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The background of the slide features a photograph of a rugged mountain range, likely the Rocky Mountains, with snow-capped peaks and rocky ridges. The entire image is covered with a semi-transparent blue overlay, which serves as a backdrop for the white text.

Geopolitical Change and the Continued Significance of Our Nation's Inland Waterways

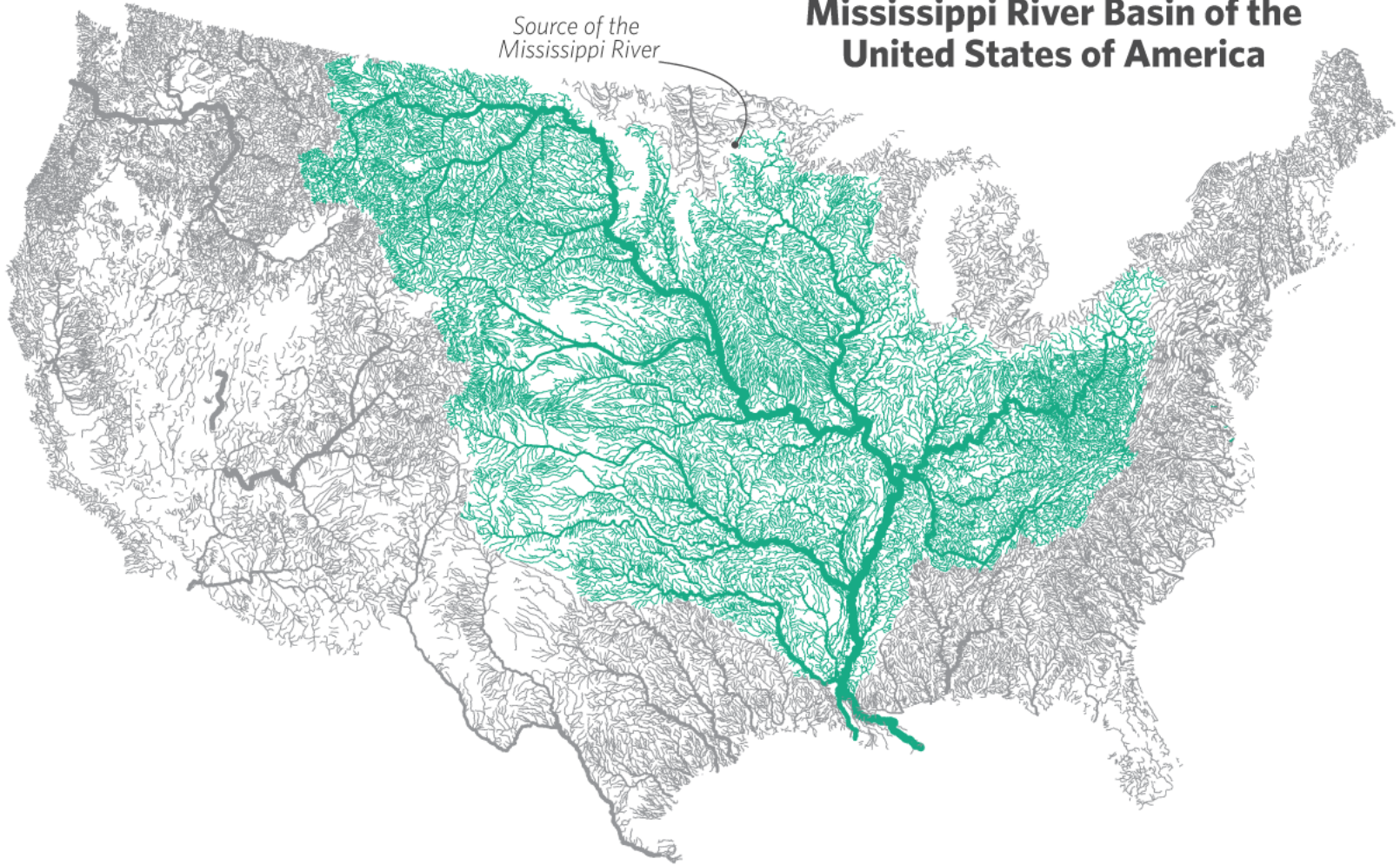
November 2021

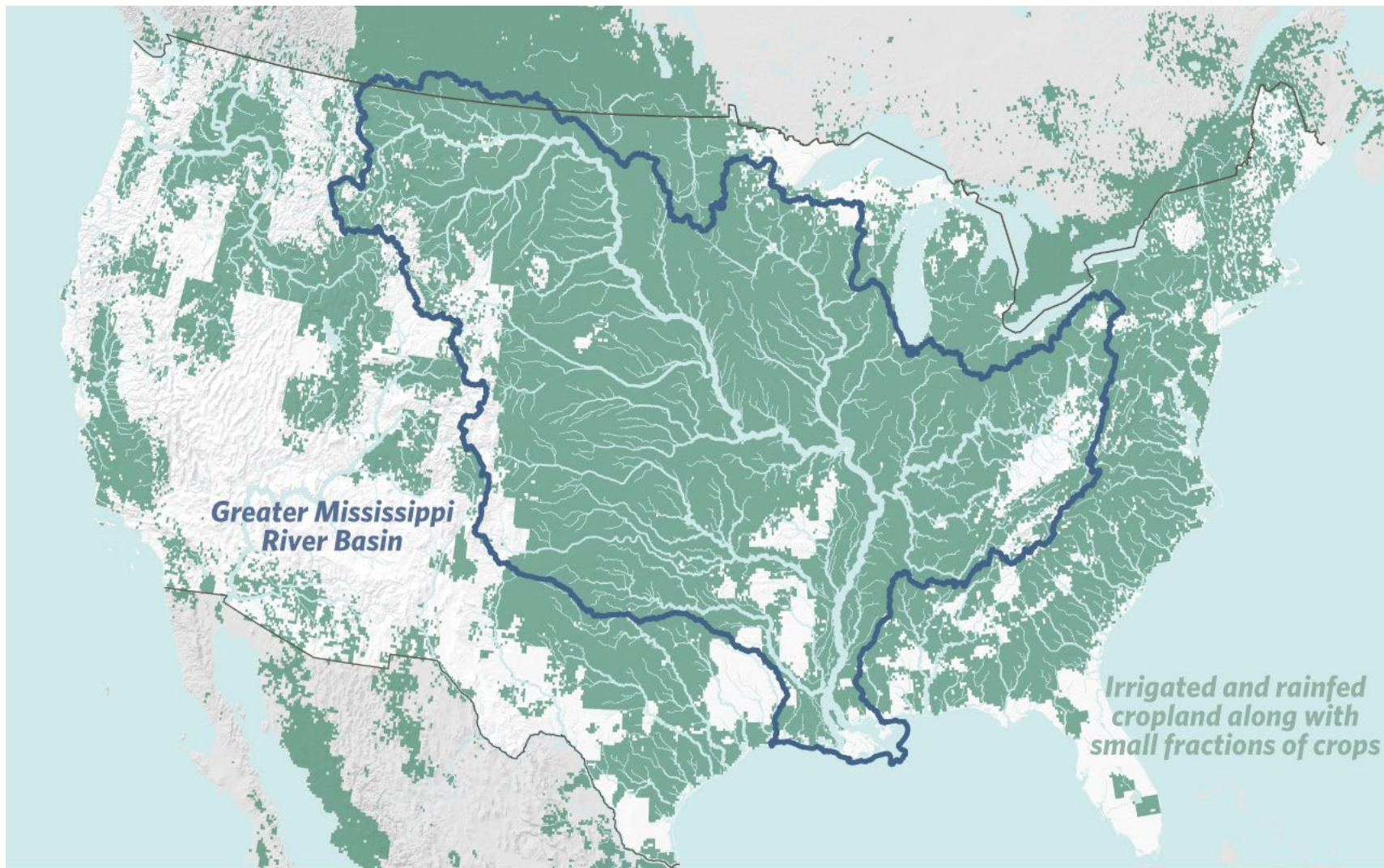
The Mississippi Valley yields to no region in the world in interest, in romance, and in promise for the future. Here, if anywhere, is the real America—— the field, the theatre, and the basis of the future civilization of the Western World. The history of the Mississippi Valley is the history of the United States; its future is the future of one of the most powerful of modern nations.

