

Angst in Resource Security Considerations:

Cross-border water between China and India

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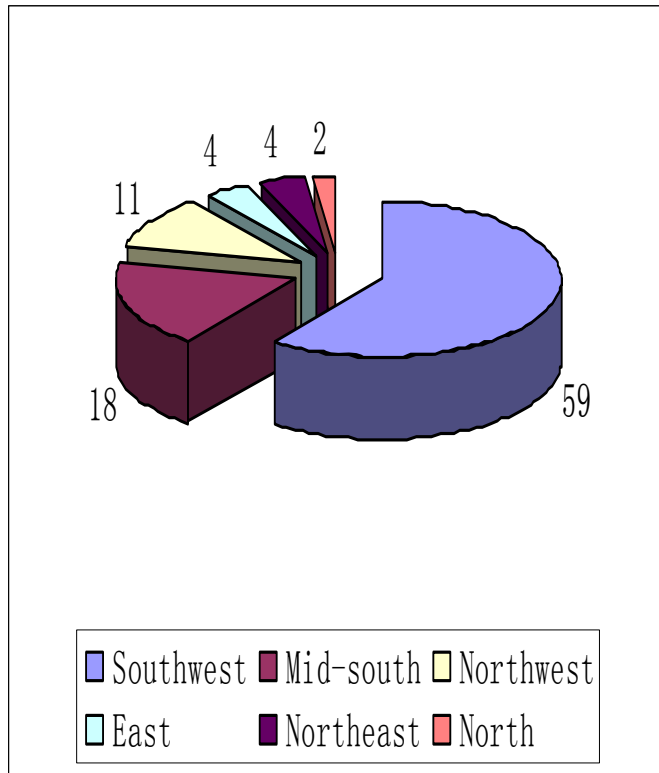
The angst

- Food and water
 - Important for China and India
 - Self sufficiency an attractive goal
 - Now and into the indefinite future
 - Rising income, changing food preference, growing demand
- China has a history of mega food/energy infrastructures
 - Grand Canal
 - Three Gorges Dam, West-East Gas Pipeline
 - South-to-North Water Diversion
- China is an “upstream superpower”
 - Vetoed U.N. Watercourses Convention, 1997
 - Also, Turkey, Burundi
 - India has not signed it

The Angst

- Uncertainties in overall China-India relations
 - Unsettled border line; Zangnan 藏南 vs Arunachal Pradesh
 - Tibetans in India and stability in Tibet
 - Neighbors matter a great deal in bilateral ties
 - Pakistan, Nepal, [Afghanistan, too?]
 - The United States (a significant 'third neighbor')
 - “Power transition” in progress, as seen in International Relations theorization
 - Demographic, aggregate economic indicators
- War over water in the making?
 - Indian persistence in airing concern
 - Damming + diversion
 - Chinese shock at Indian alarm
 - Climate change and interest from wider world

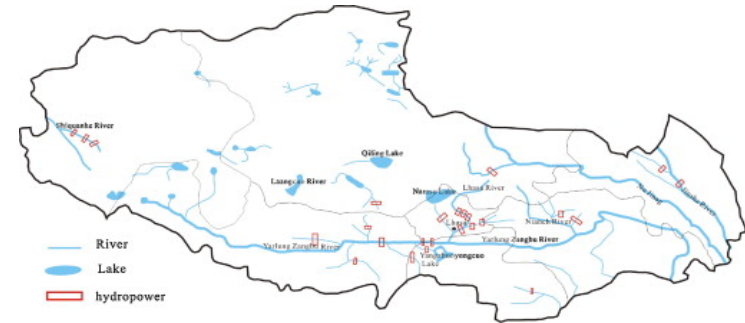
China's Regional Composition of theoretical hydropower potential, %

