TRANSBOUNDARY ENVIRONMENTAL SECURITY in the Mekong River Basin

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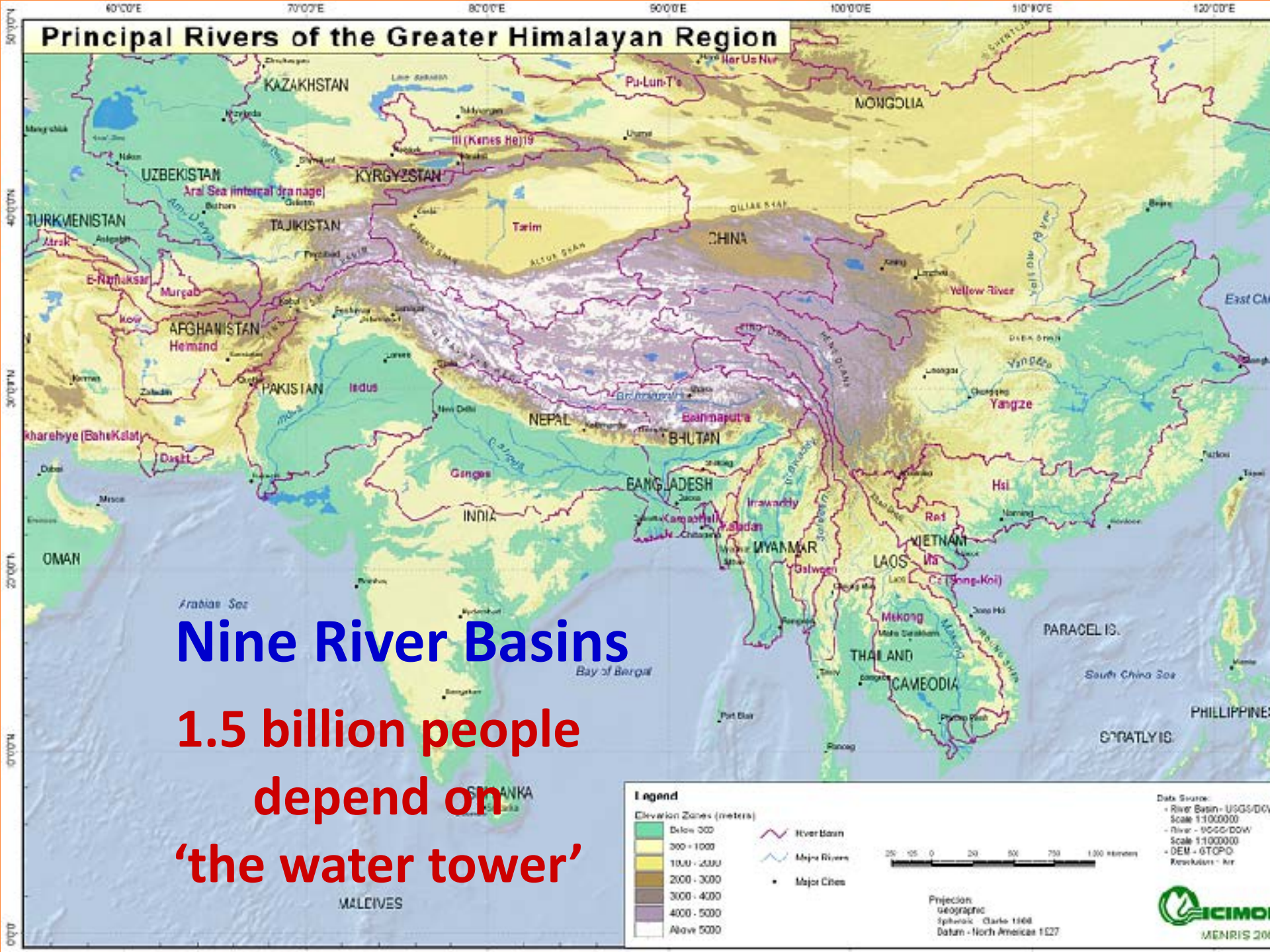
Non- OECD 2010-2035

