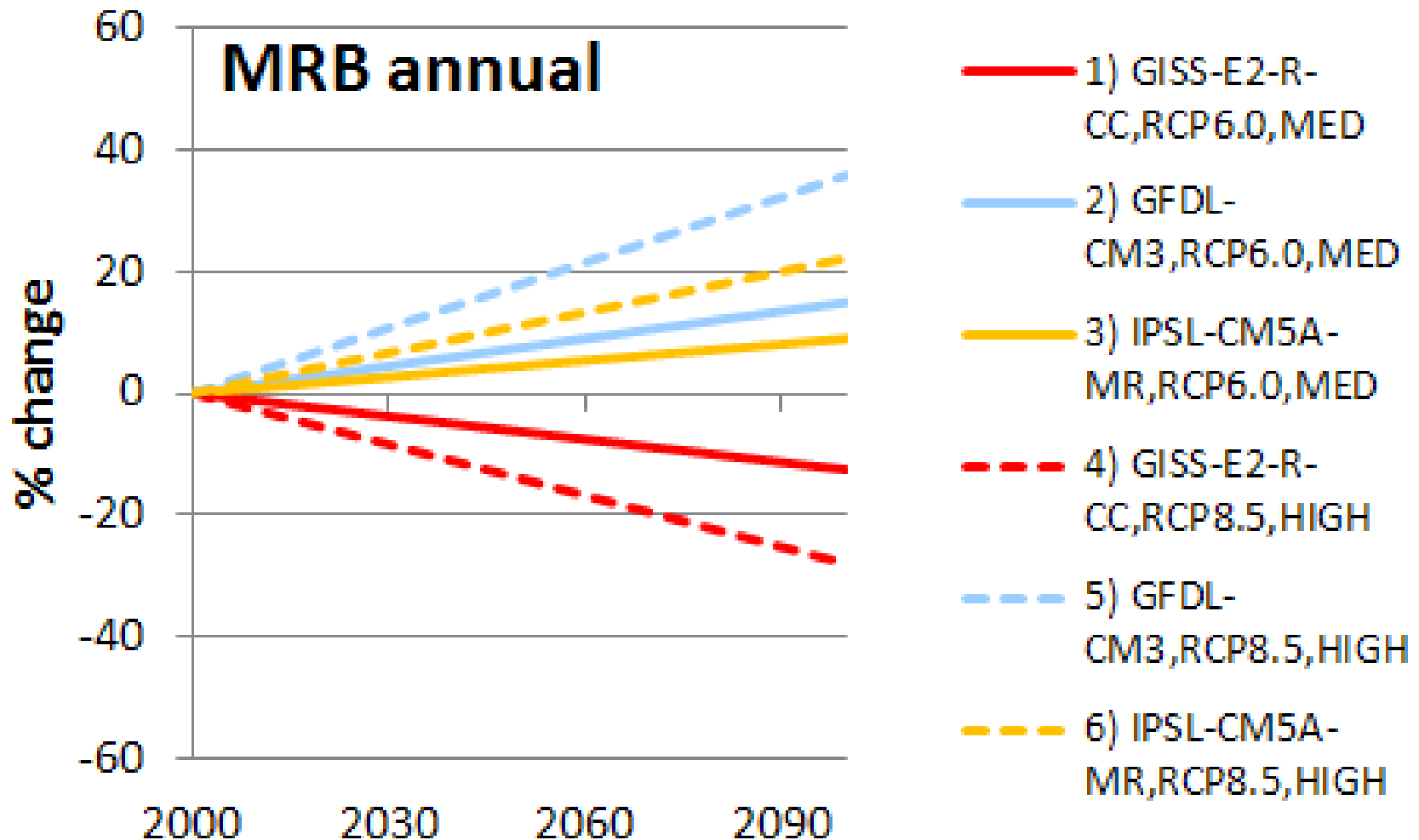
## Statistical model

	Emission scenarios	GCMs	Climate sensitivity	Total number of scenarios
AR4	7	20	3	420
AR5	4	42	3	504
			<b>Total</b>	<b>924</b>