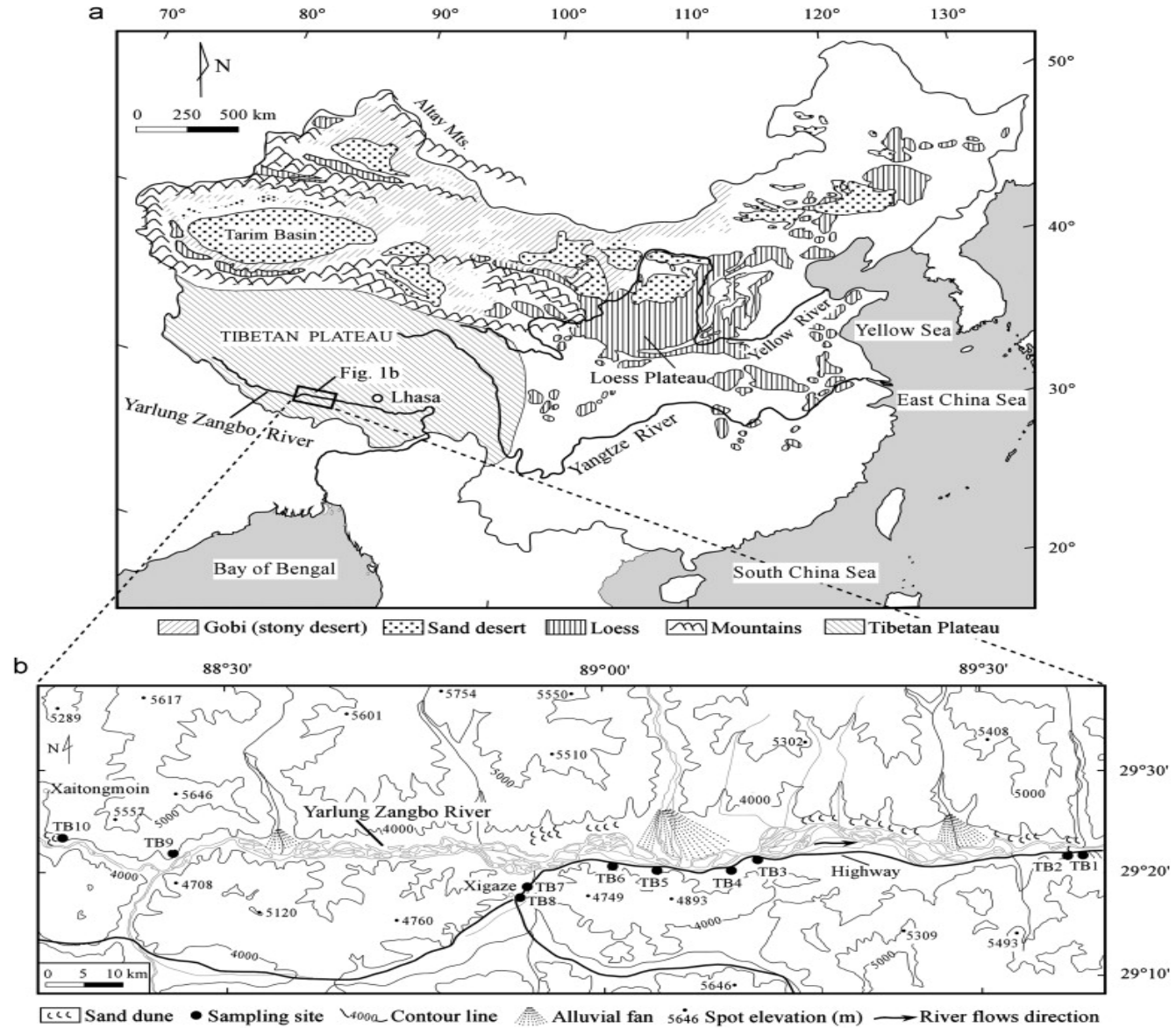


- Based on 2005 nation-wide survey
 - Earlier surveys done in 1950, 1955, 1980
- Southwest region = Sichuan + Yunnan + Tibet + Guizhou
 - Sichuan and Tibet: 1st and 2nd in potential
 - Transmission breakthrough
 - Ultra high voltage direct current line, ± 800 kV; Yunnan – Shanghai, 2,071km