90% population growth

70% GDP growth

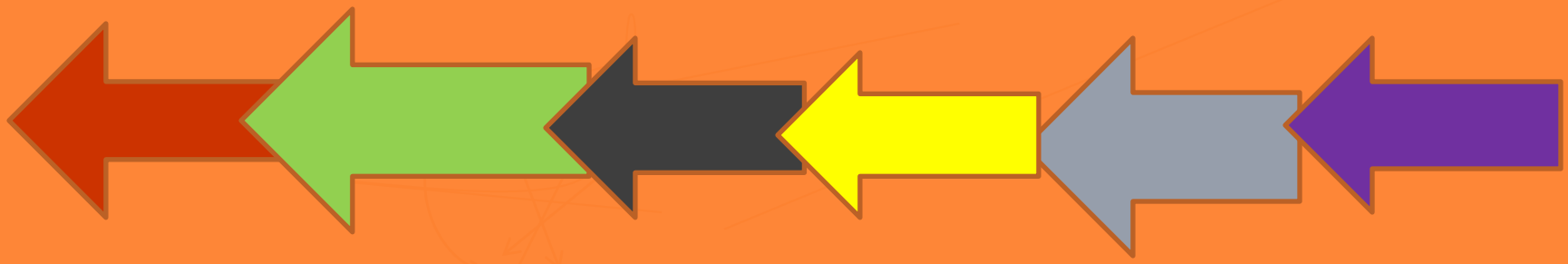
90% new energy demand


Principal Rivers of the Greater Himalayan Region
Nine River Basins
1.5 billion people
depend on
'the water tower'
KAZAKHSTAN
MONGOLIA
UZBEKISTAN
KYRGYZSTAN
TURKMENISTAN
TAJIKISTAN
CHINA
AFGHANISTAN
PAKISTAN
NEPAL
BHUTAN
BANGLADESH
INDIA
MYANMAR
LAOS
VIETNAM
THAILAND
CAMBODIA
OMAN
MALDIVES
PARACEL IS.
SPRATLY IS.
PHILLIPPINES
Aral Sea (internal drainage)
Tarim
Yellow River
Yangze
Indus
Ganges
Brahmaputra
Irrawaddy
Salween
Mekong
Red
Hsi
Arabian Sea
Bay of Bengal
South China Sea
Legend
Elevation Zones (meters)
Below 300
300 - 1000
1000 - 2000
2000 - 3000
3000 - 4000
4000 - 5000
Above 5000
River Basin
Major Rivers
Major Cities
Projection:
Geographic
Spheroid: Clarke 1866
Datum: North American 1927
Data Source:
- River Basin - USGS/DCW
Scale 1:1000000
- River - WCGC/DCW
Scale 1:1000000
- DEM - GTOPO
Resolution: 1km
ICIMOD
MENRIS 200

TRANSBOUNDARY PROBLEMS

REQUIRE

TRANSBOUNDARY SOLUTIONS



High sediment flux from large Asian rivers

- High rainfall
- Heavily weathered under humid (sub)-tropical climate
- Active tectonic activities
- High population density and frequent human activities
- Rapid alteration of land use/land cover