# Projected change to annual

precipitation relative to baseline period (1986-

2005) in the whole Mekong River Basin (MRB) under six





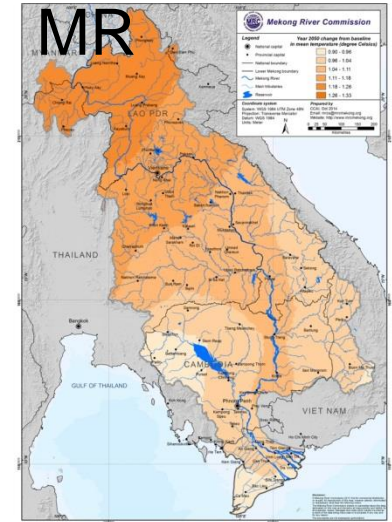
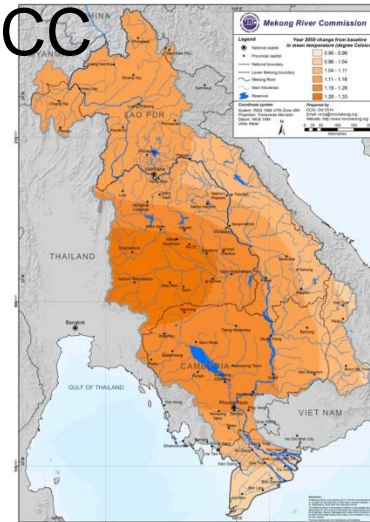
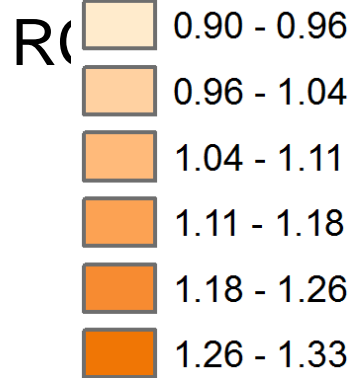
# Projected change to annual temperature in 2050 relative to baseline period (1986-2005) in the Lower Mekong Basin (LMB) under six recommended scenarios

GFDL-CM3

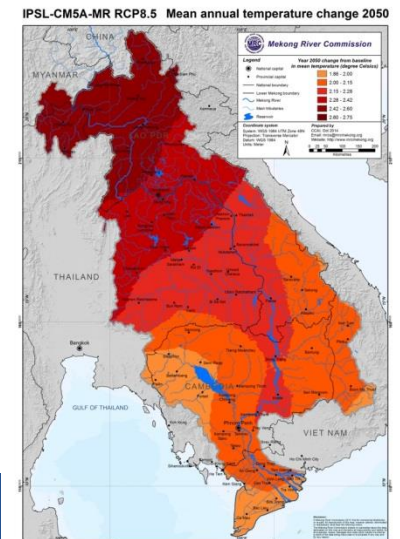
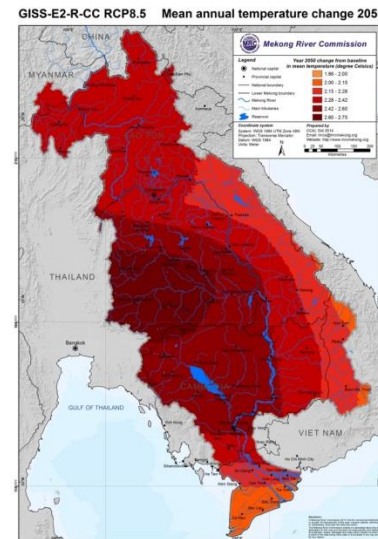
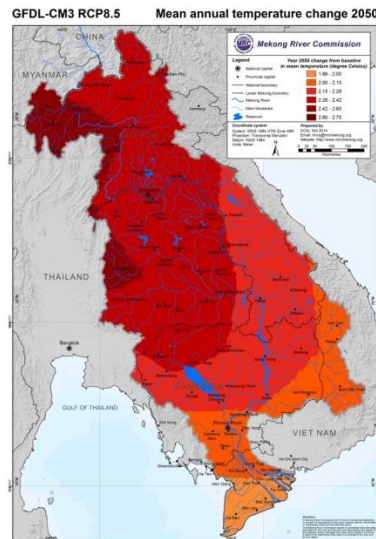
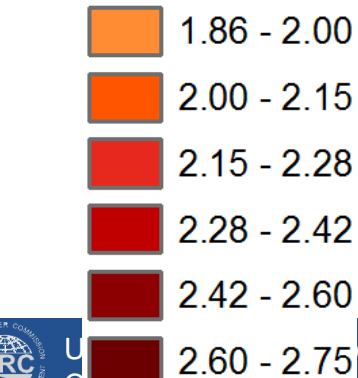
GISS-E2-R-CC