**Albert Bushnell Hart
The Future of the Mississippi Valley (1900)**

Mississippi River Basin of the United States of America

Source of the
Mississippi River





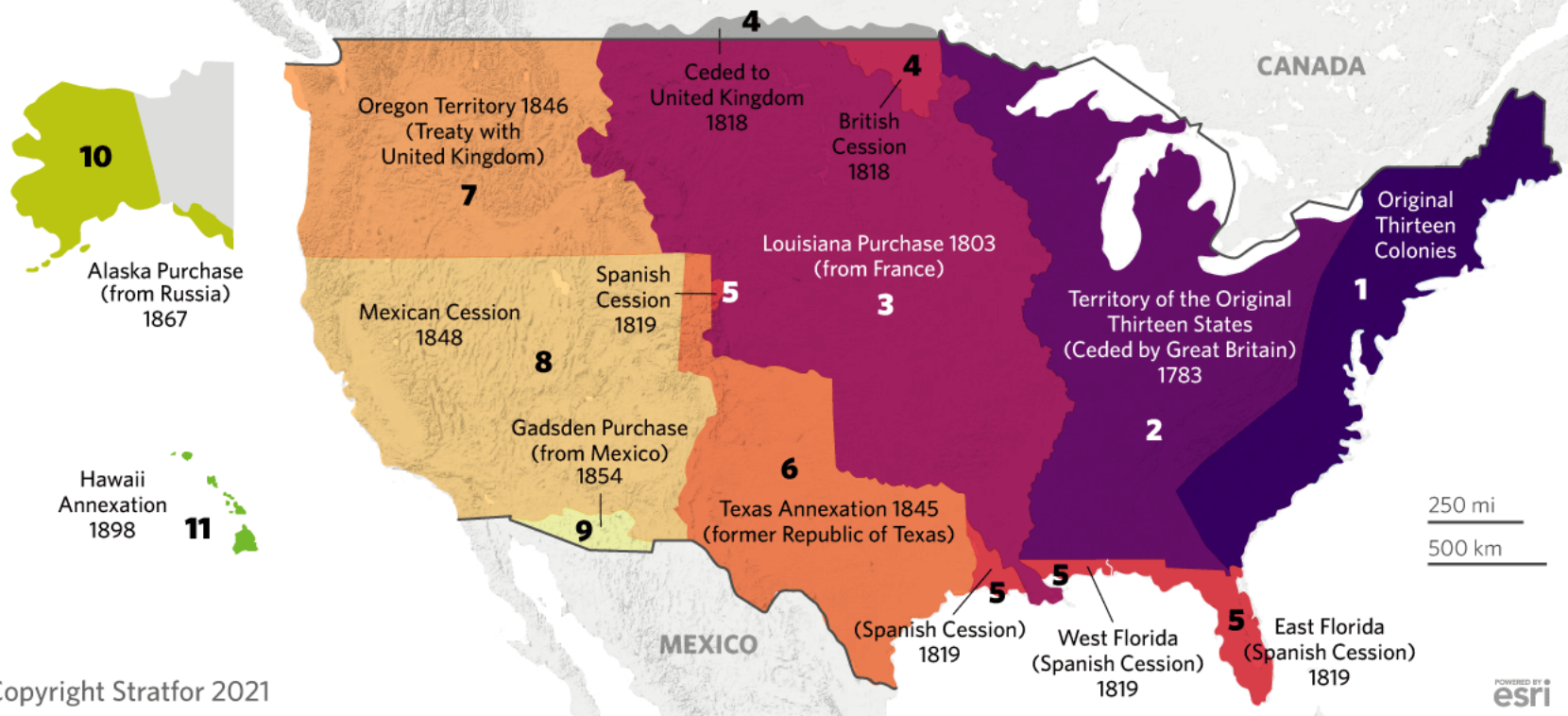
Data: MEaSURES GFSAD1KCD, NOHRSC

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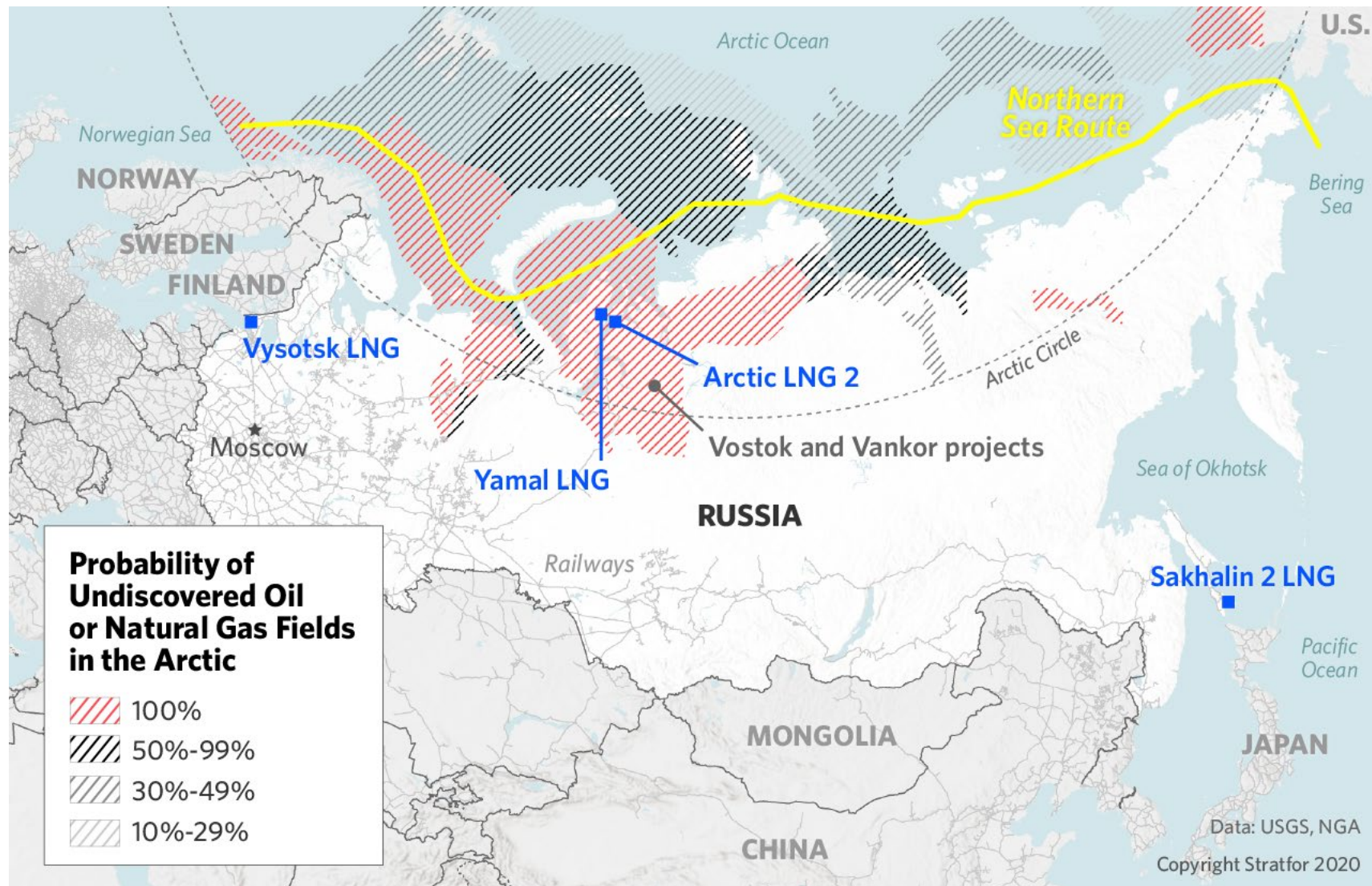
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U.S. Expansion in North America and Hawaii