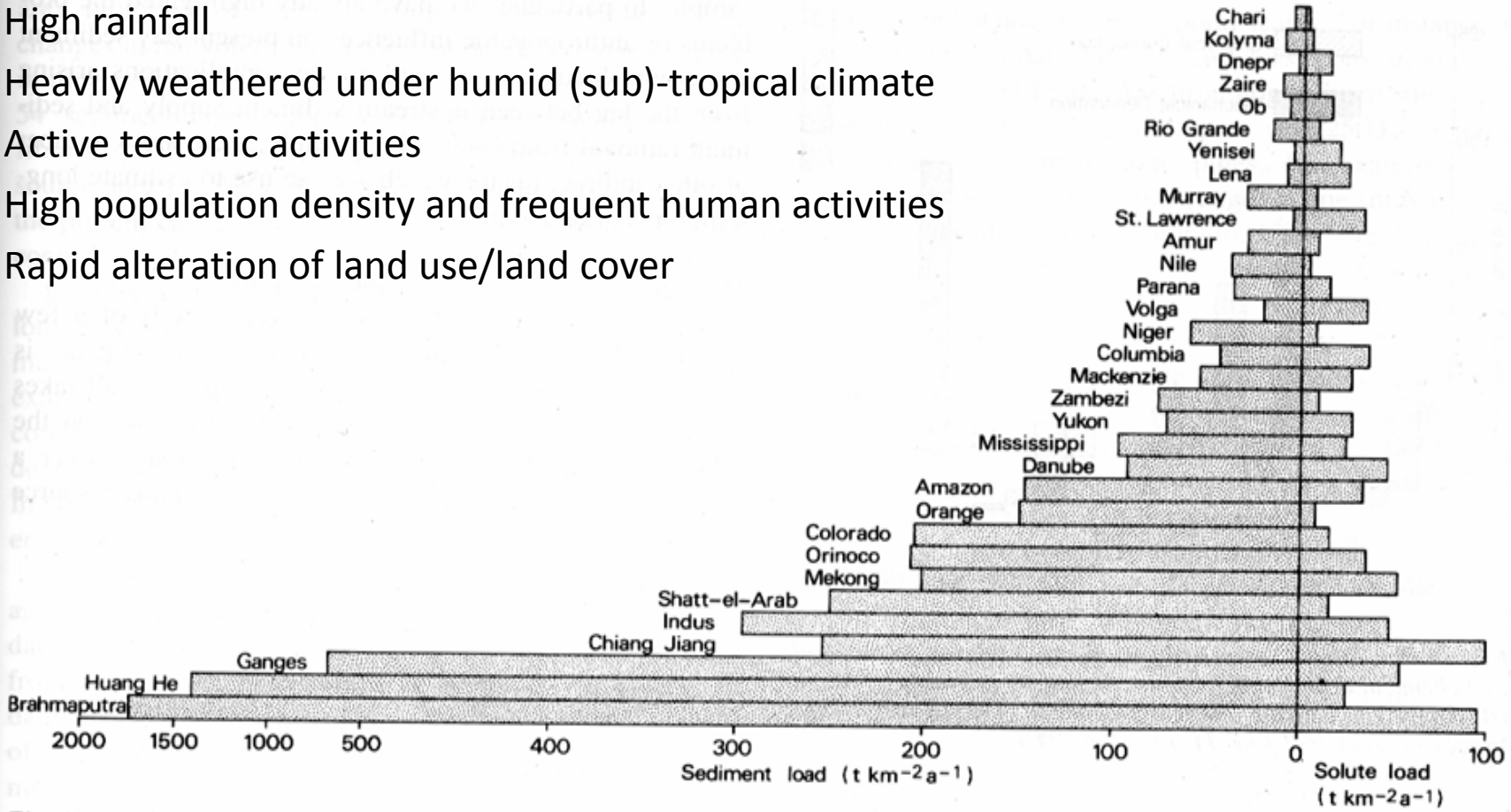
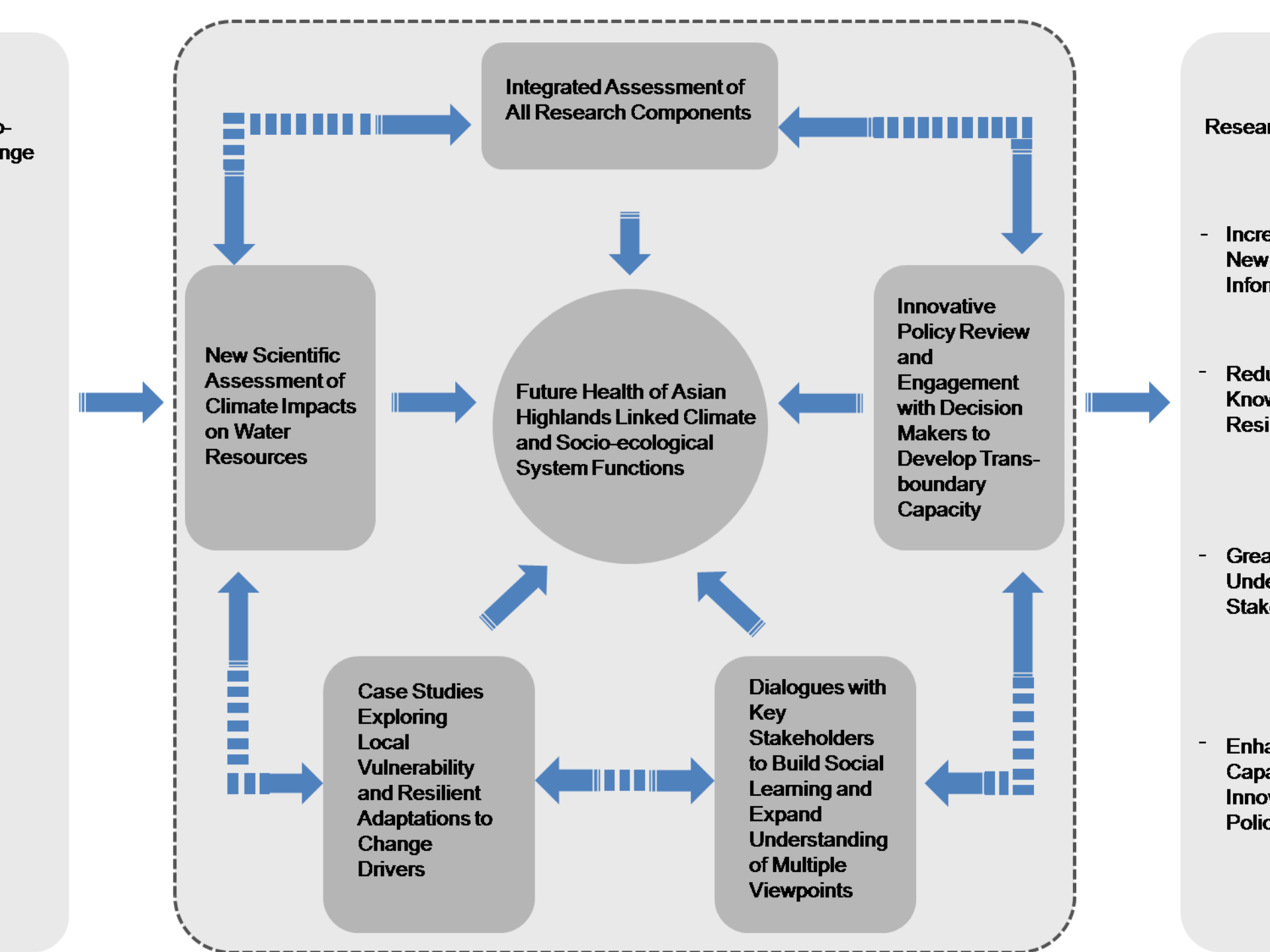


