Water, Water, Everywhere… But None Within Reach:

Water Resource Challenges in Southwest China's Karst Regions

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Western Kentucky University

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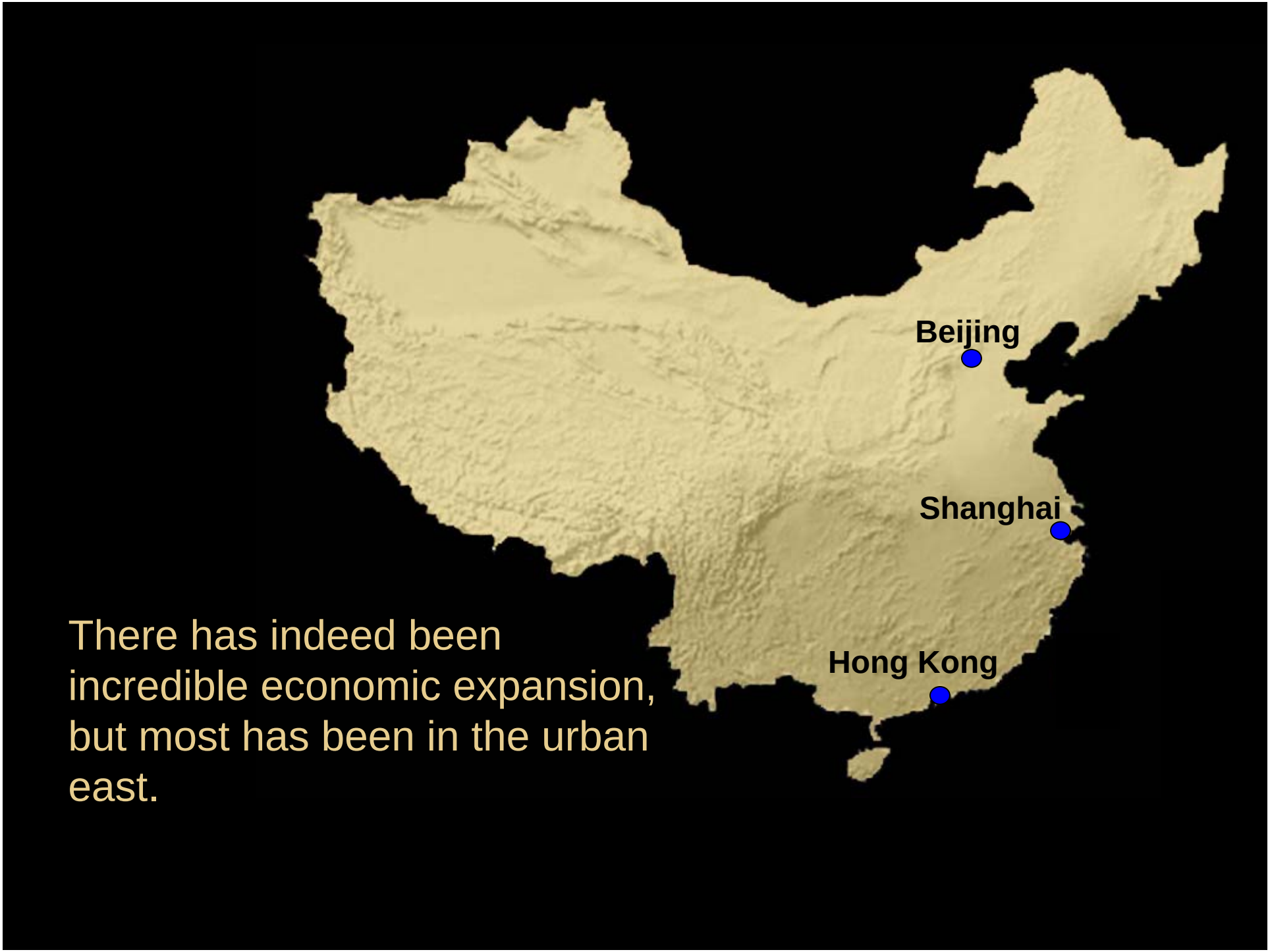
International Institute of Rural Reconstruction

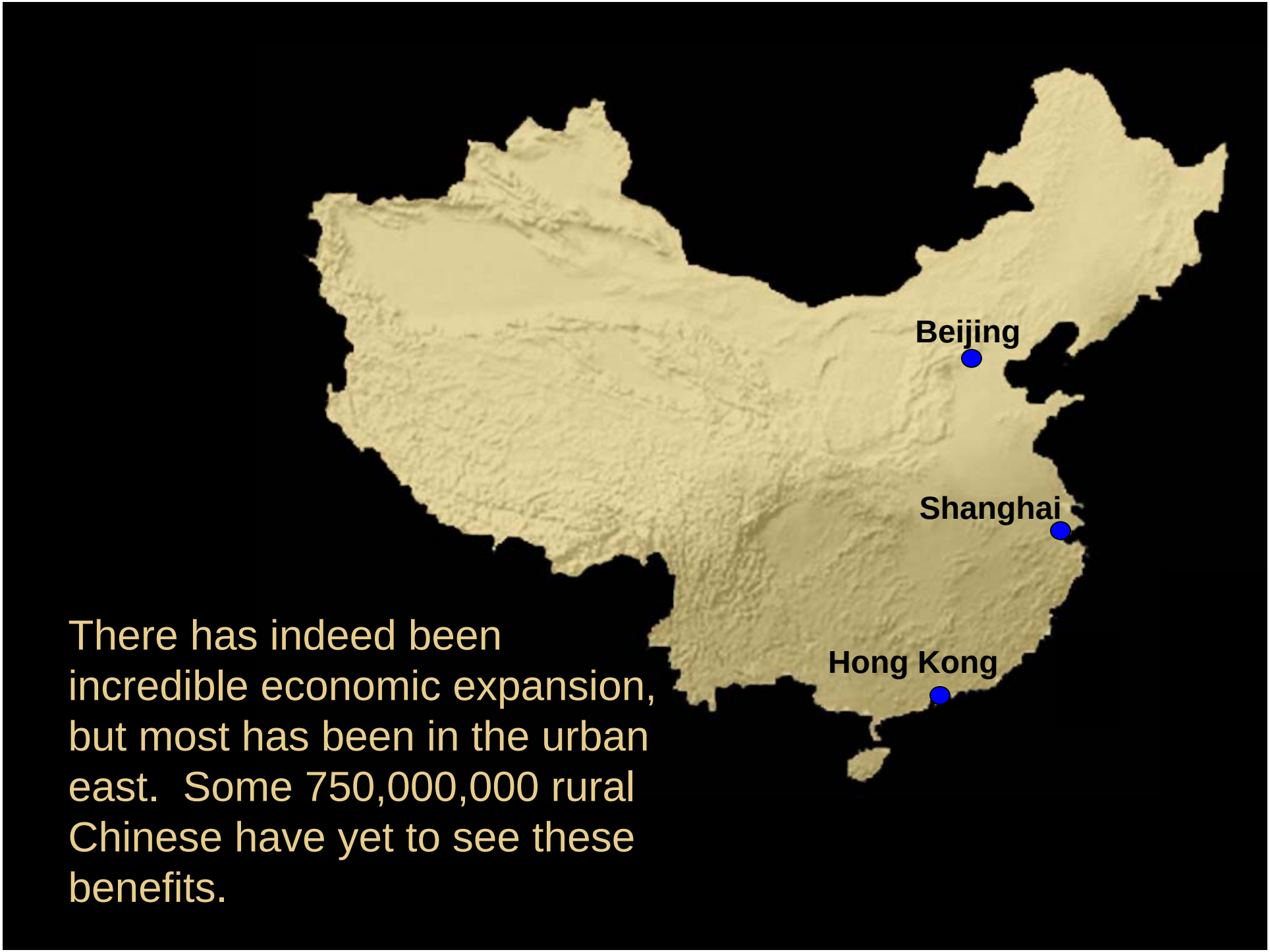
Woodrow Wilson International Center for Scholars
November 14, 2007

