



Asia-Pacific Climate Change Forum 2013

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MEASURING SUSTAINABILITY: CLIMATE COMPATIBLE DEVELOPMENT OF THE MONGOLIAN GOBI

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- ④ **Measuring sustainable development**
 - & climate compatible development
 - Tackling global risks
- ④ **“Green civilization” strategy of Mongolia**
- ④ **Climate compatible development of the Mongolian Gobi**
 - Introduction of adaptation technologies for SD
 - Carbon sequestration by rangelands

Climate compatible development with triple wins for mitigation, adaptation & development

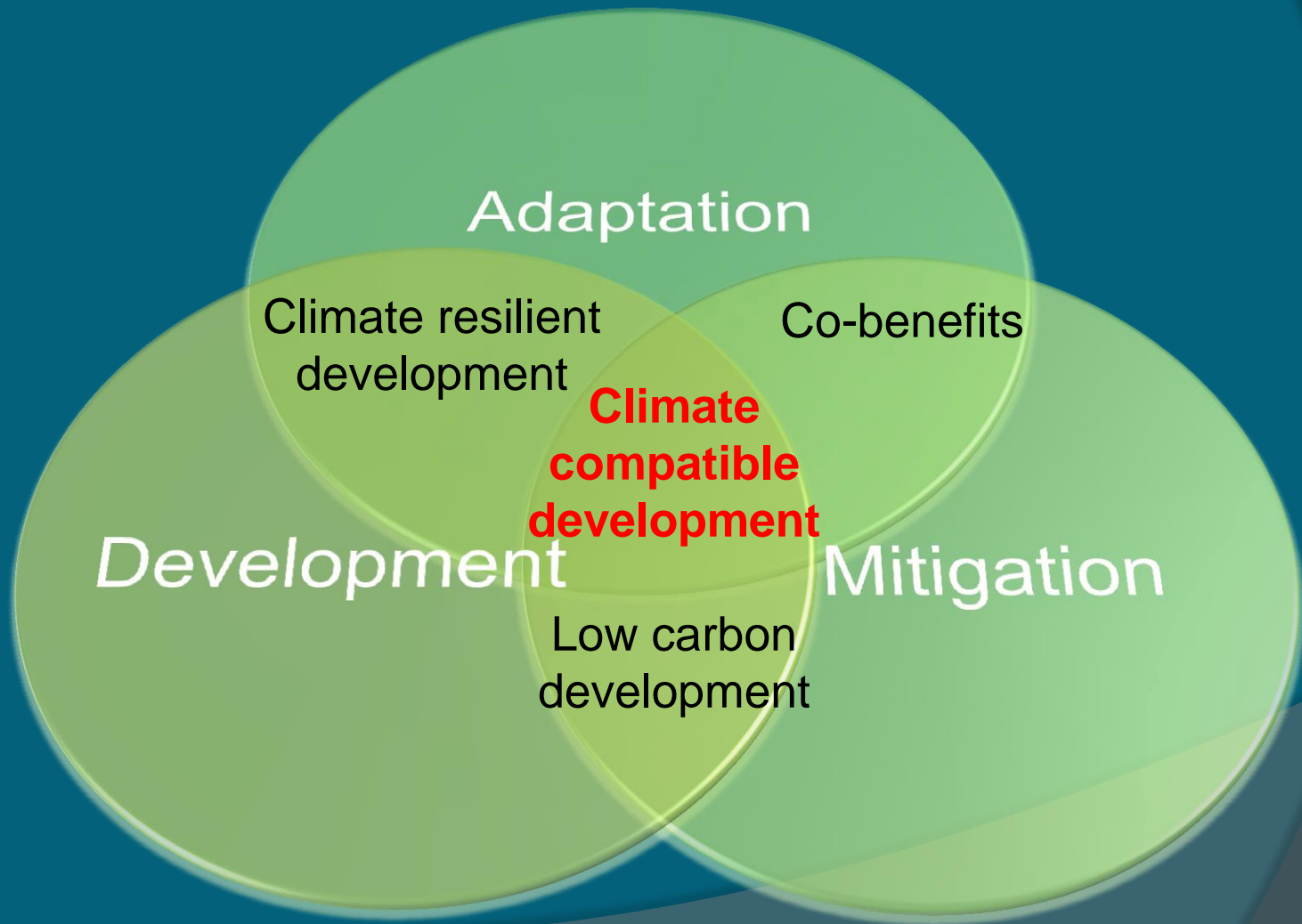
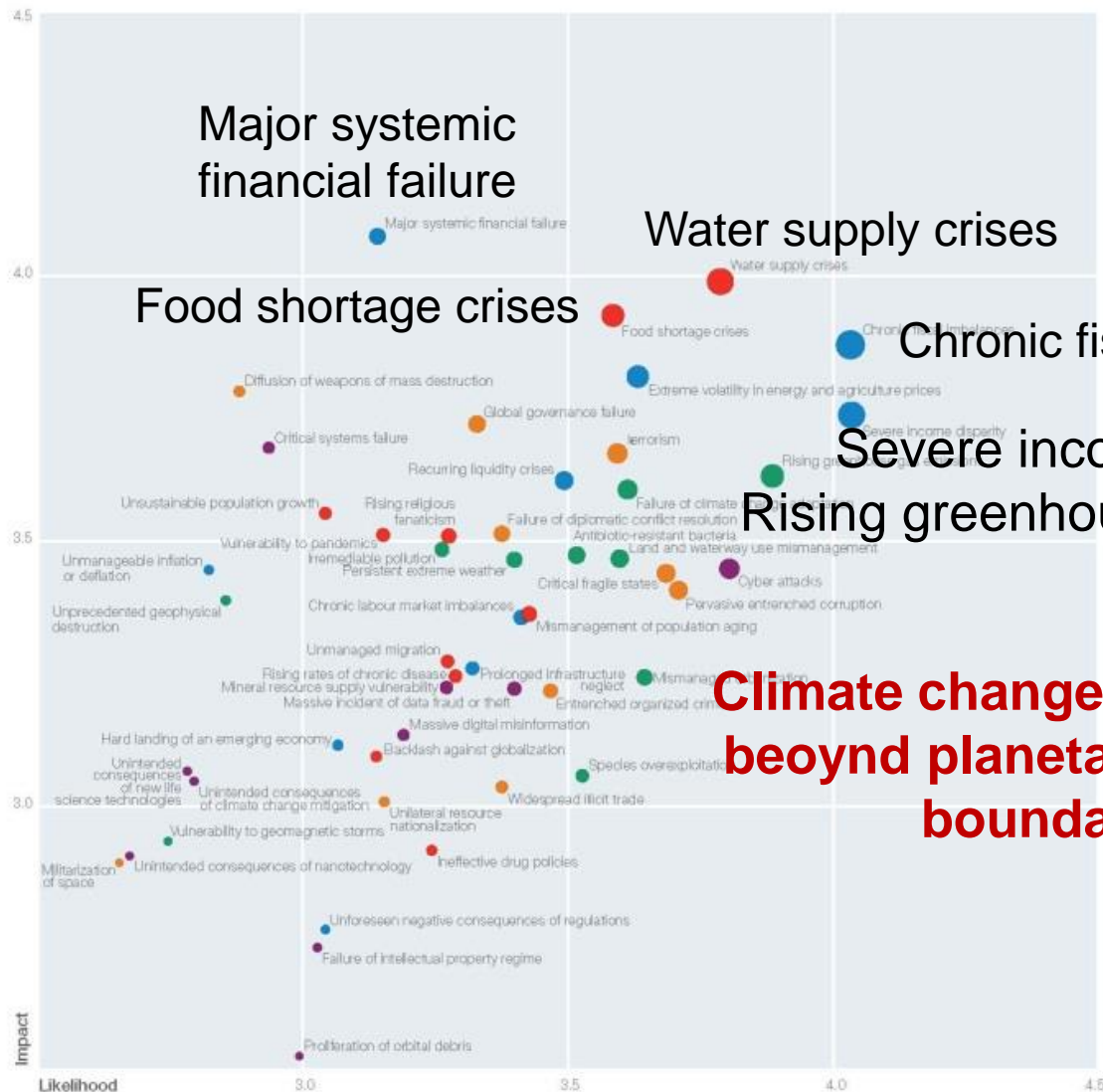