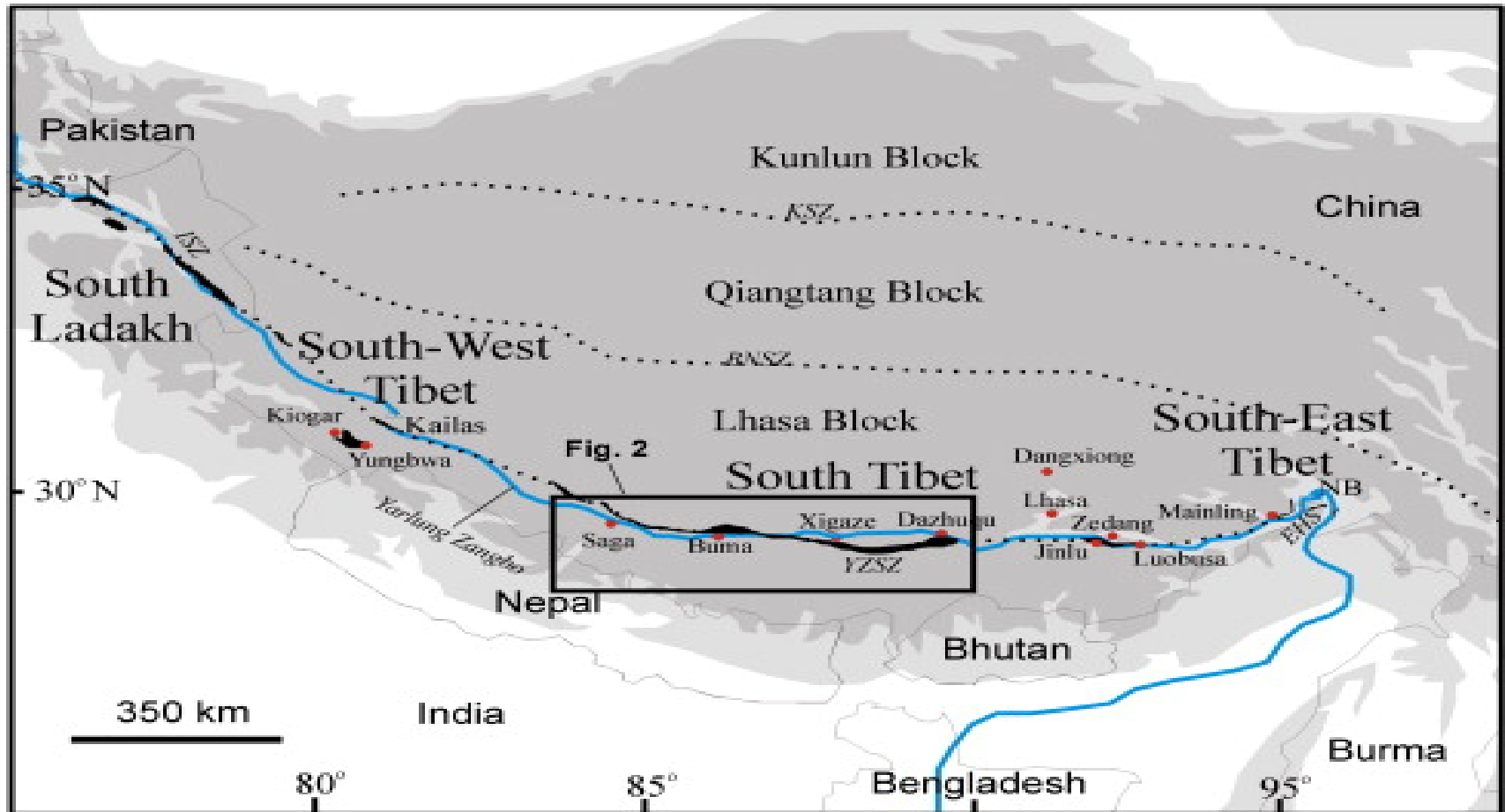
Energy in Tibet

- No indigenous oil or coal
- Organic sources
 - Firewood, straw, yak dung
 - Over 50% of rural homes
- Power grid in place (藏中电网)
 - Chronic blackouts, brownouts
 - 80% of electricity from hydro
 - Winter heating a problem
- Renewable sources
 - Solar, wind, biomass
 - Supplementary
- Solutions
 - Connection to Qinghai grid
 - Hydro, coal-, gas-fired
 - More indigenous hydro