Time Magazine
January 22, 2007

"…a new superpower has arrived…"



There has indeed been incredible economic expansion, but most has been in the urban east.



There has indeed been incredible economic expansion, but most has been in the urban east. Some 750,000,000 rural Chinese have yet to see these benefits.


地铁
BEIJING SUBWAY
STARBUCKS
COFFEE

Beijing: 30¥ ($4.00) =
1 Grande Caffe Latte

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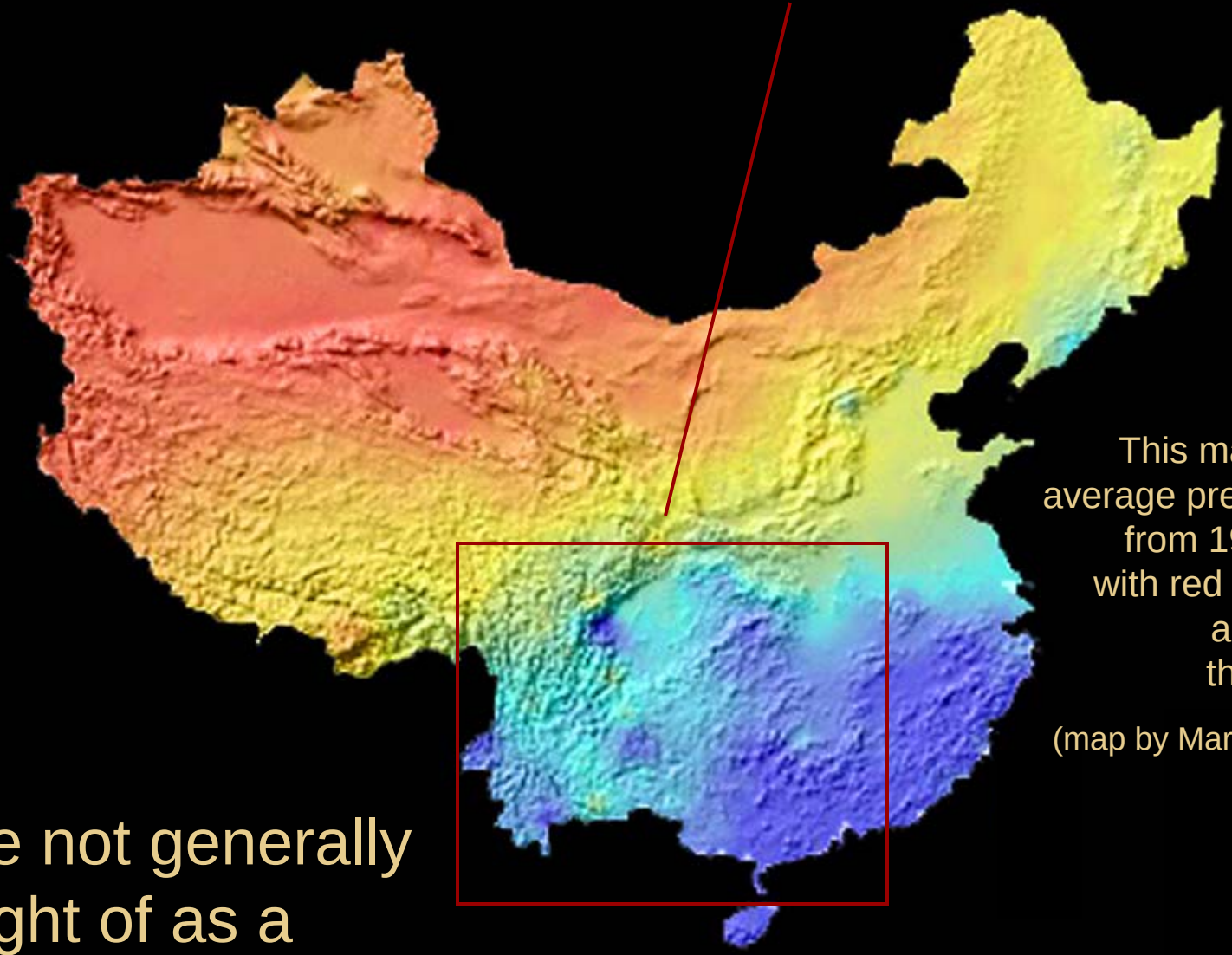
More than 100,000,000
Chinese earn less than
$91 per year (680¥)

