

# China Global Energy Database:

## New Money, New Model, New Risks, New Benefits

BU Global Economic Governance Initiative



### China's Global Energy Finance

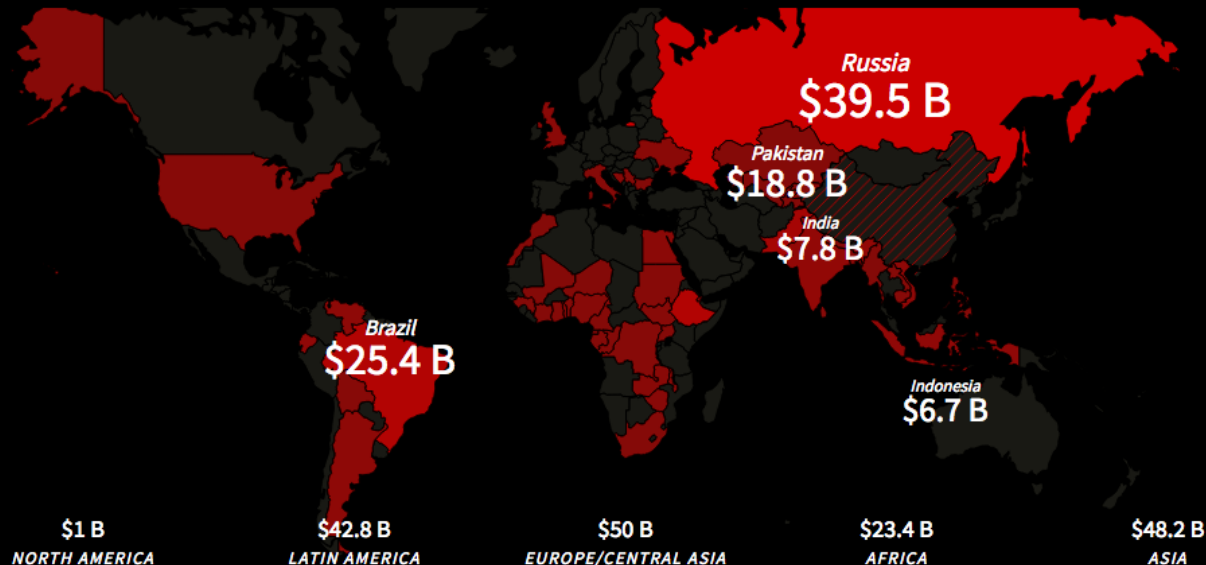
Chinese Development Bank (CDB) and Export-Import Bank of China (Ex-Im)

YEARS: 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 ALL

ABOUT

LOCATIONS ENERGY SOURCES ENERGY SUB-SECTORS LENDERS

ENERGY SOURCES  
ENERGY SUB-SECTORS  
LENDERS



Kevin P. Gallagher

Professor of Global Development Policy, Pardee School of Global Studies  
Global Economic Governance Initiative, Boston University

[www.bu.edu/gegi](http://www.bu.edu/gegi)



# Roadmap

- Overview of China's global policy banks
- China **Global Energy Database**-key trends
- Comparison with MDBs
- Risks and Benefits of China model

# China's global policy banks

## China Development Bank

- Non-concessional loans
- Overseas Investment Support\*

国家开发银行

China Development Bank

## Export-Import Bank of China

- Non-concessional loans
- Concessional loans
- Overseas Investment Support\*
- Trade Credits\*