Fig. 15.11 *Sediment and solute loads for the world's largest drainage basins. Solute loads represent the estimated denudational component only. Data for the Nelson, Tocantins and São Francisco Basins are not available. (Based primarily on data in M. Meybeck (1976)* Hydrological Sciences Bulletin ***21****, 265–89 and J. D. Milliman and R. H. Meade (1983)* Journal of Geology ***91****, 1–21.)*


景洪市2002年天然林保护工程
封山育林区


AFP


31.30 vs. 10.00 USD


Integrated Assessment of All Research Components
New Scientific Assessment of Climate Impacts on Water Resources
Future Health of Asian Highlands Linked Climate and Socio-ecological System Functions
Innovative Policy Review and Engagement with Decision Makers to Develop Trans-boundary Capacity
Case Studies Exploring Local Vulnerability and Resilient Adaptations to Change Drivers
Dialogues with Key Stakeholders to Build Social Learning and Expand Understanding of Multiple Viewpoints

WATER + FOOD + ENERGY

CHINA 2010-2020

Water for energy?
Coal 23%—28%

Water for food?
Agriculture 62%---54%

CHOKEPOINTS??

WHAT'S MISSING?

ENERGY

Coal+ Hydro+ Nuclear

Water quality

Power plant technology- sub vs. super vs. ?

Demand ***post***- 2020

23 yrs. = US + Japan new energy

WHAT'S MISSING?

FOOD

Water Use Efficiency

Arable Land 135.5 **121** 121.7 111

Meat Consumption

Irrigation Systems


OTHER *CHOKEPOINTS*?

POPULATION

China 2025 120/ 335

(Peng 2011)

Mekong Basin 2025 33/17

(UNESCAP 2009)