Figure 2: Global Risks Landscape 2012

Over next 10 years

Global Economic
Forum Report

Impact



Source: World Economic Forum

Likelihood

Climate change is
beyond planetary
boundary

SUSTAINABILITY INDEX



SI = F(Wealth, Environment, Equity)

Environment (CO2 emission per capita, in reverse way)

Equity (Gini coefficient)

Equity & Environmental Index

$$= 1 - \frac{\text{actual value} - \text{minimum value}}{\text{maximum value} - \text{minimum value}}$$

Sustainability Index = (Wealth * Environment * Equity)^{1/3}

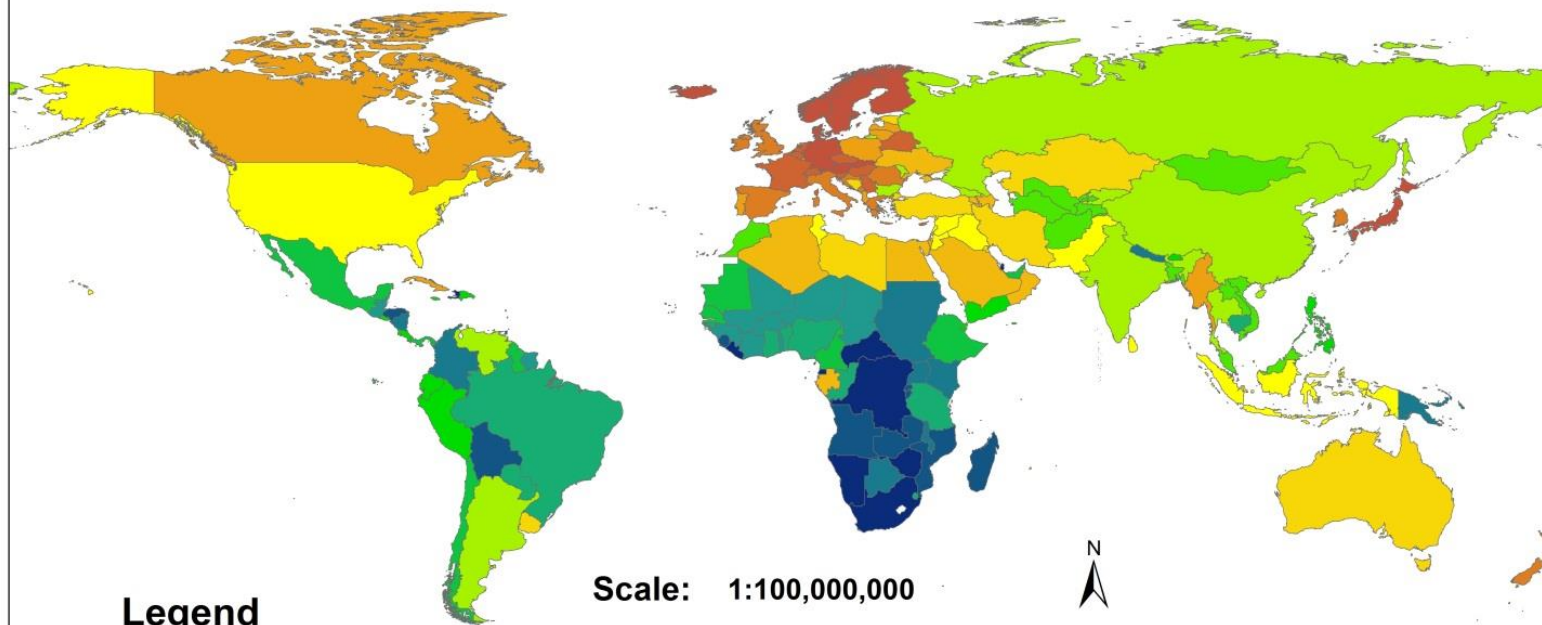
Ranking of countries by Sustainability Index 2011



FORUM ON
SCIENCE, TECHNOLOGY & INNOVATION
FOR SUSTAINABLE DEVELOPMENT

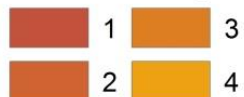
11 to 15 JUNE 2012
RIO DE JANEIRO, BRAZIL