IPSL-CM5A-MR

Medium scenario



Extreme scenario



# Projected change to annual precipitation in 2050 relative to baseline period (1986-2005) in the Lower Mekong Basin (LMB) under six recommended scenarios


## GFDL-CM3


## GISS-E2-R-


## IPSL-CM5A-


### Medium scenario


RC  -16 - -10

 -10 - -5

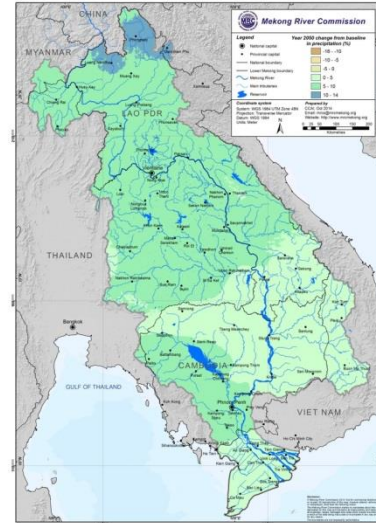
 -5 - 0

 0 - 5

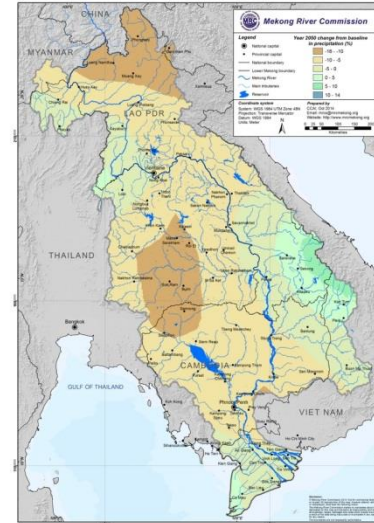
 5 - 10

 10 - 14

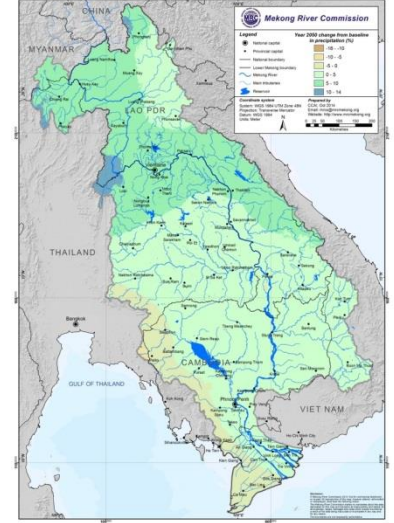
GFDL-CM3 RCP6.0 Precipitation change annual 2050