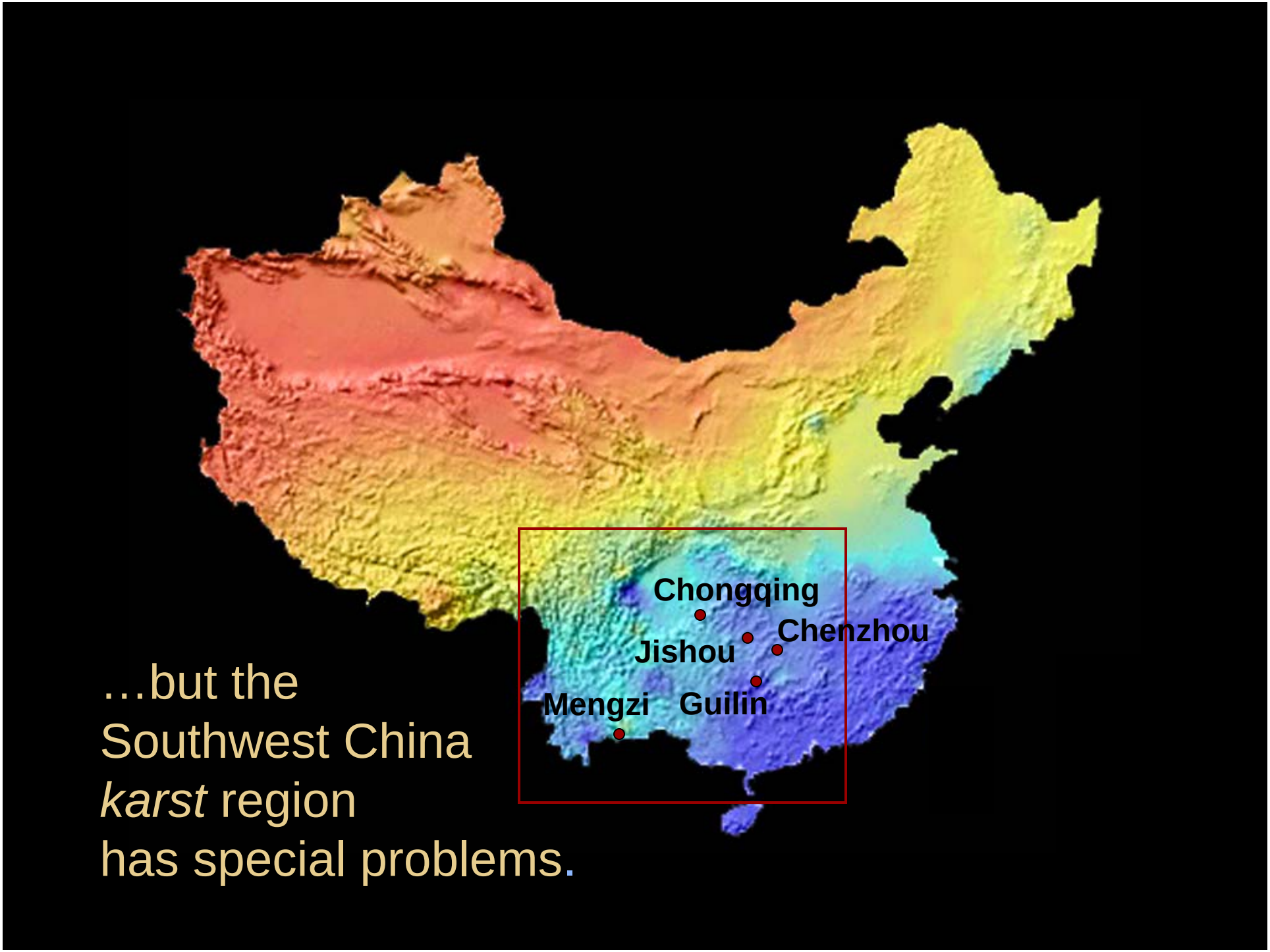
Large areas of Southwest China…



This map shows average precipitation from 1951-1988 with red the driest and purple the wettest

(map by Mark Graham)

…are not generally thought of as a region with severe *water quantity* issues.



…but the Southwest China *karst* region has special problems.

karst landscapes are those formed in regions in which dissolving of soluble bedrock is a dominant agent forming the landscape

Globally, karst landscapes cover ~15% of the world's land area and supply ~25% of the world's population with drinking water

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They are characterized by:

photo courtesy Deana Groves

disappearing streams
that sink underground

caves and
underground rivers

photo courtesy Kevin Downey

significant springs
where these
rivers emerge

commonly, a lack of surface drainage,
and thus availability

significant springs
where these
rivers emerge

In SW China problems were very much exacerbated by deforestation and soil loss from the 1950's on

Asia is loaded with wonderful karst landscapes.