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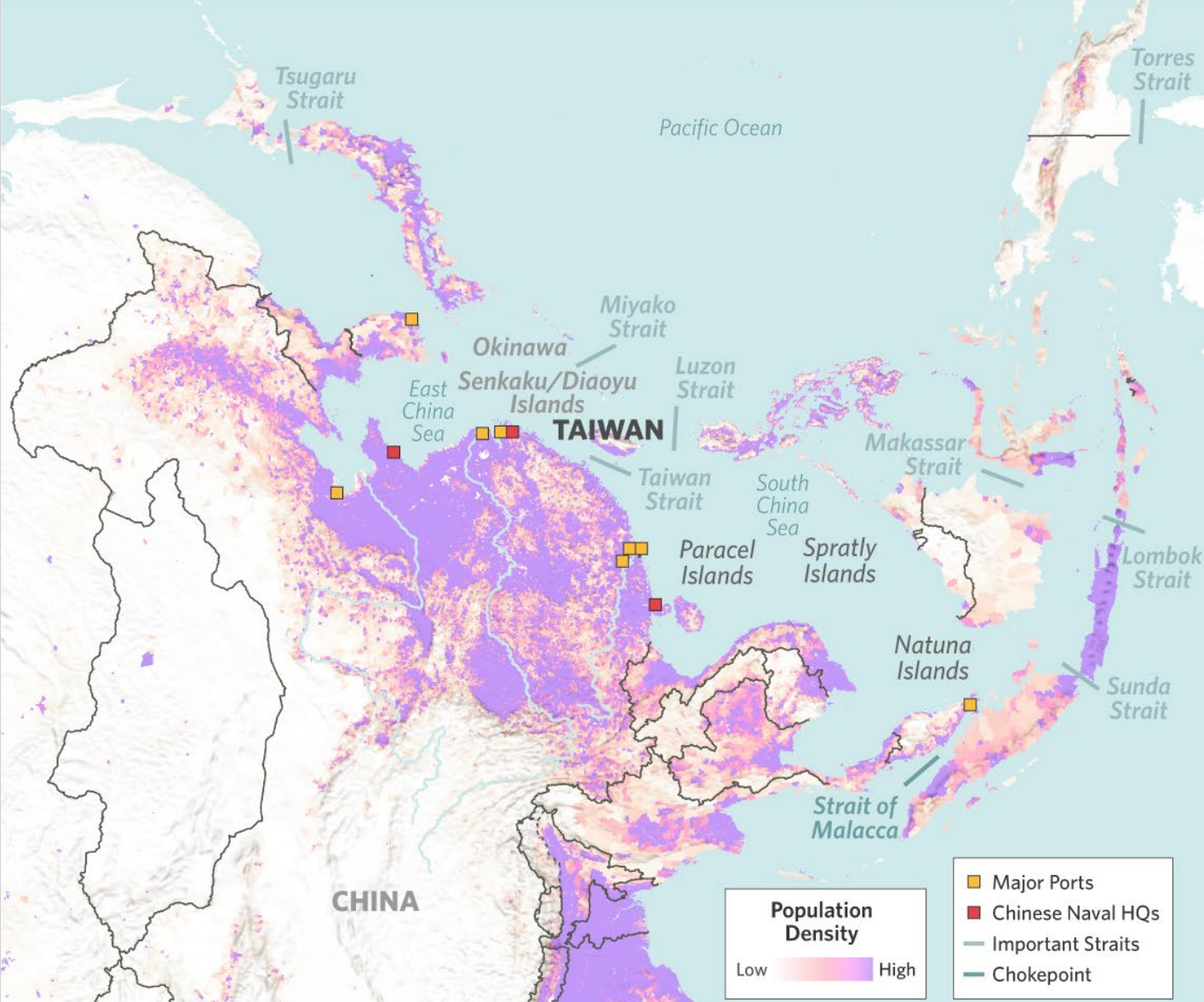