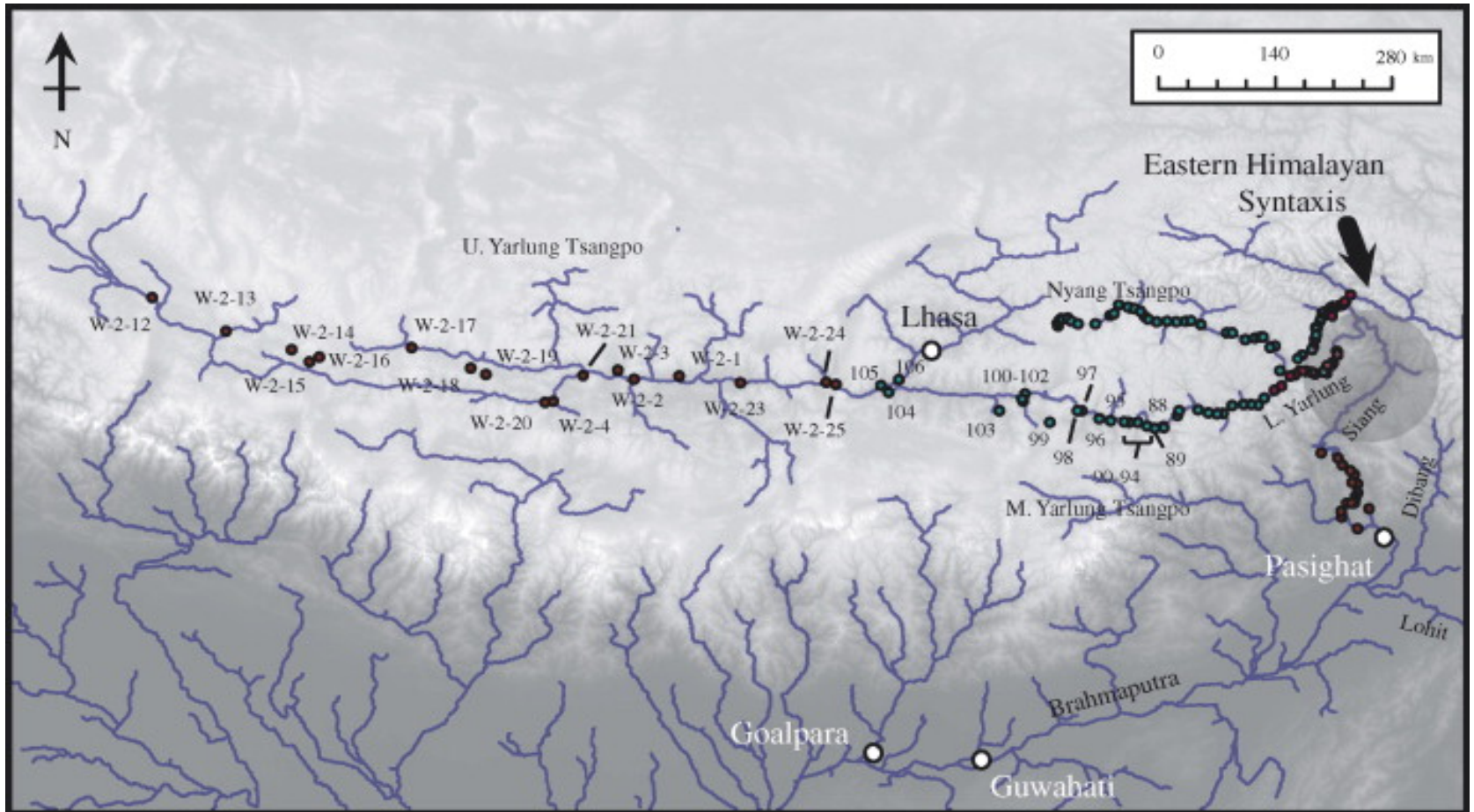




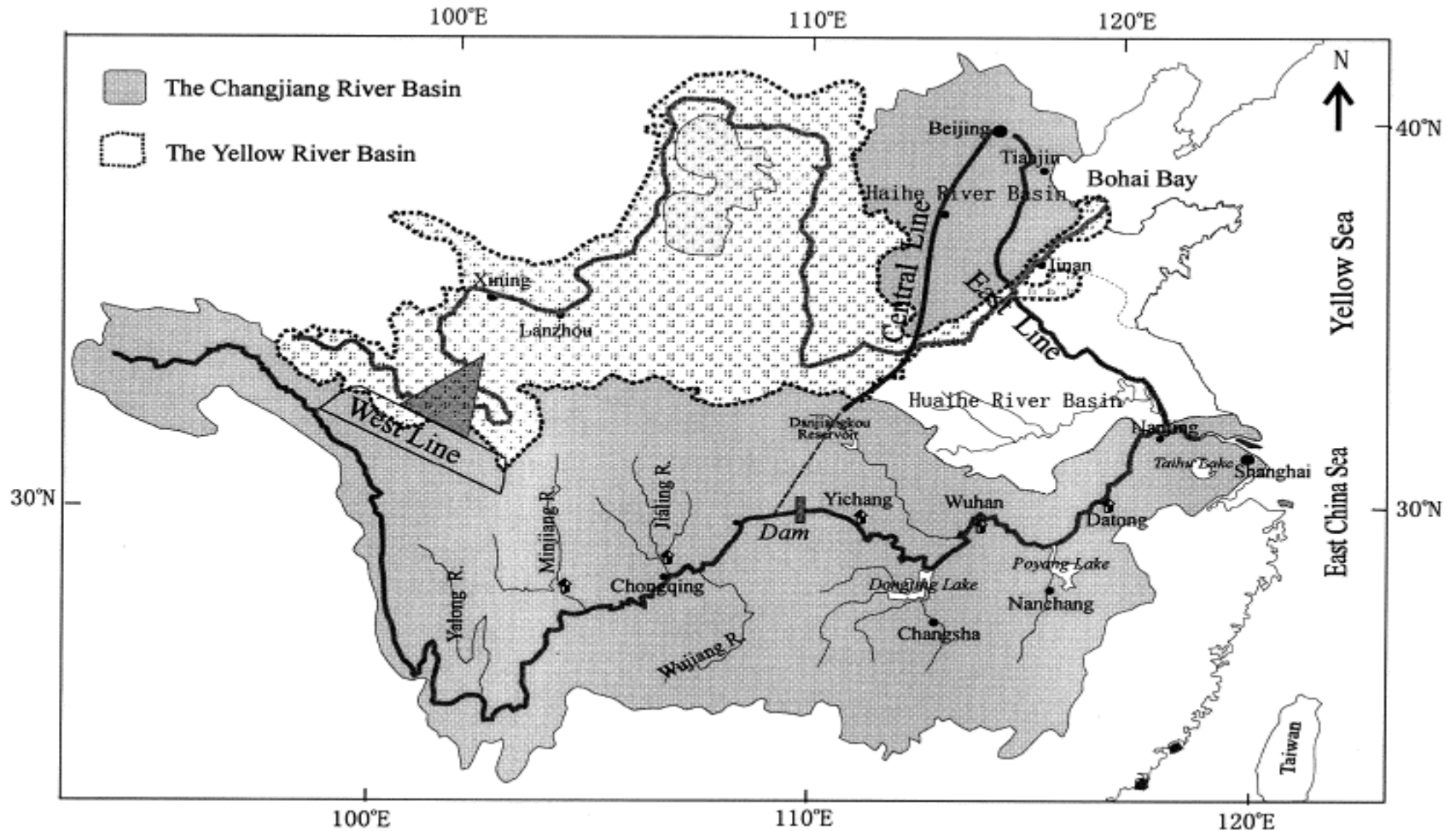
Yaluzangbu -Brahmaputra



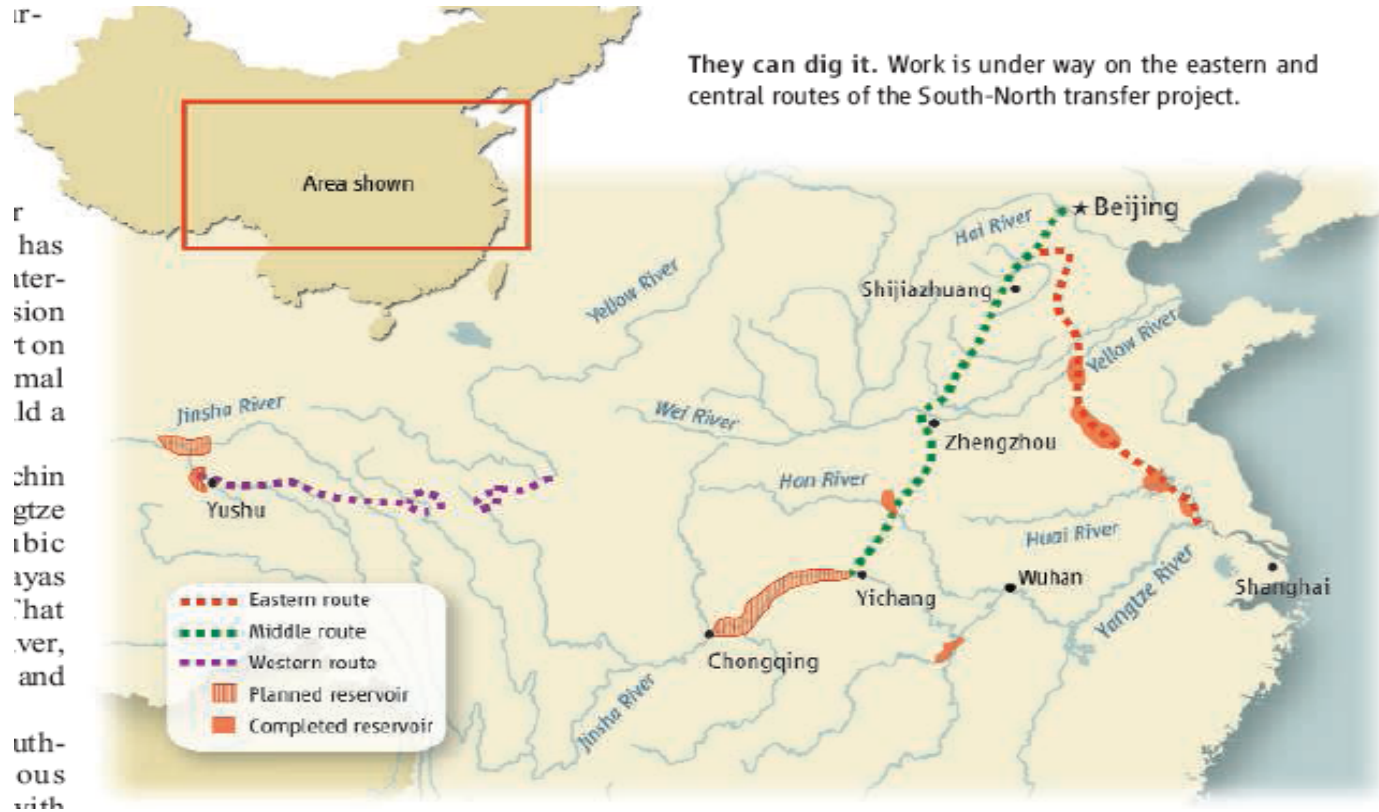
Tributary scene



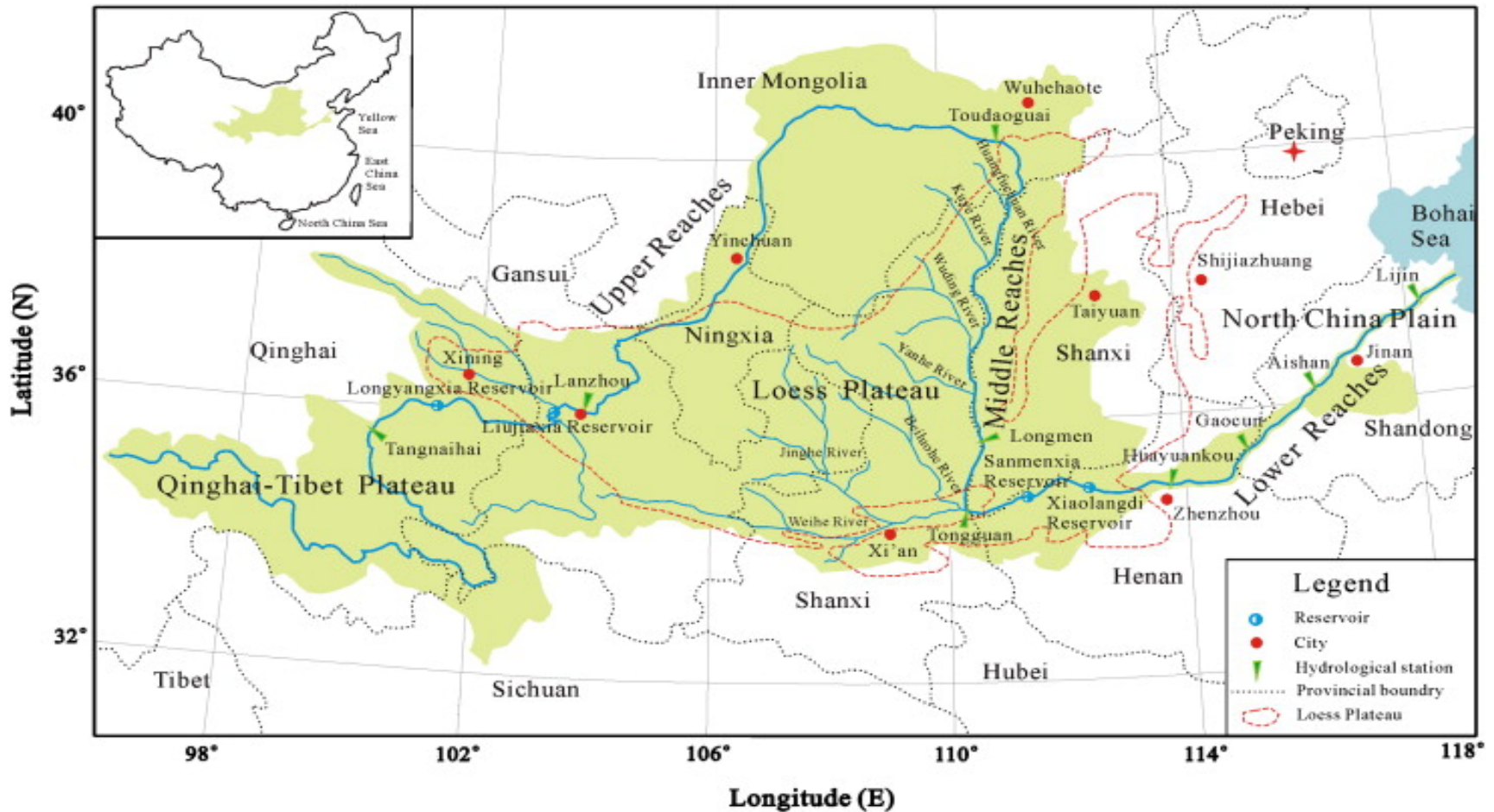
China's Water Diversion



A quick sketch in U.S.-based *Science* magazine



Water for wheat

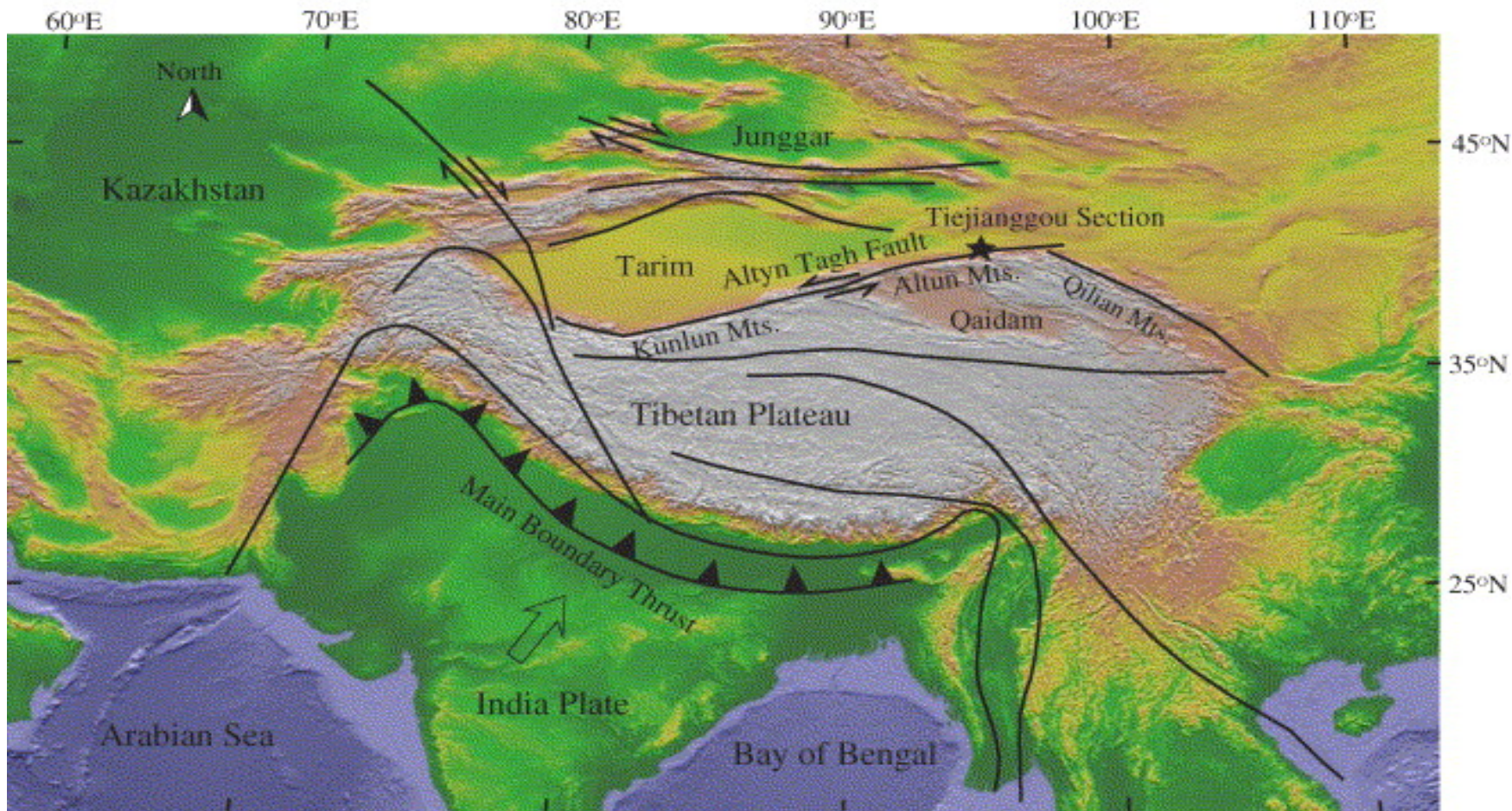


Great western route 大西线

- Shuomatan to Tianjin (天津)
 - 朔马滩, near 山南地区, 羊村水文站
 - Way west from the “Great Bend” point in Indian texts
 - Notion identified with Guo Kai (郭开)
 - Retired soldier in his 70s,
 - Caught attention in mid-1980s
 - Not based on field survey