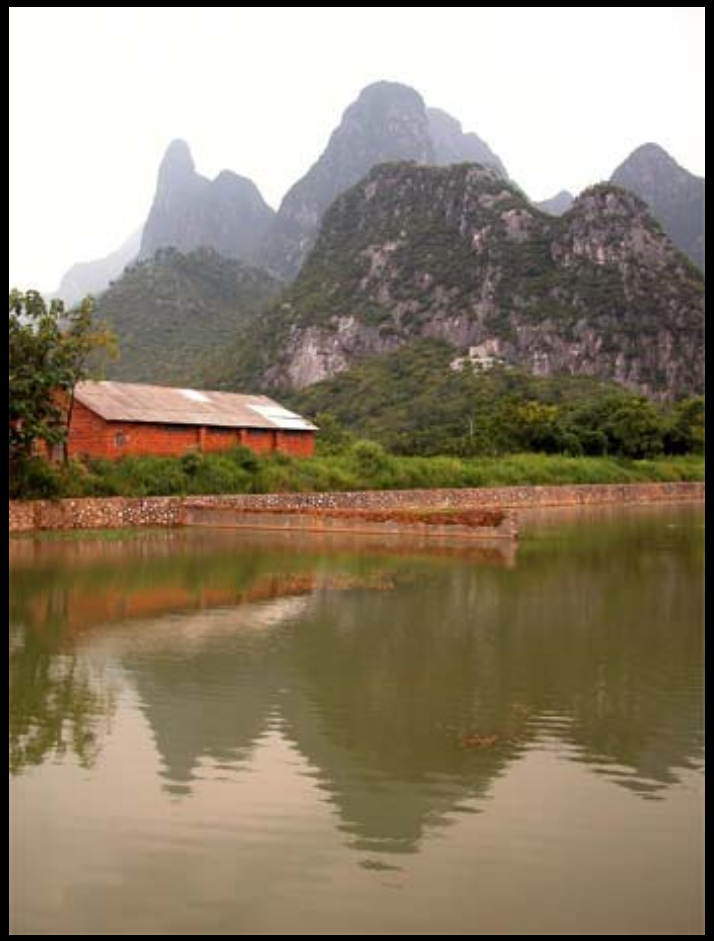
Nim Binh, Vietnam

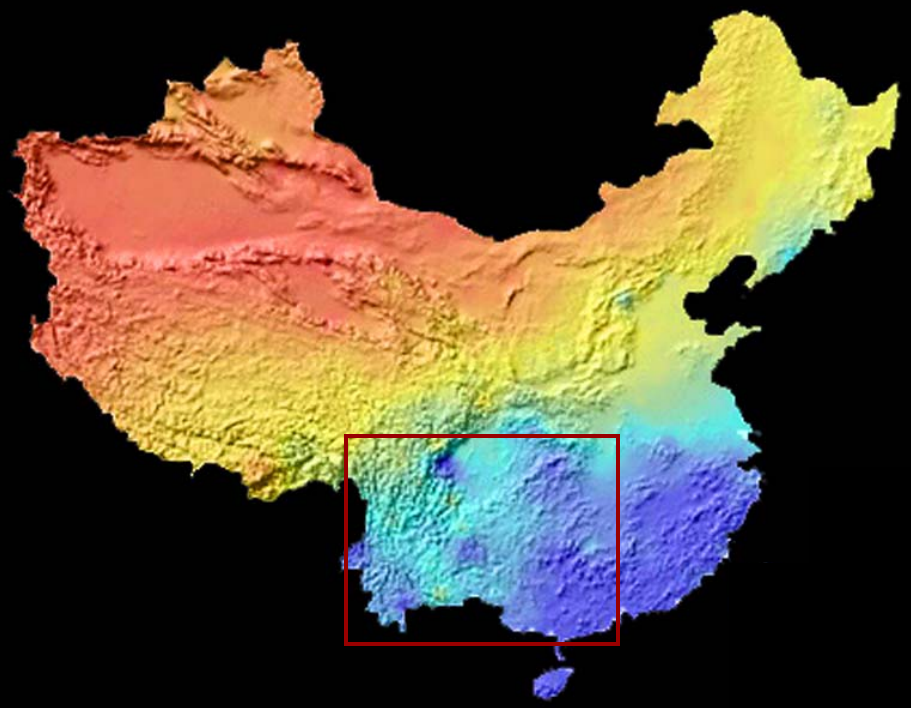
photo courtesy Deana Groves

Ha Long Bay, Vietnam

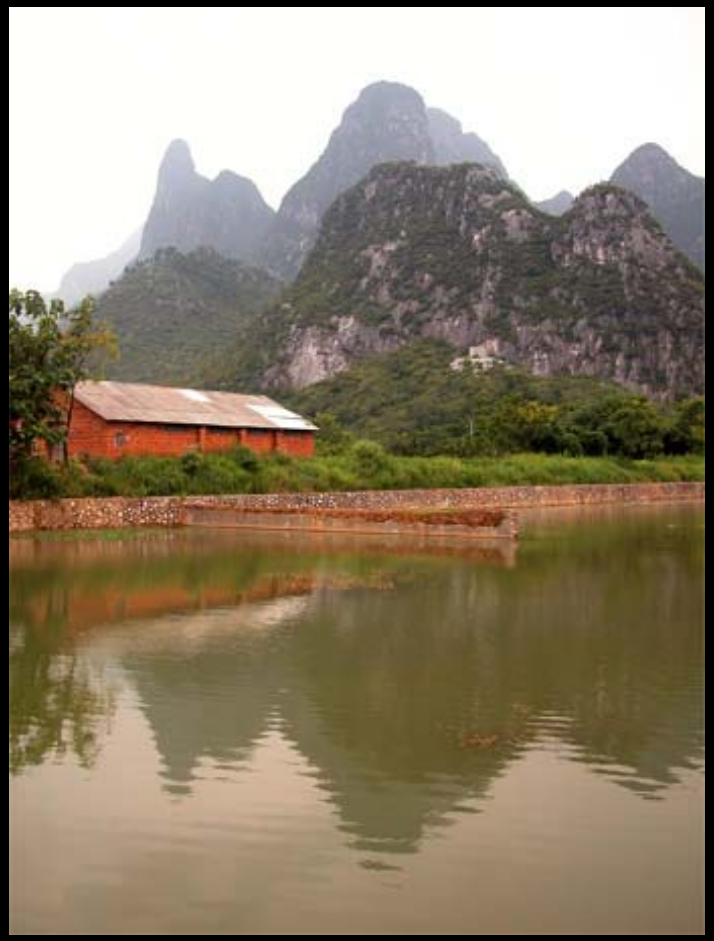