GEOGRAPHIC CHALLENGES TO CHINA'S INTERIOR DEVELOPMENT

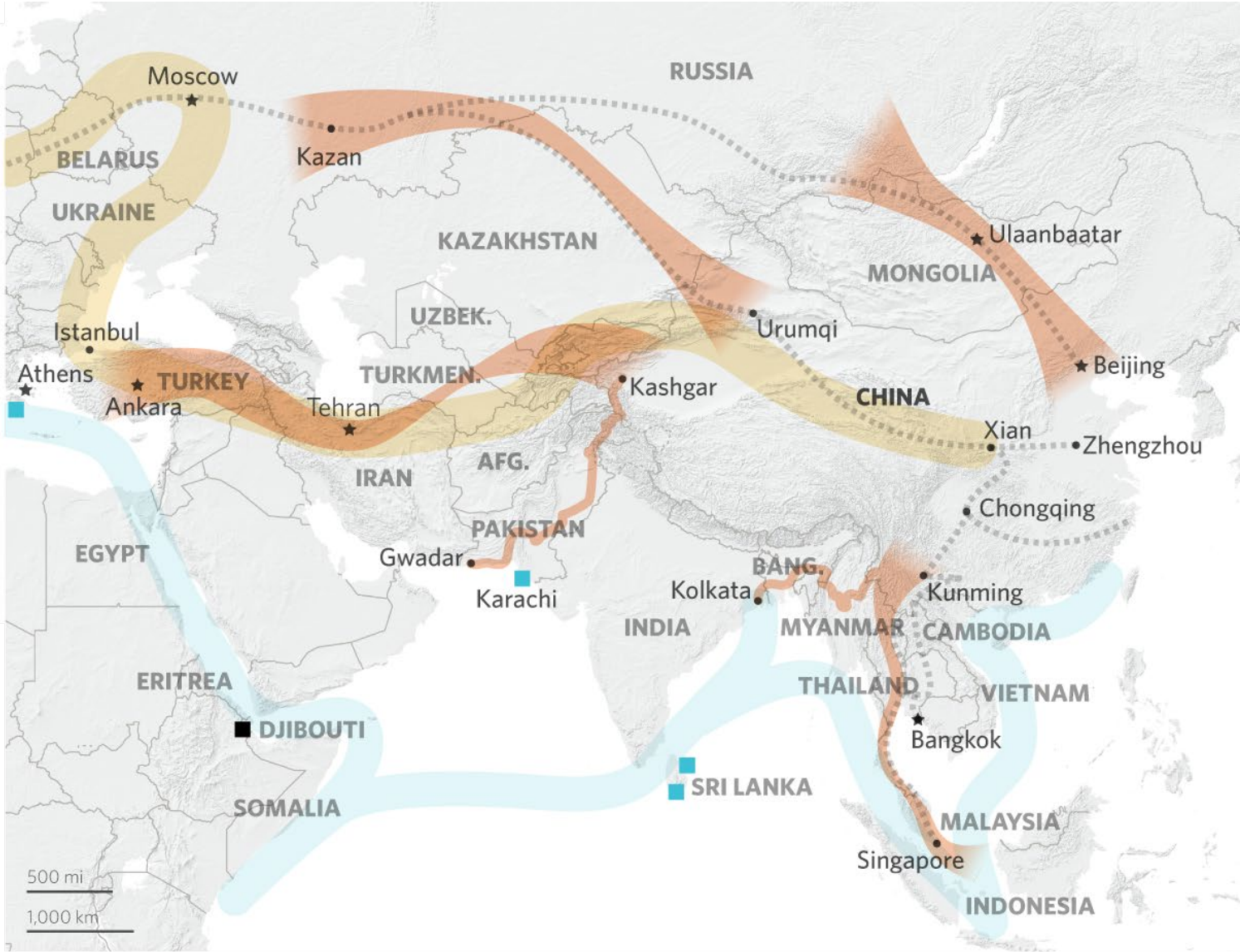


Strategic Position of Taiwan in Chinese Security



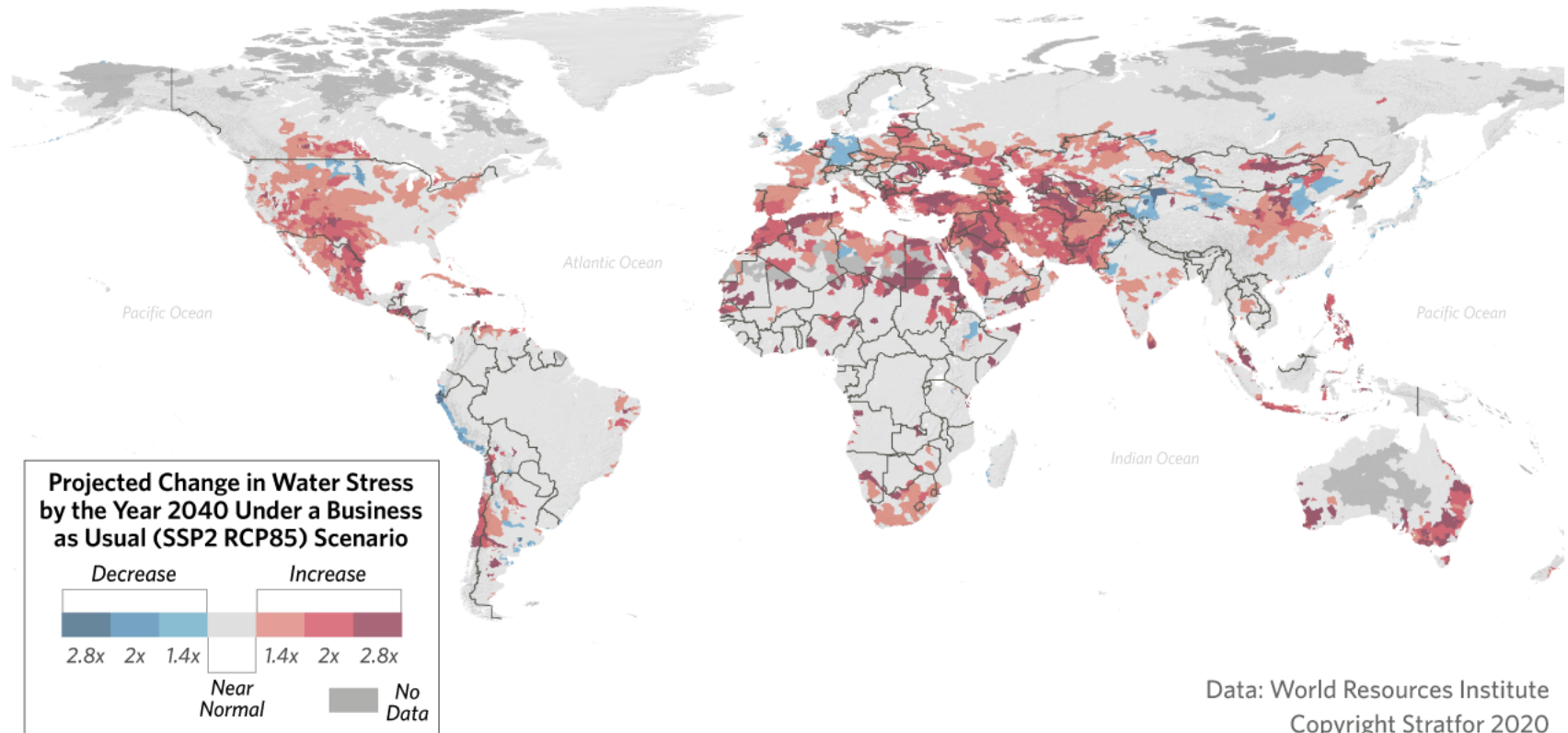
Data: NASA SEDAC, CIESIN GPWv4
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China's Belt and Road Initiative

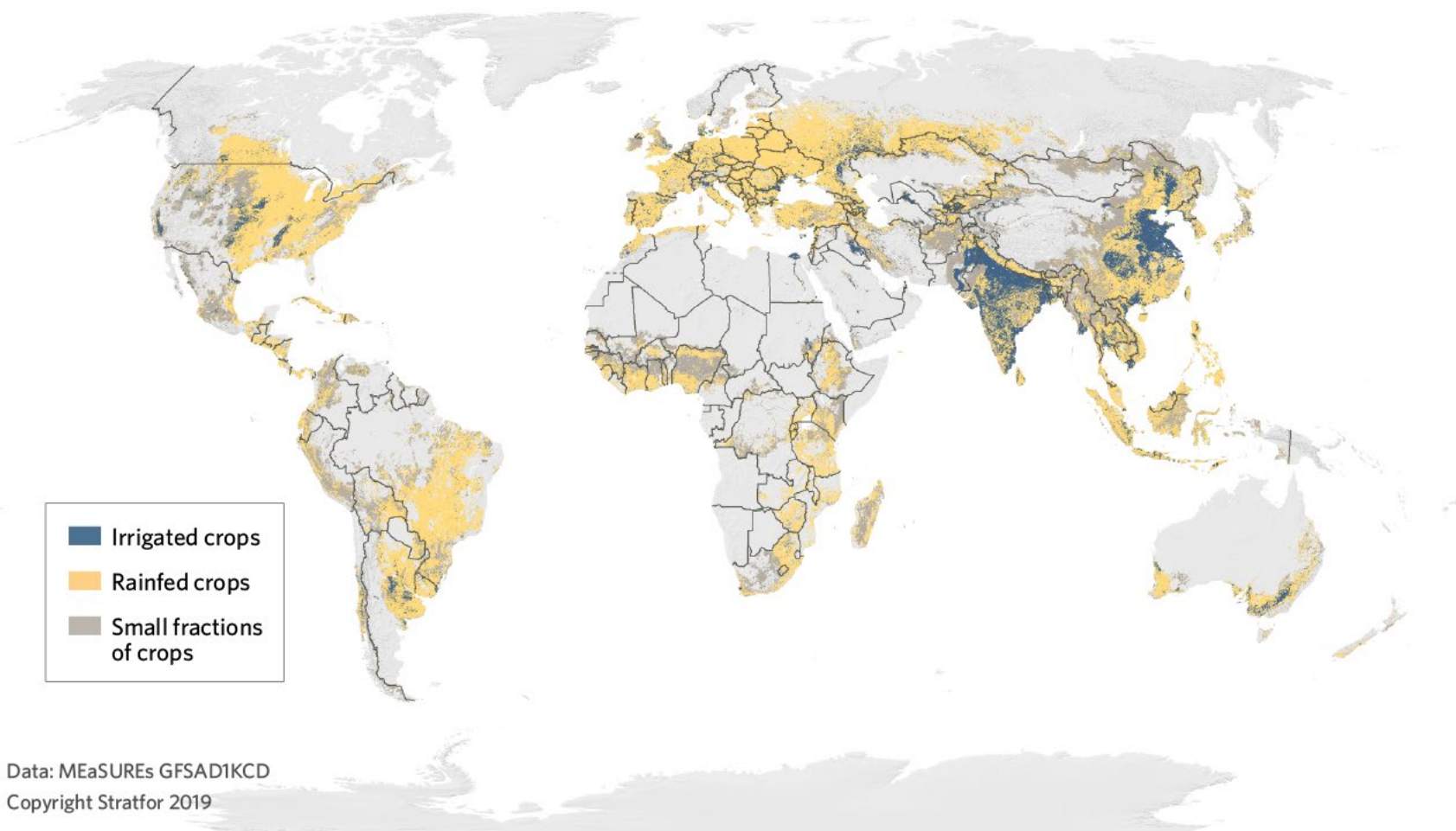


Water Stress Forecast, 2040

Patterns of climate change, conservation and usage are stressing water availability across the globe. Where water stress, population growth and underlying social tensions meet, the impact may move beyond food supplies and limits on urbanization to conflict both within countries and among them.



