Beijing Traffic Jam

Daniel Barry, Jennifer Corriveau, Michael Lecomte, Johanna Zuber

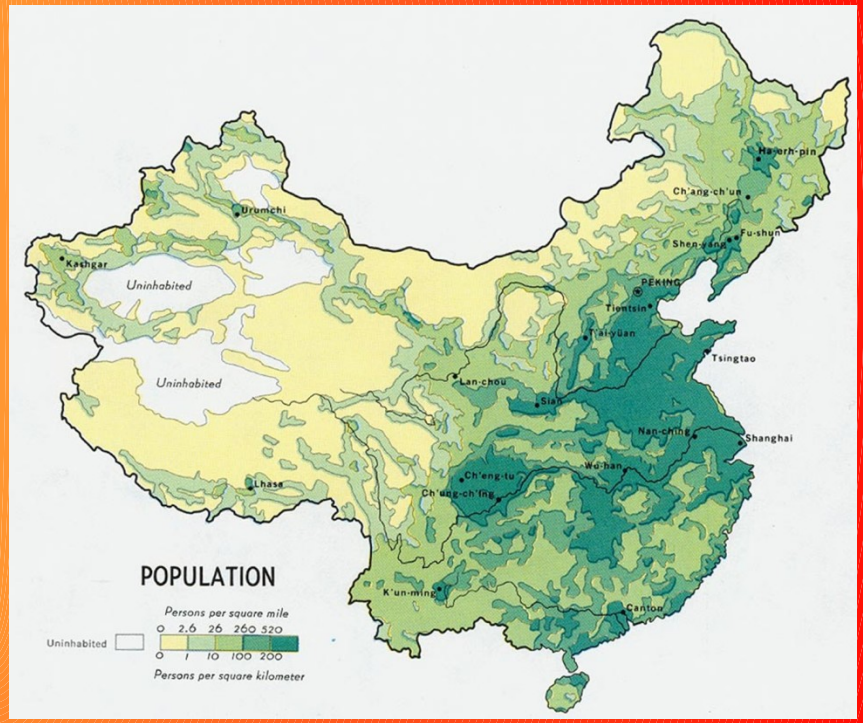
Presentation Overview

- China population, economy, infrastructure
- Highway system
- Traffic Jam
- Problems Identified
- Potential Solutions
- Q&A

Country Information

Population

- 1.3 billion people
- 72% of population age between 15-64
- 43% live in urban areas



Economy

- Major advances
- Rapidly growing private sector
- Foreign investment increase
- GDP
- Development
- Challenge: environment

Infrastructure

- 500 airports
- 3rd largest railway system
- 3.5 billion kilometers of road

China's Highway System

About the Highway System

- Series of trunk roads
- Sometimes tolls
- 000, 100, 200, 300 series

Highway System History

- 1913- First Modern Highway
- 1988- First Expressway
- 1998- Major construction
- 2000 – 6.25 million cars
- 2005 – 17 million cars
- 2006 - 24,480miles expressway; 2.15 million miles highway
- 2020: 53,000 expressway miles