Krabi,Thailand

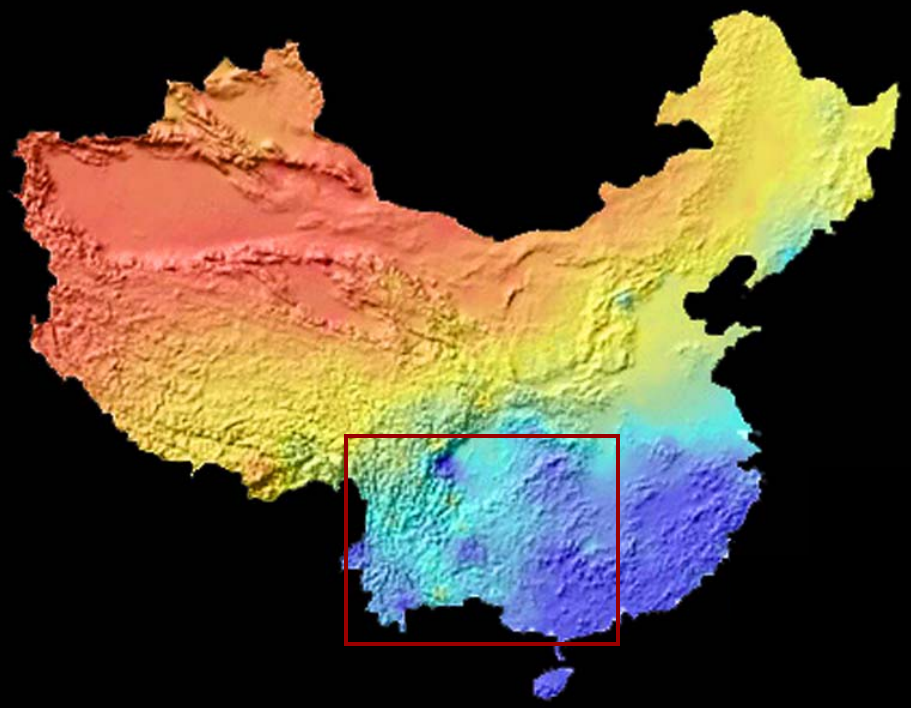
Li River, Guangxi China



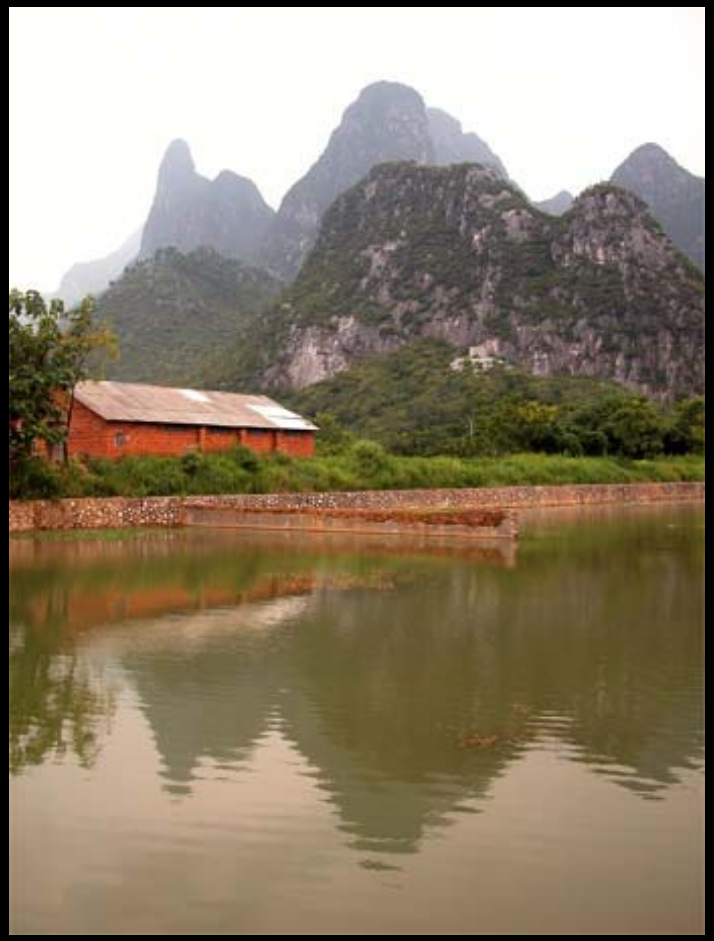


The southwest China karst region:

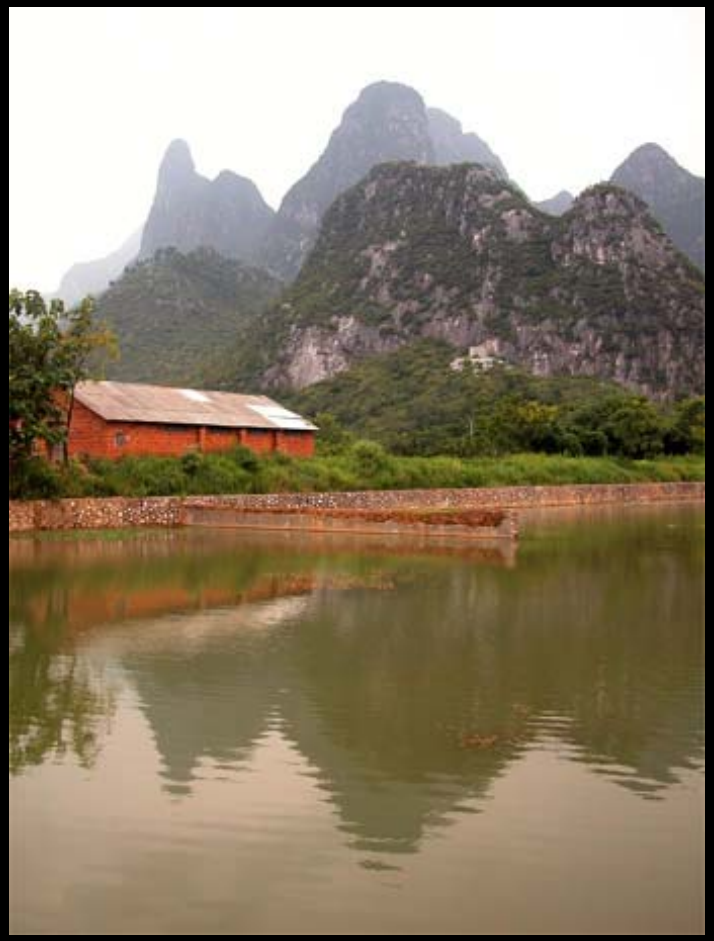




The southwest China karst region:
- 500,000 km^2

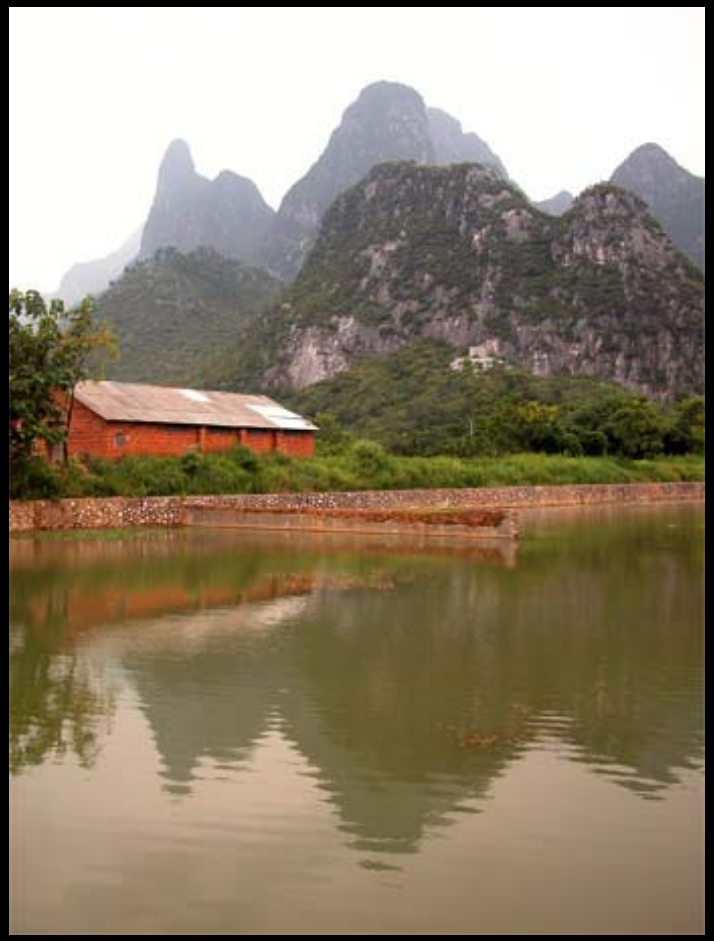


The southwest China karst region:
- 500,000 km^2 - monsoon climate



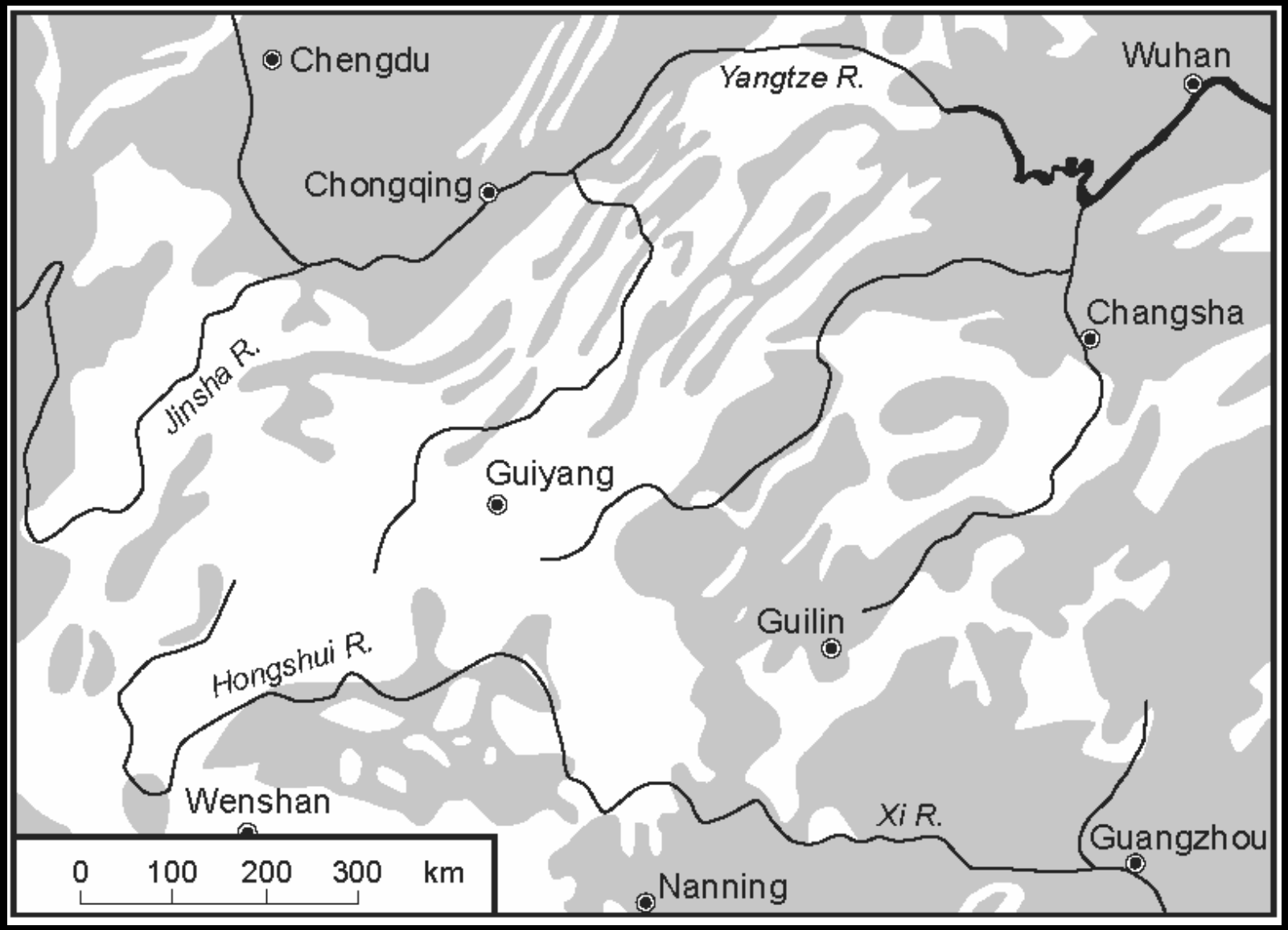
The southwest China karst region:

- 500,000 km^2 - monsoon climate
- 80-100 million largely rural residents



The southwest China karst region:

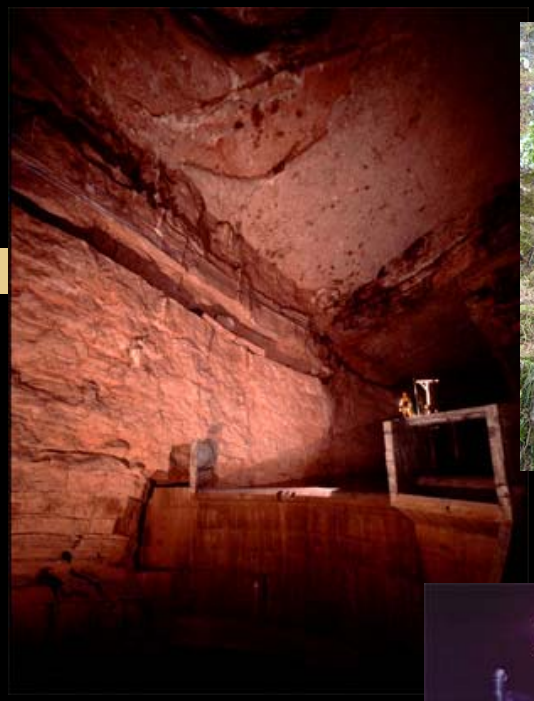
- 500,000 km^2 - monsoon climate
- 80-100 million largely rural residents
- ~10% earn <$91/year



Karst areas of southwest China

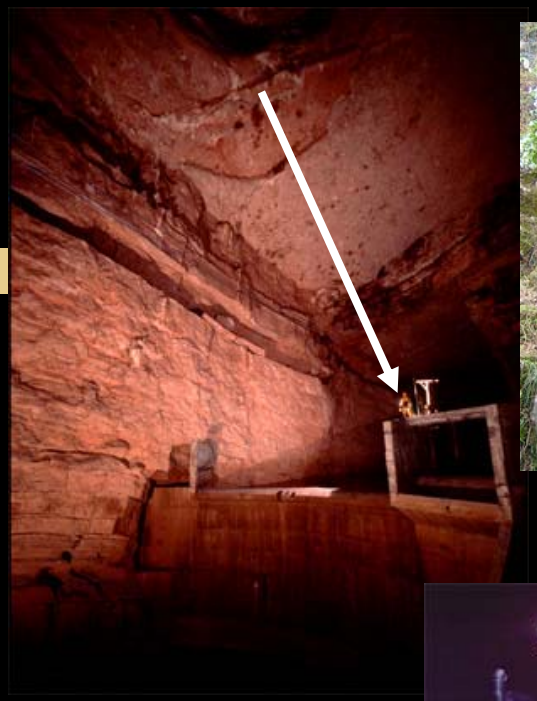
Hydrogeologic Research at the Guilin Experimental Site

Technical Assistance and Training: Water Supply in W Hunan

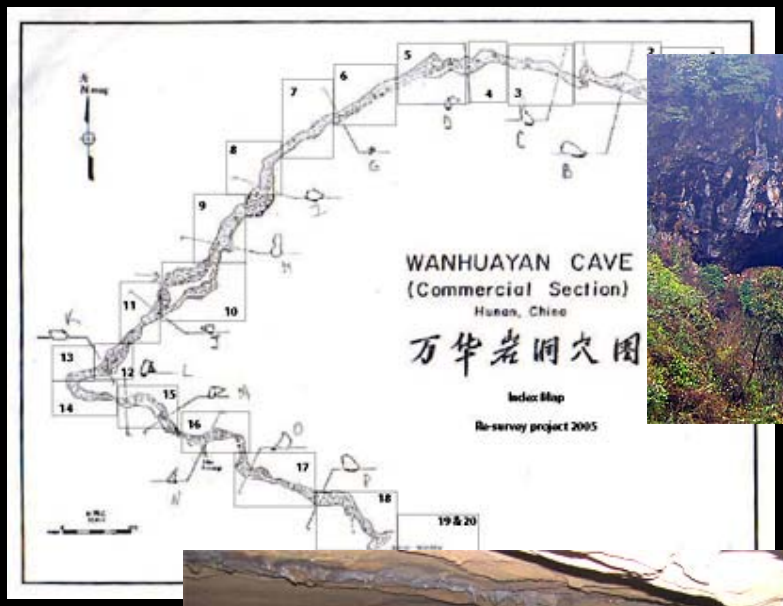


photos courtesy Kevin Downey, Ron Simmons, and Mark Graham

Technical Assistance and Training: Water Supply in W Hunan



Training in Karst Hydrogeology in SE Hunan



photos courtesy Kevin Downey, Pat. Kambesis,
And Johanna Kovarik

The China Environmental Health Project

Major Sponsors: USAID and the ENVIRON Foundation
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I. Technical Program for Water
WKU Hoffman Institute in Partnership with
Southwest University of China

II. Technical Program for Coal
WKU Institute for Combustion Science and Environmental Technology in Partnership with the Anhui University of Science and Technology