Data: World Resources Institute
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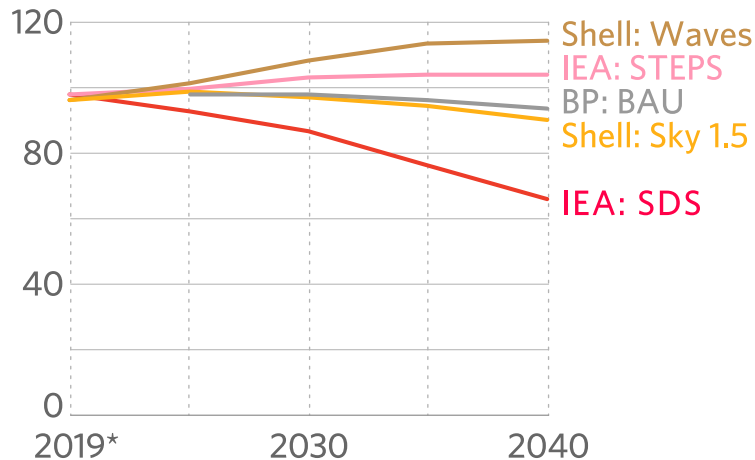


Outlook for Global Energy Demand

Dozens of different oil companies, intergovernmental agencies and other bodies have put together their own forecasts of energy demand over the next two decades. The five selected represent a diverse set of scenarios where the international community works together on climate change — Shell's Sky 1.5 and the IEA's Sustainable Development Scenario (SDS) — and others where other priorities limit international collaboration — mirroring key differences in the scenarios that we have developed.

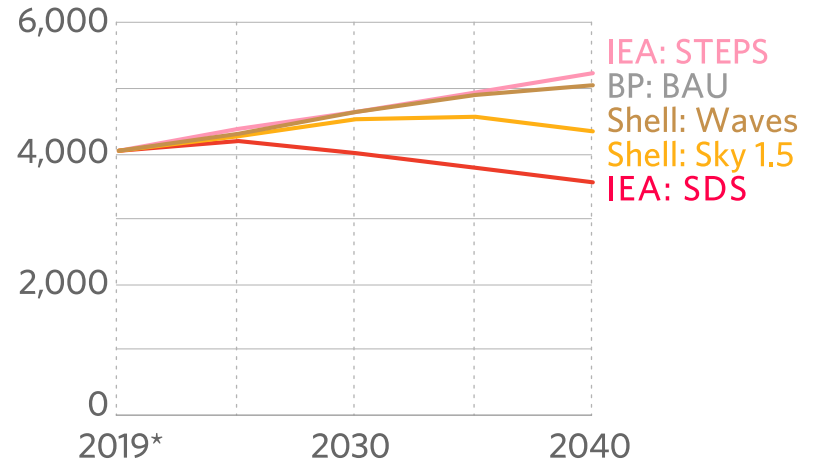
Oil

MILLION BARRELS PER DAY



Natural Gas

BCM PER YEAR



*Data for 2020 is from 2019 because each of these reports was drafted before full year 2020 data was available.

Freight Transported on U.S. Inland Waterways by Sector in 2020

Total: 596 million short tons



Source: U.S. Army Corps of Engineers

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Greenhouse Gas Emissions Intensity of Mode of Frieght Transportation

Mode of transportation	Water	Pipeline	Rail	Truck	Air
Relative GHG emissions intensity*	0.3	0.4	0.9	1.2	320.0
Share of total tonnage transported	3.4%	19.1%	9.2%	66.1%	0.01%
Share of GHG emissions	0.9%	7.4%	8.0%	80.5%	3.2%

NOTE: Frieght transport emissions make up about 30% of total trasportaion emissions

*Relative GHG Intensity = Share of greenhouse gas emmissions divided by share of tonnage trasported

Sources: CATO Organization; U.S. Bureau of Transportation Statistics

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Evolving Global Framework

Bipolar Cold War

- U.S. and allies
- Soviet Union and allies

Unipolar Moment

- U.S.
- Globalization

Three Pillars

- U.S. (security)
- China (economic)
- Europe (regulatory)

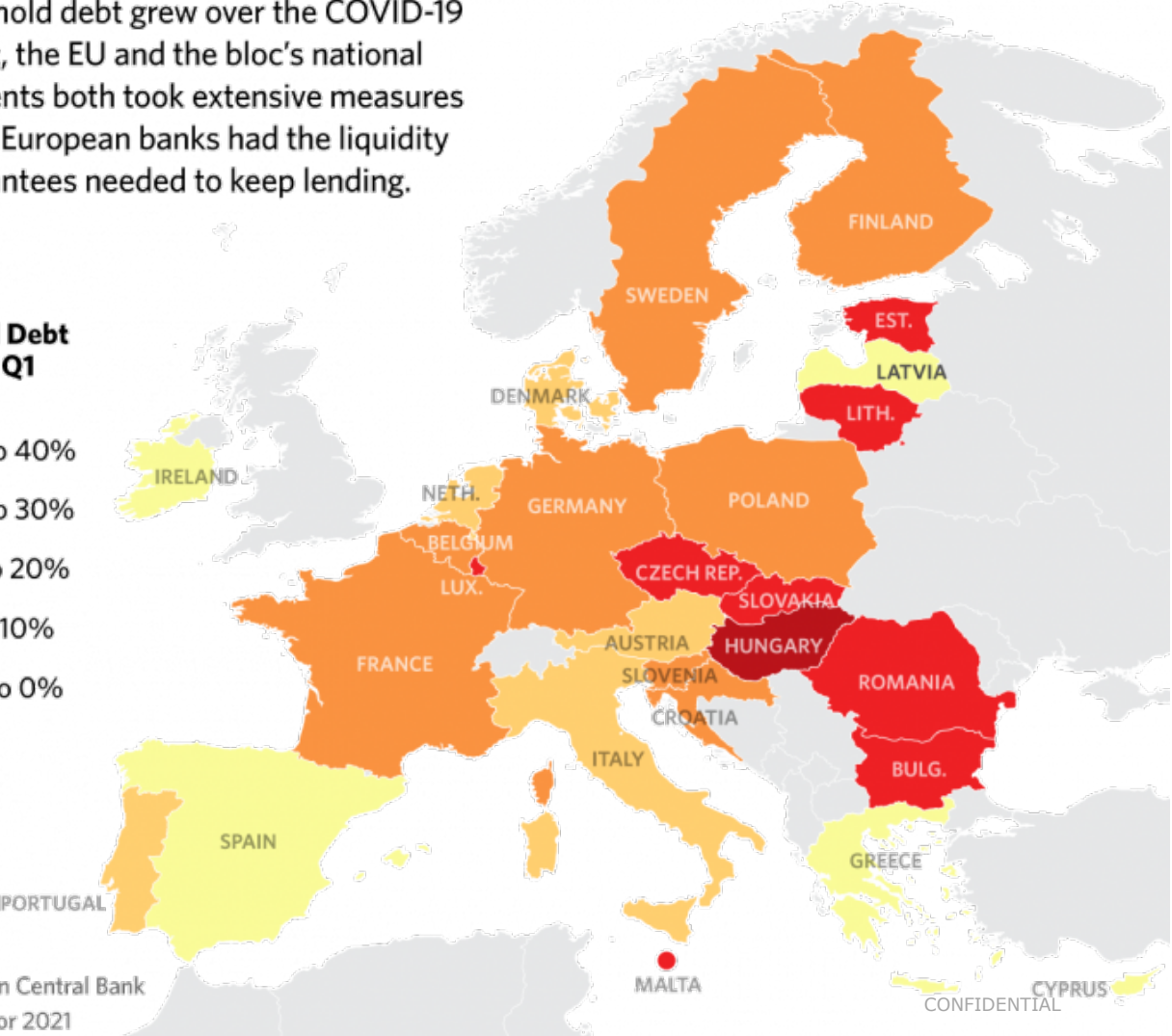
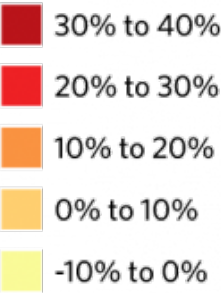
Fragmented Globalization