Water flows from Tibet to Tarim Basin (??)



Great western route

- Criticized as ‘utter nonsense’, ‘sheer fantasy’
 - See “Controversial Plan to Tap Tibetan Waters”
<http://www.china.org.cn/english/MATERIAL/177295.htm>
- Enthusiasts keep notion alive
 - After all, Yellow River runoff, worsened in late 1990s
- Government agency: no word about west route
 - <http://www.nsbd.gov.cn/>
- Regardless, worries in India sustain
 - Persistent reference to *Scientific American* piece in June 1996
 - By John Horgan, "'Peaceful' Nuclear Explosions"
 - Journalistic account of using nuclear explosion for tunnel construction in Tibetan plateau

China India cooperation in sharing hydrological data

- MoU signed in 2002
 - China provides information on Yaluzangbu river in flood season
 - Water level, discharge, rainfall
 - At Nugesha, Yangcun and Nuxia stations
 - June 1 thru October 15, annually
 - Expired in 2007
 - New MoU signed in June 2008; valid for five years
- Langqin Zangbu (朗钦藏布) / Sutlej MoU signed in 2005
 - Sharing data collected at Tsada station (札达水文站)
 - From monsoon season of 2007

Governmental level cooperation

- Joint Expert Level Mechanism set up in Nov., 2006
 - Discussion about cooperation
 - Provision of flood season hydrological data, emergency management, etc.
 - Responsible ministries: water resources
 - 1st Mechanism meeting took place in September 2007, Beijing
 - 2nd meeting held in April 2008
 - Agreed on annual meeting arrangement
- Source of information: government of India portal
 - india.gov.in/sectors/water_resources/international_corp.php

At issue

- For managing bilateral relations
 - Better, broader awareness about hydrological connections
 - Beginning with how much water flows from Yaluzangbu to Brahmaputra
 - Data sharing and analysis
 - Hydrological projects upstream
 - Size & scale, or other issues?
 - Location
 - Site in the tributary system, a bilateral issue?
 - Electric power for local consumption vs for export
 - Does it even matter?

At issue

- For more general international studies
 - In what ways is water comparable to oil?
 - Worldwide lessons in such policy areas as
 - Irrigation farming
 - Water-saving industrial process
 - Economic incentives for water conservation
 - Ecological immigration, away from deserts
 - “Virtual water” concept in food production & trade
 - How do we inform ourselves?
 - Academic disciplinary boundaries

Thank you for listening

- Questions and comments welcome