III. Program for Knowledge Management and Information Sharing
China Environment Forum, Woodrow Wilson International Center for Scholars and
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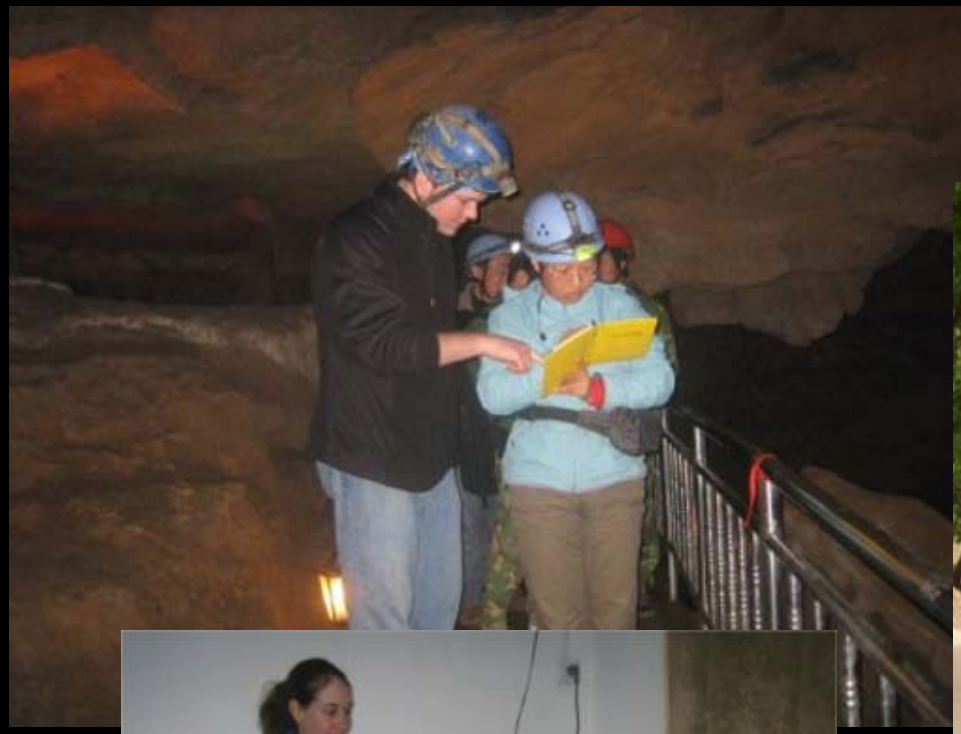
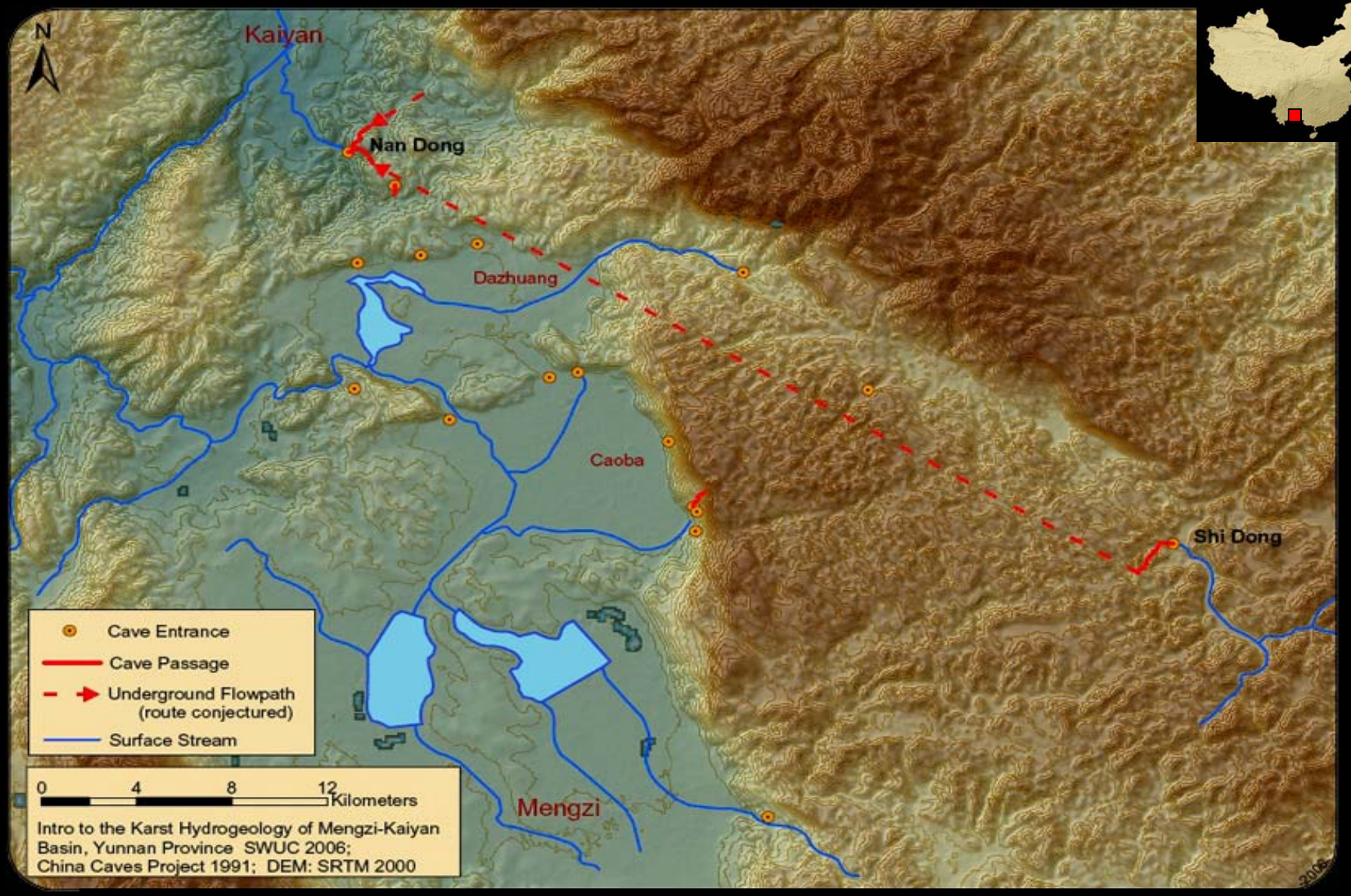
Training at SWU: Groundwater Tracing Techology

Training at SWU: Karst Hydrogeology



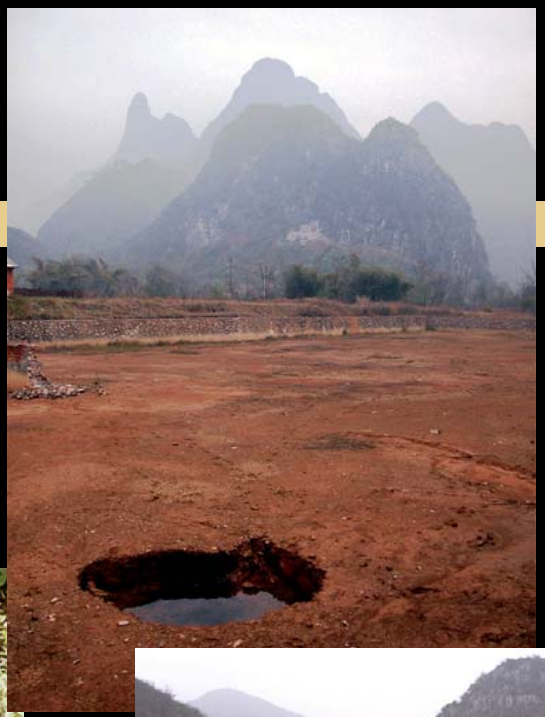
Training at SWU: Geographic Information Systems

Demonstration work at Mengzi, Yunnan



map by Mike Futrell

The China Environmental Health Project



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