- Multiple poles of power
- 2+2+ (two major powers: China and the U.S., two secondary powers: Russia and Europe)

Change in EU Household Debt (2018-2021)

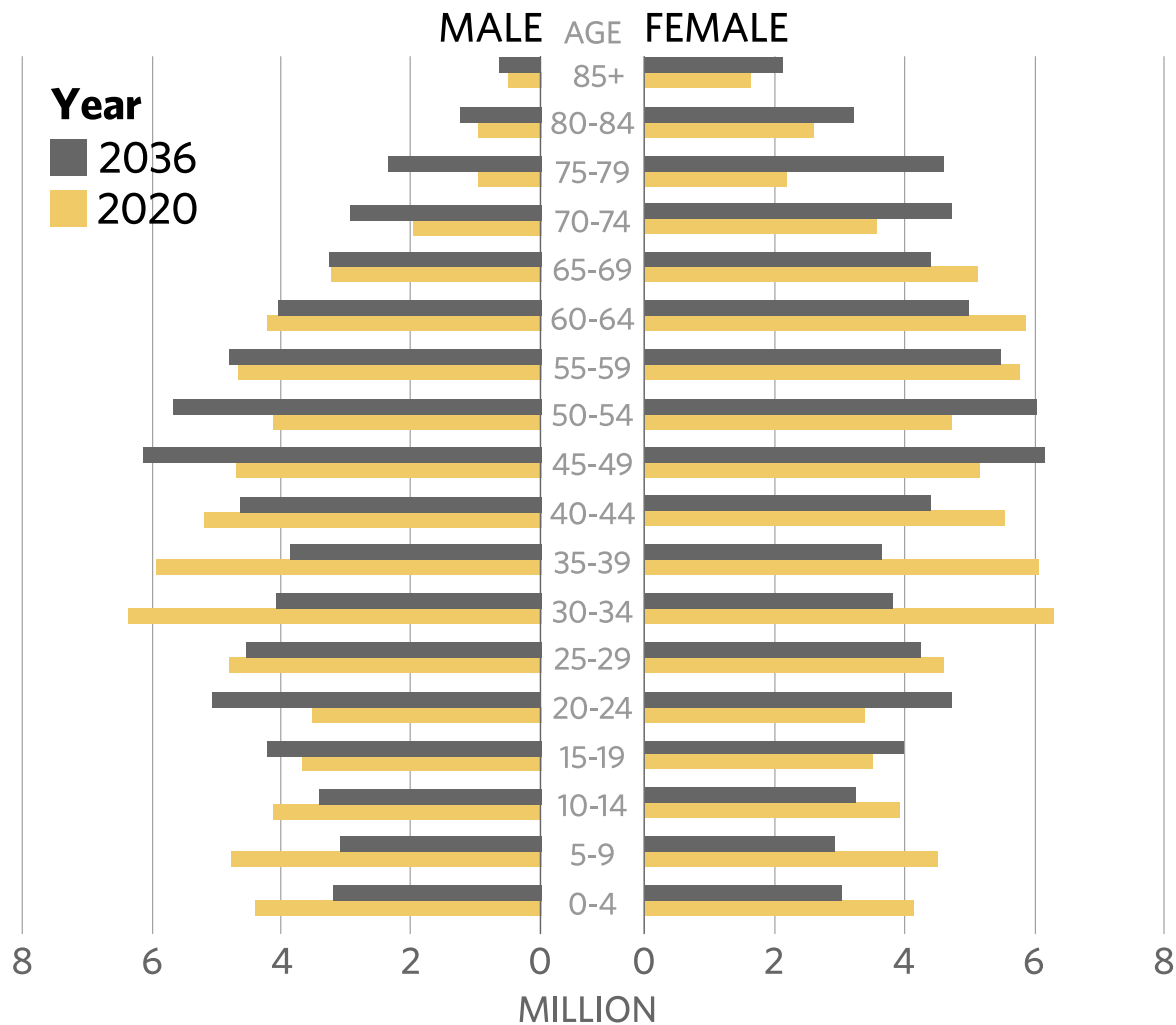
As household debt grew over the COVID-19 pandemic, the EU and the bloc's national governments both took extensive measures to ensure European banks had the liquidity and guarantees needed to keep lending.

Change in Household Debt from 2018 Q1 to 2021 Q1



Russia's Projected Population, by Age Bracket

Returning echoes of lower fertility rates, originally initiated by World War II and the financial crisis in the late 1990s, will gradually raise the demographic pressure on Russia beyond 2036.



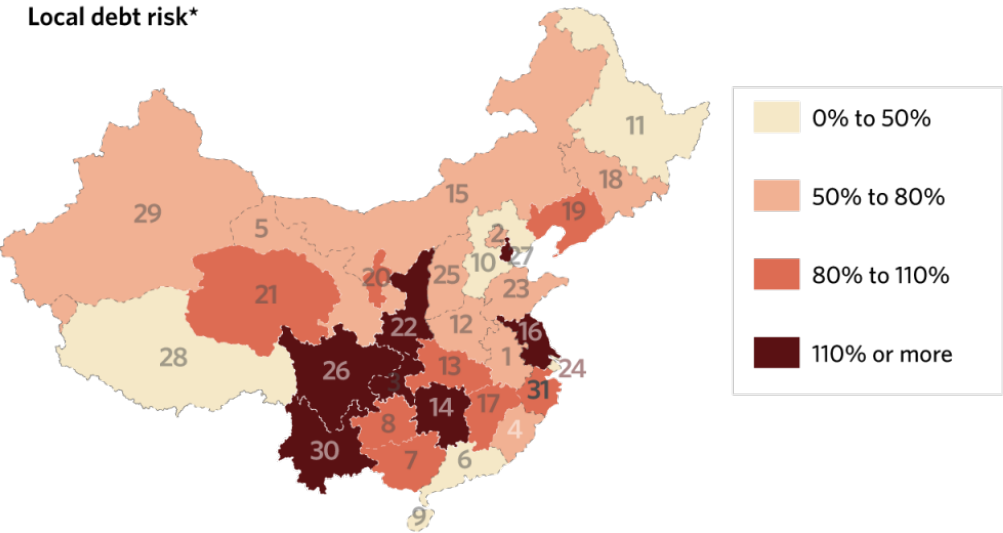
Source: Rosstat

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China's Local Debt Risk by Province, 2019

Most provincial and regional governments have been grappling with high debt and growing expenditures, meaning the tax cut could add to their stress. Some provinces in the southwest and center are facing greater challenges this year due to their relatively weak financial footing.

Local debt risk*



Provinces

- | | | | | |
|--------------|------------------|--------------------|--------------|--------------|
| 1. Anhui | 7. Guangxi | 13. Hubei | 19. Liaoning | 25. Shanxi |
| 2. Beijing | 8. Guizhou | 14. Hunan | 20. Ningxia | 26. Sichuan |
| 3. Chongqing | 9. Hainan | 15. Inner Mongolia | 21. Qinghai | 27. Tianjin |
| 4. Fujian | 10. Hebei | 16. Jiangsu | 22. Shaanxi | 28. Tibet |
| 5. Gansu | 11. Heilongjiang | 17. Jiangxi | 23. Shandong | 29. Xinjiang |
| 6. Guangdong | 12. Henan | 18. Jilin | 24. Shanghai | 30. Yunnan |
| | | | | 31. Zhejiang |