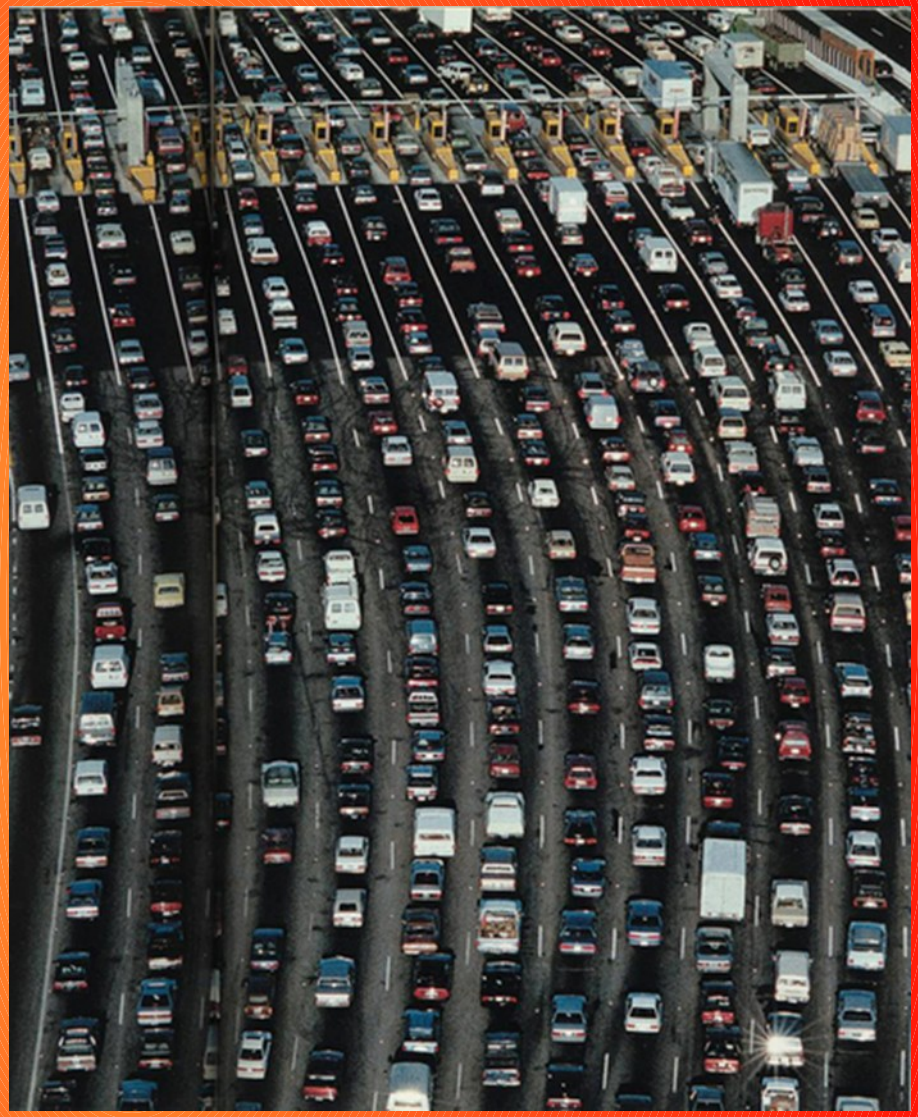
National Highway 110

- Beijing-Tibet Expressway
- Beijing to Huai’ and Jining
- Major artery for supplies

August 2010 Traffic Jam

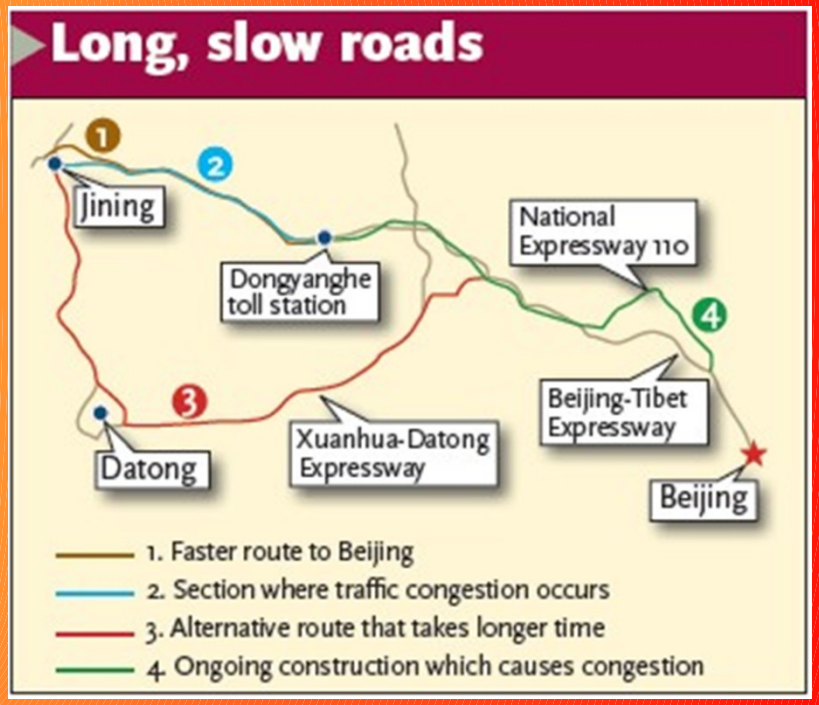
China Traffic Jams

- “Traffic jams are one of the norms in the expanding Chinese economy”



August 2010 Traffic Jam

- August 14, 2010
- Highway 110
- Snail's pace traffic
- Over 100 km (60 miles)
- Expected duration



Testimonies

- Price of food sky-rocketed
- Stuck for days
- Drivers played cards

How it ended

- Went away for no apparent reason:

“If you pour rice through a funnel, at some point it may become jammed. But once you can unjam that, eventually it will start working its way out again.”

What Caused the Jam?

Cause #1: Coal-Carrying Trucks

Cause #2: Increasing Cars on Roads

Other Causes

- Poor road planning
- Broken down vehicles
- Peak-season travel

Challenges

Challenge 1: Limited Roads

- Roads in Southwest China are limited
  - Taking back roads isn't an option
  - Lack of small state and country roads
  - Alternative routs are much longer; expensive

Challenge 2: Meeting Demand

"If people mostly get around in personal vehicles, no matter how you expand the capacity of the roads, demand will exceed the capacity almost over night"

- 2,000 new cars a day = new lane every day
- Traffic could slow; < 15km/hr.
- 6.7 million vehicle capacity

Challenge 3: Braess Paradox?

- Is the current situation(traffic jam) better than adding new roads?
  - Only a fleeting impact on easing congestion
  - New roads lead to more travel
  - Many drivers who had shifted their trips resume previous patterns and converge onto new highway
- Spread traffic out more evenly
  - Measure demand more accurately
  - Weave multiple modes

Potential Solutions

Solution: Railroads

"Special railway should be built to transport coal from Inner Mongolia. Adding that railway would be the most efficient and environmentally friendly way for energy transportation"

- 42,000km new tracks by 2020
- Massive amounts of stimulus

Solution: Straddle Bus

- Two levels
- Runs above car and under overpass
- Electric and solar power
- 60km/hr.; 1200-1400 passengers
- Saves road space; efficient; high capacity
- Can reduce up to 25-30% of traffic jams
- Safety precautions

Solution: Energy Transportation

- Convert coal to electricity locally
- Send energy

Summary

"The root of the problem is that transportation network planning and construction lag behind demand"

- Causes: Increased demand, coal trucks, construction
- Solutions: Railroad, Straddle bus, Transport energy

- Thank you!

Questions?