China’s South-North Water Transfer Project

And Its Impacts on Economic and Social Development

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BUREAU OF SOUTH-TO-NORTH WATER TRANSFER

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Water shortage in North China and its impacts

South-North Water Transfer Project

Impacts on Economic and Social Development
Water is also unevenly distributed in space:

**Northern part of China:**
- Water resources: 19%
- Population: 47%
- Cultivated land: 64%
- GDP: 45%

**Southern part of China:**
- Water resources: 81%
- Population: 53%
- Cultivated land: 35%
- GDP: 55%
Basic Information of Yellow River, Huai River & Hai River Basins

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<tr>
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<th>Cultivated land</th>
<th>Food production</th>
<th>Population</th>
<th>GDP</th>
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<td></td>
<td>46.7 million ha</td>
<td>170 million ton</td>
<td>438 million</td>
<td>3100 billion Yuan</td>
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<td>Water Resources</td>
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<td>202.3 billion m³</td>
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- Cultivated land: 36%
- Food production: 37%
- Population: 35%
- GDP: 35%
- Water Resources: 7.2%
Present Water Resources Utilization Ratio

- Yellow River: 67%
- Huai River: 59%
- Hai River: 90%
Over-exploiting groundwater

6 billion m$^3$ /yr
36,000km$^2$

Land fallout
Hebei
> 300 mm, 18,200km$^2$

Tianjin
>1.5m, 133km$^2$
Dried river courses

Conflicts between different users

Damages to eco-system
Water shortage in North China and its impacts

South-North Water Transfer Project

Impacts on Economic and Social Development
General Layout of the South-to-North Water Transfer project
The East Route scheme

★ Starting from downstream of Yangtze river
★ Ending at Tianjin Municipality and Shandong Peninsula
★ Based on the existing rivers or canals. The main rivers/canals 1150km
★ Lift head totals 65m, 75 pumping stations of 13 cascades
★ Annual water diversion 14.8 billion m³
Jiangdu Pumping Station
Grand Canal
The East Route scheme

Supply water to
• North Jiangsu province
• East & north Shandong province
• East of Hebei province
• Tianjin municipality

Industry
Urban
Agriculture
It will be constructed by three stages

**FIRST STAGE**

- 8.9 billion m$^3$/yr (including the existing capacity of 5 billion m$^3$/yr)
- 38 pumping stations (including 16 existing ones)
- Pollution Control Programme 369 projects
- Supply water to north Jiangsu province east & north Shandong province
The Middle Route scheme

★ Starting from Danjiangkou Reservoir in Hanjiang river, tributaries of middlestream of Yangtze river
★ Ending at Beijing and Tianjin municipality
★ The main channel to Beijing is 1267km. The canal to Tianjin is 154km
★ Annual water diversion 13 billion m$^3$
The Middle Route scheme

Supply water to

- Beijing, Tianjin, Hebei, & Henan
  - Industry
  - Urban
  - Agriculture & Environment
Danjiangkou Reservoir

Initial stages:
- EL.: 162 m
- Normal water level: 157 m
- Total storage: \(174.5 \times 10^6\) m\(^3\)
- Lowest water level: 140 m
- Regulation storage: \(98 \sim 102 \times 10^6\) m\(^3\)

Anaphase:
- EL.: 176.6 m
- Normal water level: 170 m
- Total storage: \(290.5 \times 10^6\) m\(^3\)
- Lowest water level: 150 m
- Regulation storage: \(163 \sim 190 \times 10^6\) m\(^3\)
The Middle Route scheme

FIRST STAGE

- **Raising Danjiangkou Dam Height**
  - 102.4 m to 117 m
- **Reservoir storage**
  - 20.96 to 33.91 billion m$^3$
- **The main channel to Beijing and to Tianjin**
- **Down stream projects of Hanjiang**
- **Diverted water**
  - 9.5 billion m$^3$/yr
Divert water from tributaries of upper stream of Yangtze River
Dadu River, Yalong River and Tongtian River
Supply water to upper stream of the Yellow River
Works location height: about 3500m above sea level
Water diverted: 17 billion m$^3$/yr
First Stage

Divert water from tributaries of upper stream of Dadu River, Yalong River

5 Dams, 260 km tunnels, 4 billion m³/yr
Second Stage
Divert water from upper main stream of Yalong River
1 Dam  304 km tunnels  5 billion m³/yr
Third Stage
Divert water from main stream of Tongtian River
1  Dam  2x506 km tunnels 8 billion m$^3$/yr
General Program:

**Approved in 2002**

Construction:

**By three phases**

The first phase:

**First stages of the East Route and the Middle Route**

**Lunched at the end of 2002.**
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South-North Water Transfer Project

Impacts on Economic and Social Development
BENEFITS

- Realizing rational allocation of different resources

Integrated Water resources utilization of the Yangtse--Huang--Huai--Hai Rivers
BENEFITS

• Increasing the local production capacity

• Promoting economic development GDP increase 300 billion Yuan

• Creating 21 million new jobs
BENEFIT

- Shortening the gap between eastern region and western region
- Reducing conflicts between different water users
- Improving environment
- Promoting urbanization
Projected benefits of phase one

- Irrigation
- Navigation
- Flood protection
- Drainage improvement
- Pollution control
- Environment
- Urbanization
- Rural development
During construction period

2002—2010 First stage of east & middle route

- Contribution to GDP growth rate 0.12 percentage
- Create new job opportunities 180,000
- Speed up pollution control program in project areas
- Improve regional infrastructure road, communication, etc.
- Promote economic structural adjustment
- Some involuntary resettlements
- Land 40,000ha
Thanks