Sustainability Index



Legend

Sustainability "A"



Sustainability "B"



Sustainability "C"



Sustainability "D"



Rank by Sustainability Index: economic, environmental & social



HDI-2011 Rank	Country
1	Norway
2	Australia
3	Netherlands
4	United States
5	New Zealand
6	Canada
7	Ireland
8	Liechtenstein
9	Germany
10	Sweden

SI-2011 rank	Country
1	Sweden
2	Denmark
3	Norway
4	Japan
5	Malta
6	Iceland
7	Austria
8	Germany
9	Slovakia
10	Finland

GREEN CIVILIZATION



**Mongolia -
an open
complex
adaptive
system**

Natural-cultural heritage

**Climate
compatible
development**

**Green
economy**

**Governance for
sustainability**

Political

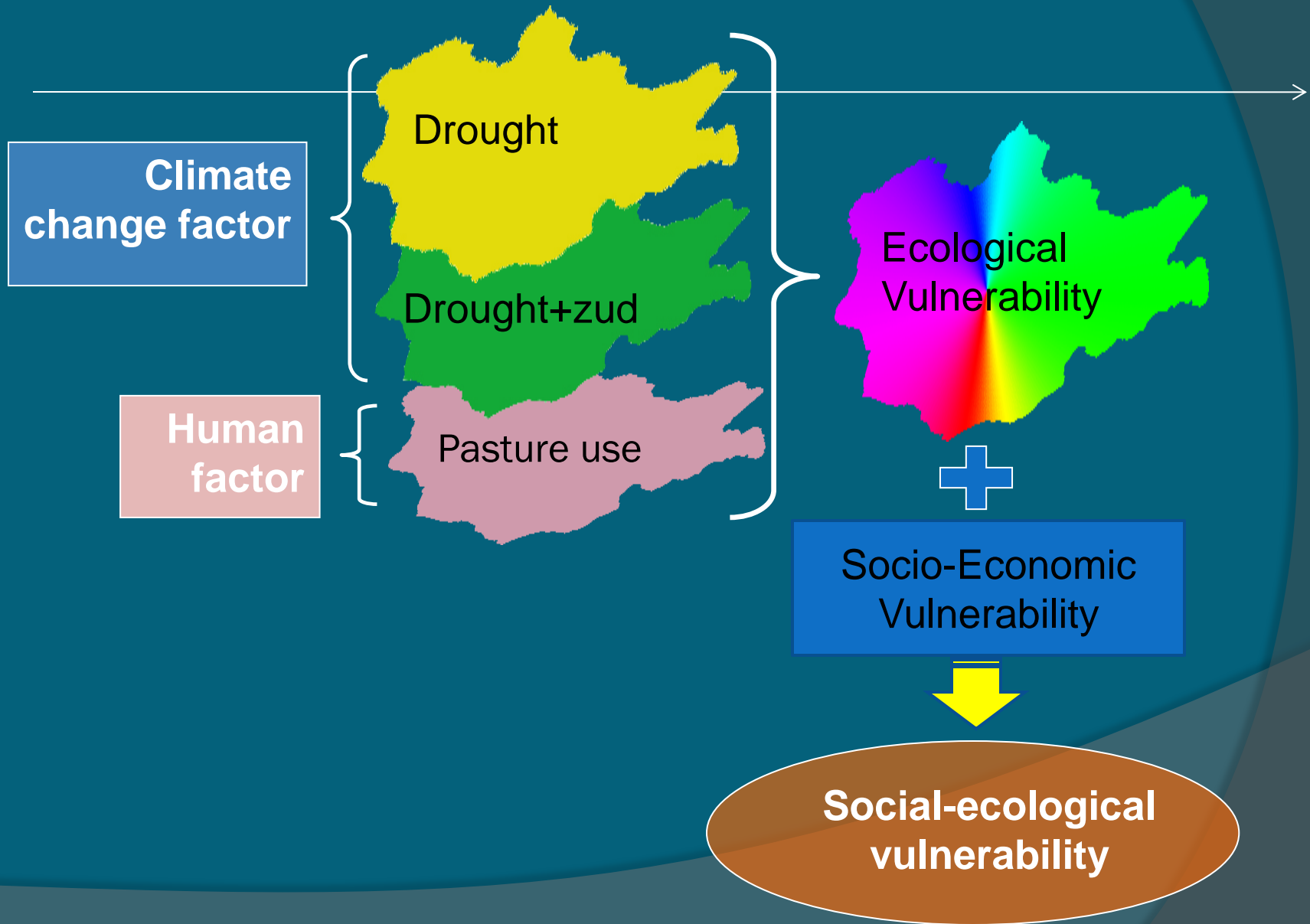
Economic

Social

Environmental

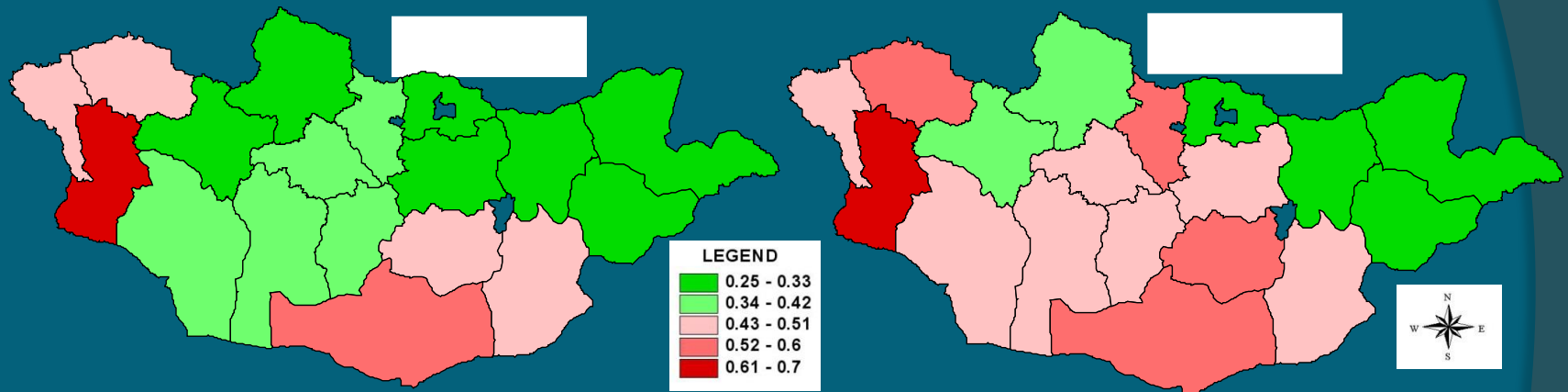
Cultural

Vulnerability assessment methodology

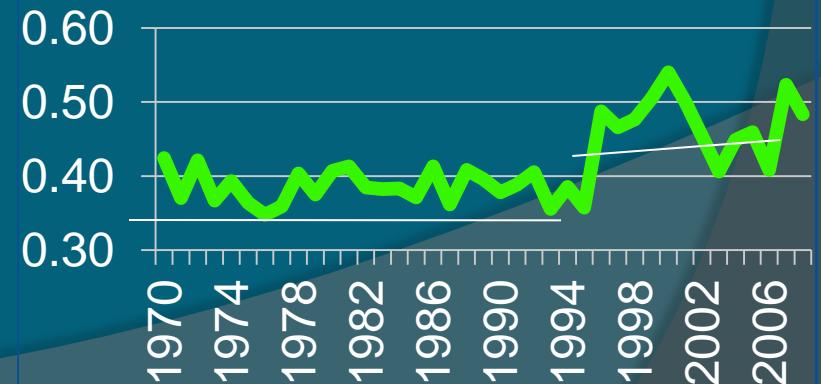


Ecological vulnerability

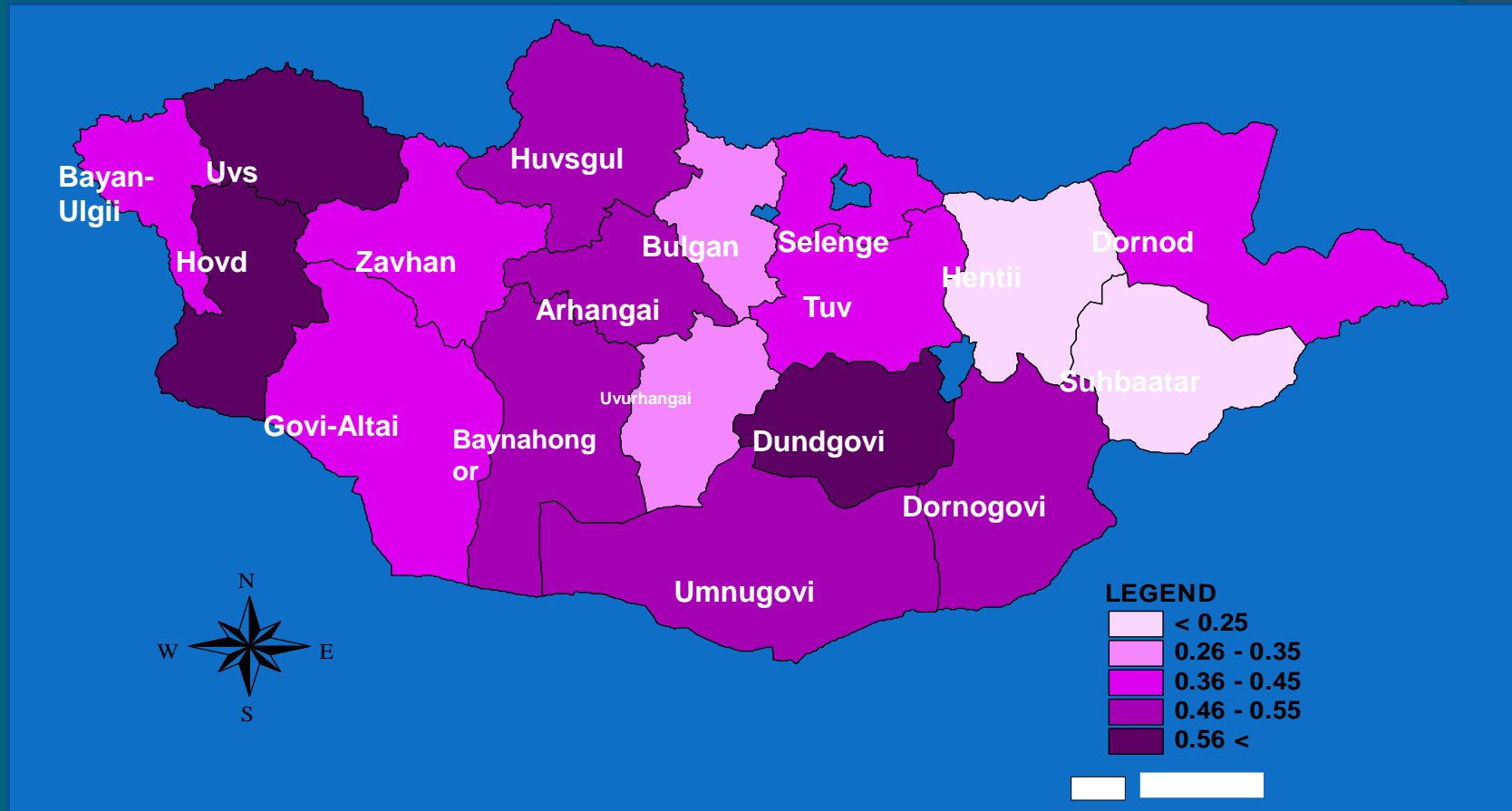
1970-1990 vs 1991-2008



**Long-term ecological
vulnerability dynamics
in Mongolia**



Social-ecological vulnerability of pastoral systems in Mongolia




Social-ecological vulnerability = ecological vulnerability + poverty indexes (UNDP)
Chuluun, T. 2011. Land degradation and desertification in Mongolia.
Background paper for the Mongolia Human Development Report 2011.



From Nomadic Civilization to Green Civilization

Globally Important Agricultural Heritage System
World/National Natural & Cultural Heritage Site

 Adaptation Technologies

Bayarlalaa!

Gamza hamida!

Global “bright”
future is an
emergent
property!