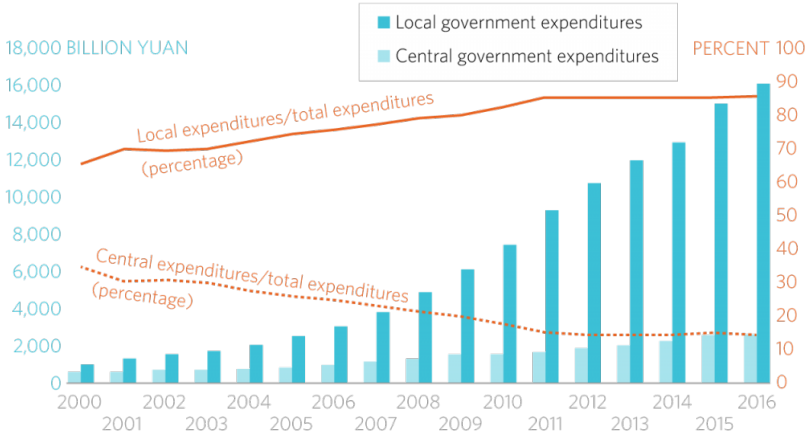
* Local Debt Risk = (Local Debt plus Local Government Financing Vehicle) / (Fiscal Revenue minus Fixed Expenditure)

Sources: Government budget report; Wind; Guosheng Securities; Ministry of Commerce, National Bureau of Statistics
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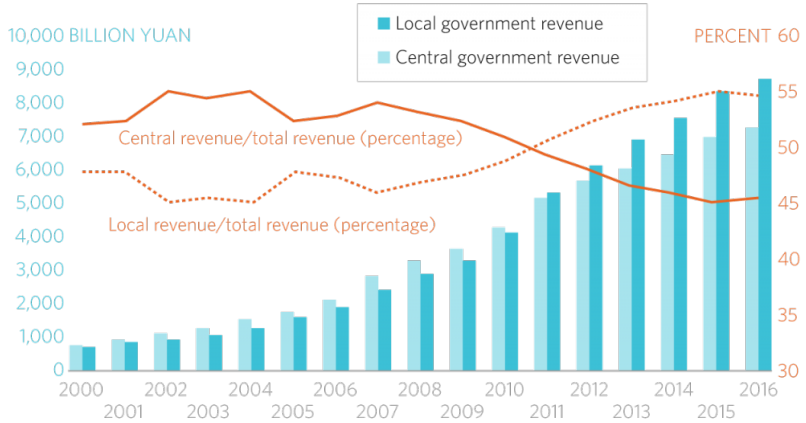
China's Local vs. Central Fiscal Structure

Since the 1994 tax reform, when the central government reasserted fiscal authority, the share of fiscal revenue to local governments significantly declined. Those governments are also bearing the cost of growing spending -- everything from public services to education and infrastructure projects. The fiscal imbalance was particularly magnified by the 2008 financial crisis.

Expenditure



Revenue

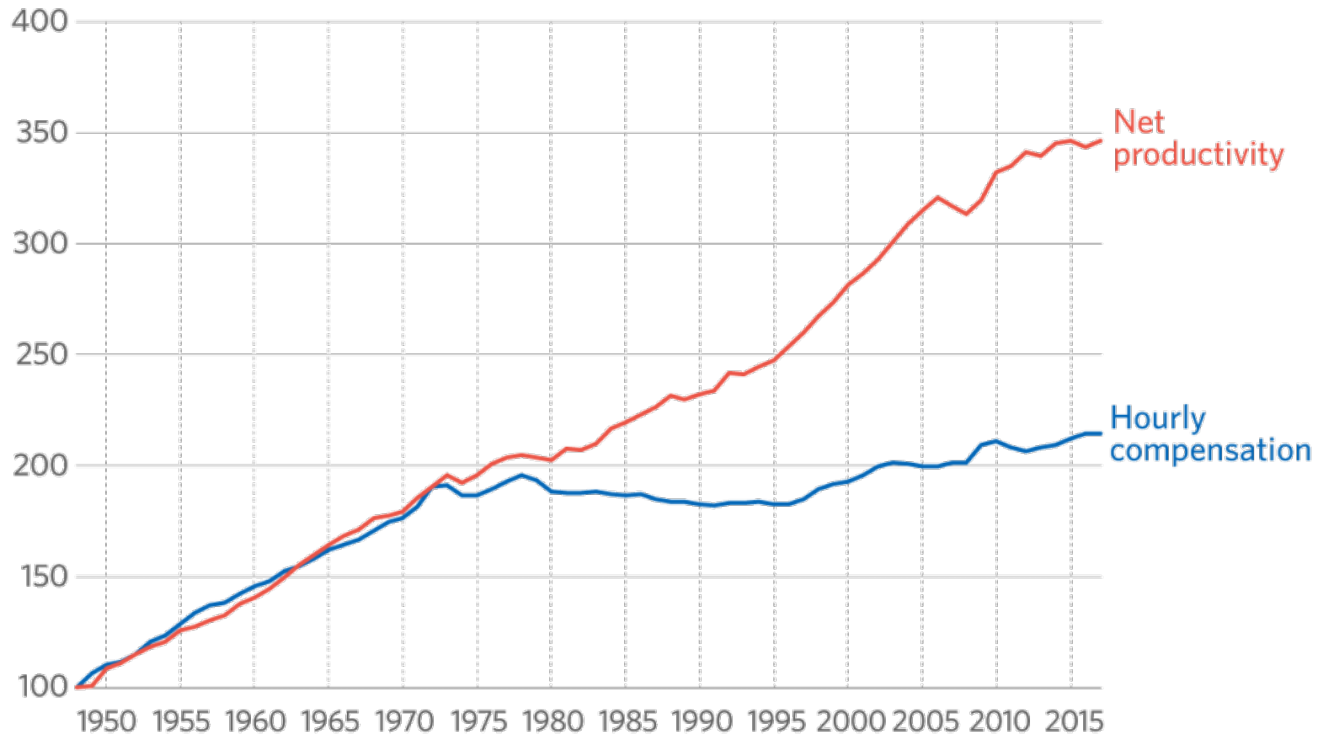


Sources: WIND, Ministry of Commerce, China Merchant Securities

The Broken Link Between U.S. Productivity and Pay

U.S. productivity and labor income growth have diverged widely since 1973. Between then and 2017, productivity grew by more than 77 percent, while hourly pay increased by 12 percent.

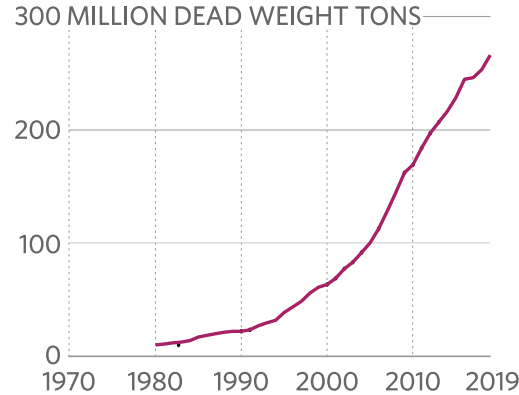
U.S. Worker Productivity and Pay Index, 1948-2017; 1948 = 100



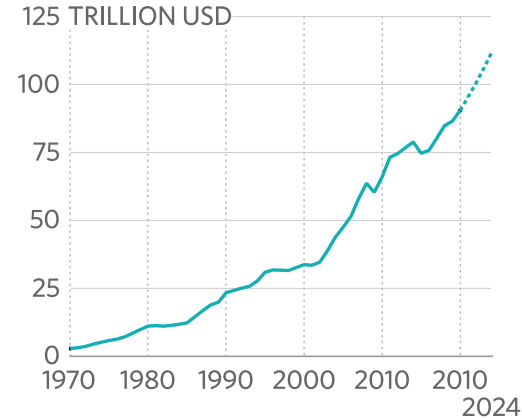
Global Shipping, Trade and GDP

Global trade and increasingly long and complex supply chains have been the defining features of the post Cold War world. But with demographic shifts, technological developments and rising economic nationalism, a new model may emerge.