GISS-E2-R-CC RCP6.0 Precipitation change annual 2050





IPSL-CM5A-MR RCP6.0 Precipitation change annual 2050





### Extreme scenario


RCP 8.5  -33 - -20

 -20 - -10

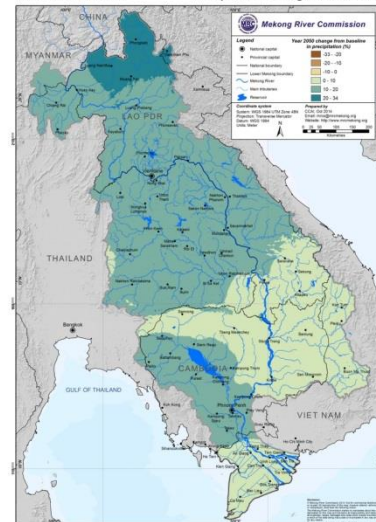
 -10 - 0

 0 - 10

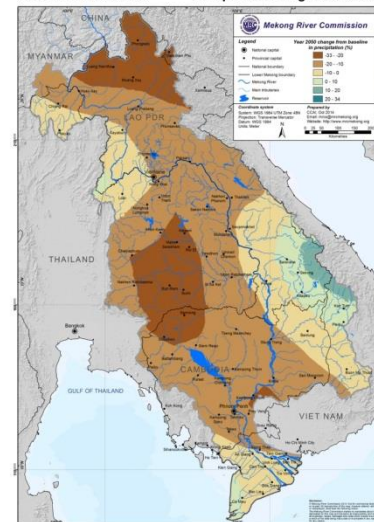
 10 - 20

 20 - 34

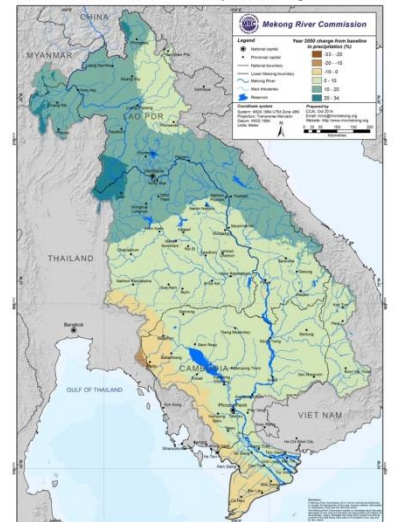
GFDL-CM3 RCP8.5 Precipitation change annual 2050



GISS-E2-R-CC RCP8.5 Precipitation change annual 2050



IPSL-CM5A-MR RCP8.5 Precipitation change annual 2050



# Sea level rise scenarios

- ❑ Vietnam: 0.10 – 0.15 m by 2030, 0.25 – 0.40 m by 2060 and 0.45 – 0.85 m by 2090 (MONRE, 2011)
- ❑ MRC (2011): 0.17 m by 2030 and 0.30 m by 2060 under B2 scenarios
- ❑ CCAI (2014) is proposing

	2030	2060	2090
Medium emission scenarios (RCP 6.0)			
<i>GFDL-CM3 (recommended)</i>	<i>0.15</i>	<i>0.33</i>	<i>0.57</i>
GISS-E2-R-CC	0.15	0.35	0.59
High emission scenarios (RCP 8.5)			
<i>GFDL-CM3 (recommended)</i>	<i>0.16</i>	<i>0.40</i>	<i>0.75</i>
GISS-E2-R-CC	0.16	0.42	0.78

# Formulation of the Mekong Adaptation Strategy and Action Plan (MASAP)

- ❑ To mainstream adaptation into planning process and developments with the emphasis on outcomes:
  1. CC impact and vulnerability assessment, adaptation planning and implementation in priority locations
  2. Building knowledge & capacity on different aspects (institutional, technical & managerial capacity)
  3. Regional adaptation strategy supporting



# International Experience on the Formulation of Transboundary Adaptation



# Consideration in formulation of the MASAP (1)

- Include evaluation of the policy, legal and institutional framework
- Ensure common understanding and appreciation of the projected impacts and vulnerabilities
- Ensure ownership of the member countries
- Allow ample time for participation
- Account for measures taken at the local level
- Identify joint benefits

# Consideration in formulation of the MASAP (2)

- Include ecosystem based adaptation measures
- Include looking for opportunities and innovation
- Information on impact and vulnerability assessment
- CC scenarios for the next 30, 60, 100 years
- In agreement with and having synergies to national climate change adaptation strategies

# Roadmap to formulate the MASAP

1. Approach
2. Process
3. Mechanisms
4. Time frame & milestones





# Progress in formulation of the MASAP

No.	Stage	Milestones	Time frame
1	Preparation	<ul style="list-style-type: none"> <li>• Concept, roadmap agreed</li> <li>• Mechanisms are in place</li> </ul>	May 2014
2	Formulation	<ul style="list-style-type: none"> <li>• Scoping, (being developed)</li> <li>• 1<sup>st</sup> Draft of MASAP,</li> <li>• Consultations,</li> <li>• Regional stakeholder forum,</li> <li>• JC Guidance</li> </ul>	July 2015
3	Finalisation	<ul style="list-style-type: none"> <li>• Finalising,</li> <li>• Consultations,</li> <li>• Regional stakeholder forum</li> <li>• JC Consideration</li> </ul>	October 2015
4	Approval	<ul style="list-style-type: none"> <li>• Final guidance by JC</li> <li>• Approval by Council</li> </ul>	December 2015



Thank

you