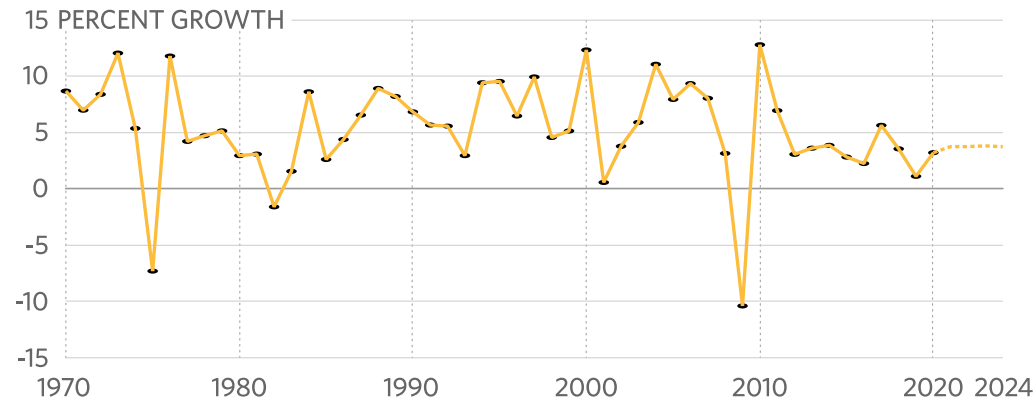
World Shipping



World GDP



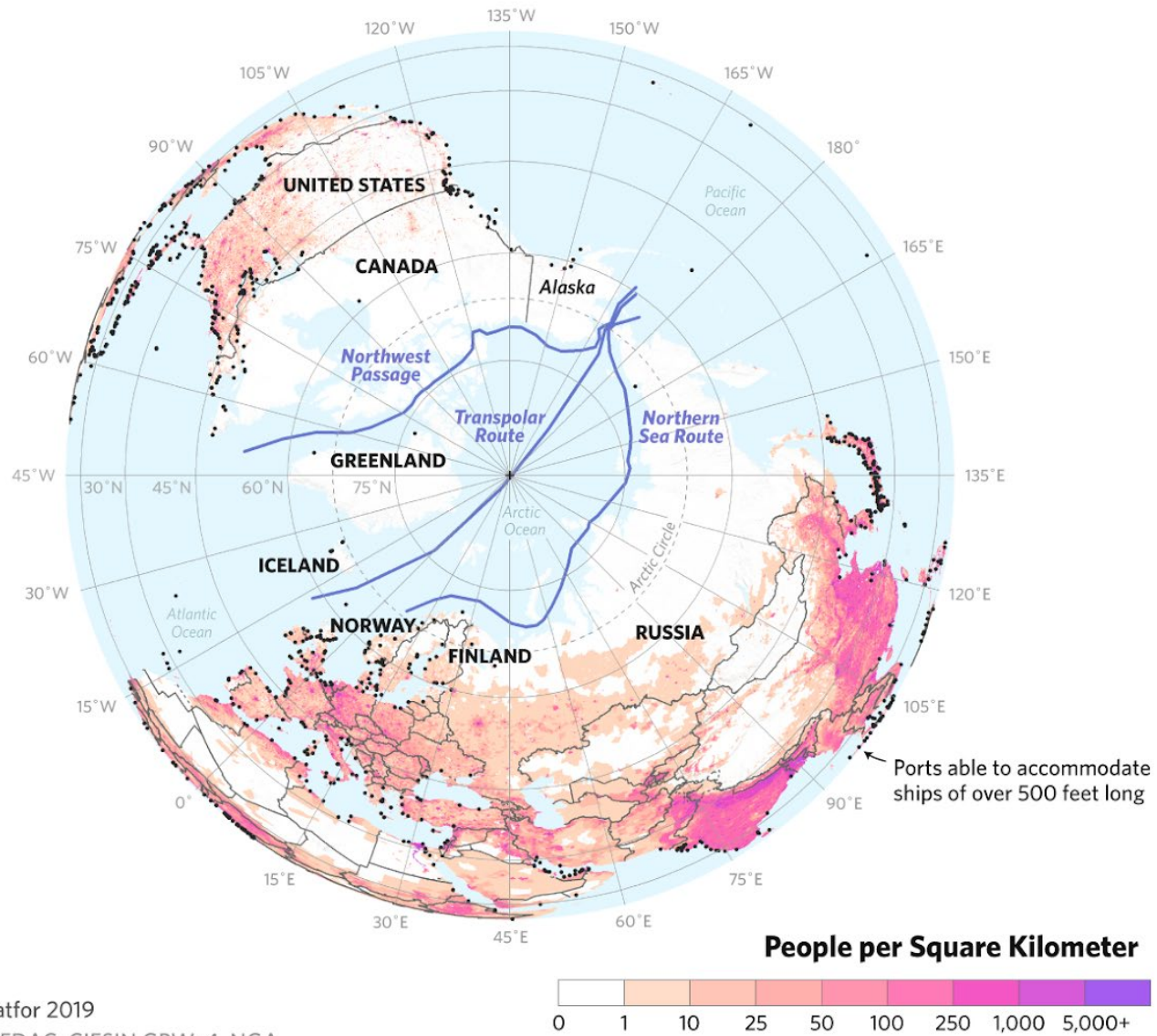
World Trade Volume



世界知识地图







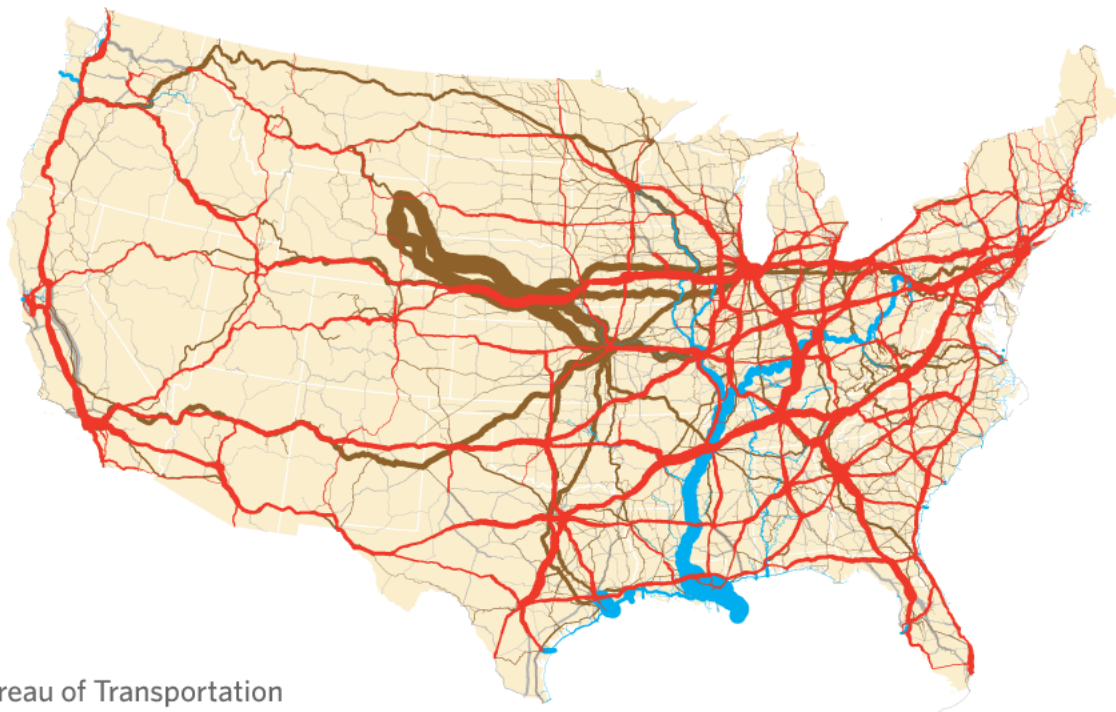
Frieght Transport Volume by Mode of Movement

For year 2010

Mode

- Interstate highways
- Non-interstate highways
- Railroad
- Inland waterway

Volume Scale (Tons/Year)



Copyright Stratfor 2021 Source: U.S. Bureau of Transportation



Globally engaged individuals and organizations join Stratfor Worldview for objective geopolitical intelligence and analysis that reveals the underlying significance and future implications of emerging world events.

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