中国进出口银行

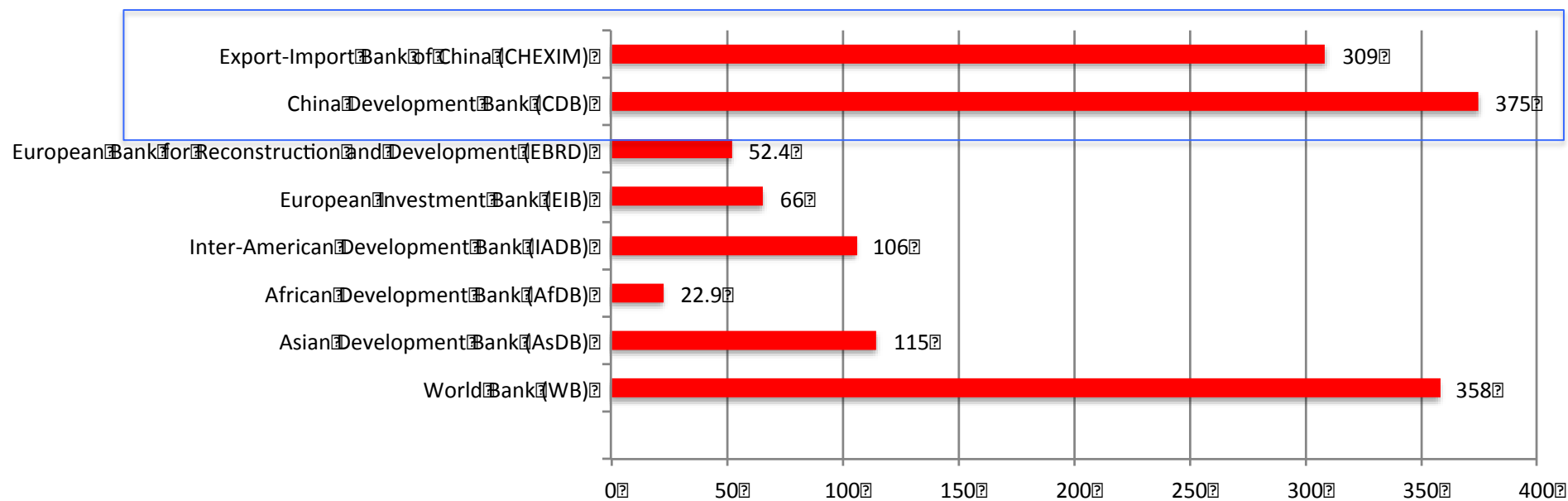
THE EXPORT-IMPORT BANK OF CHINA

\* For Chinese and sometimes host country companies

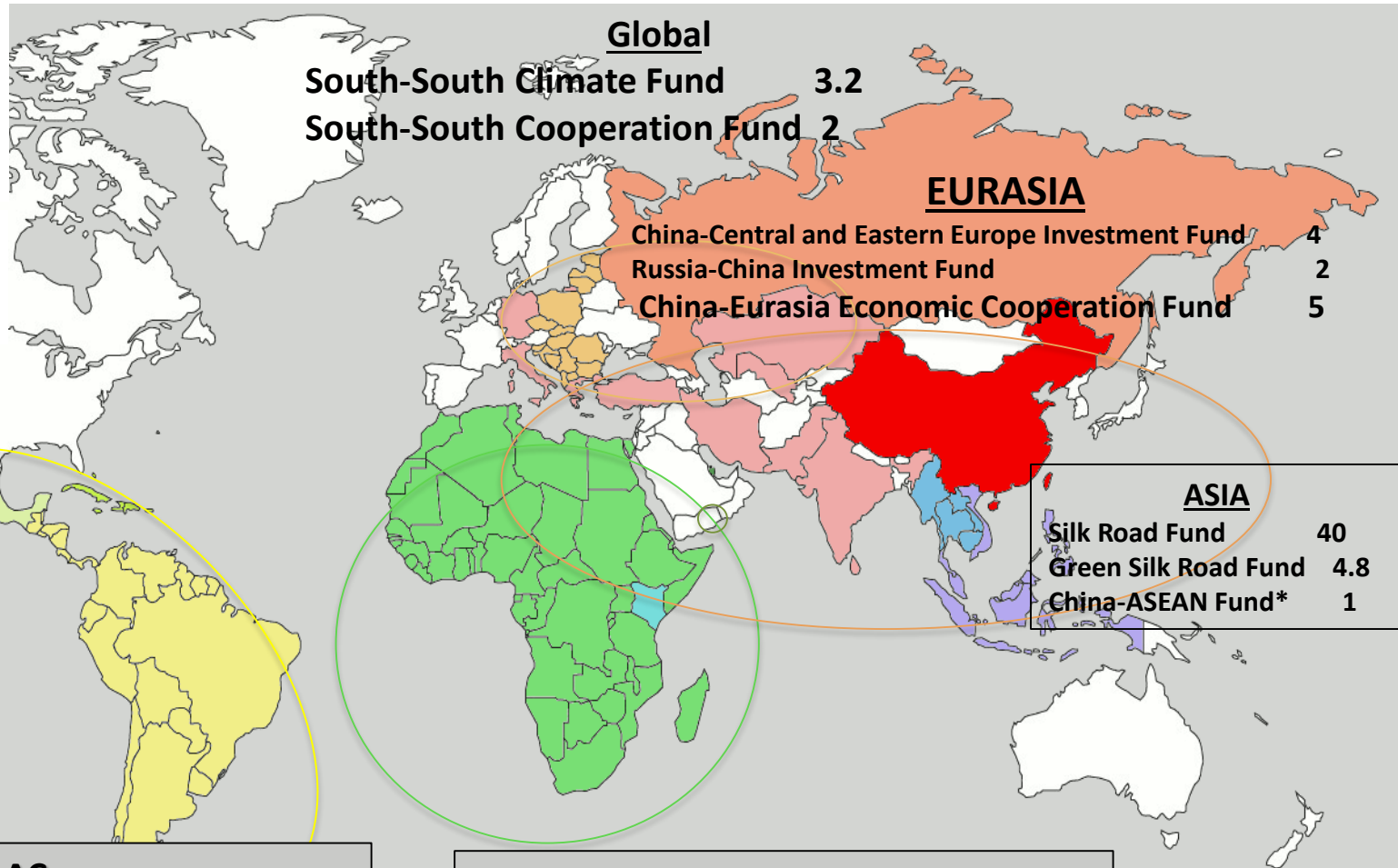
# Bigger than Bretton Woods

## China's National Development Banks in Context:

Global Assets (bn USD)



# China-backed Development Finance



# Chinese Energy Finance: Over \$160b Across the Globe

BU Global Economic Governance Initiative



## China's Global Energy Finance

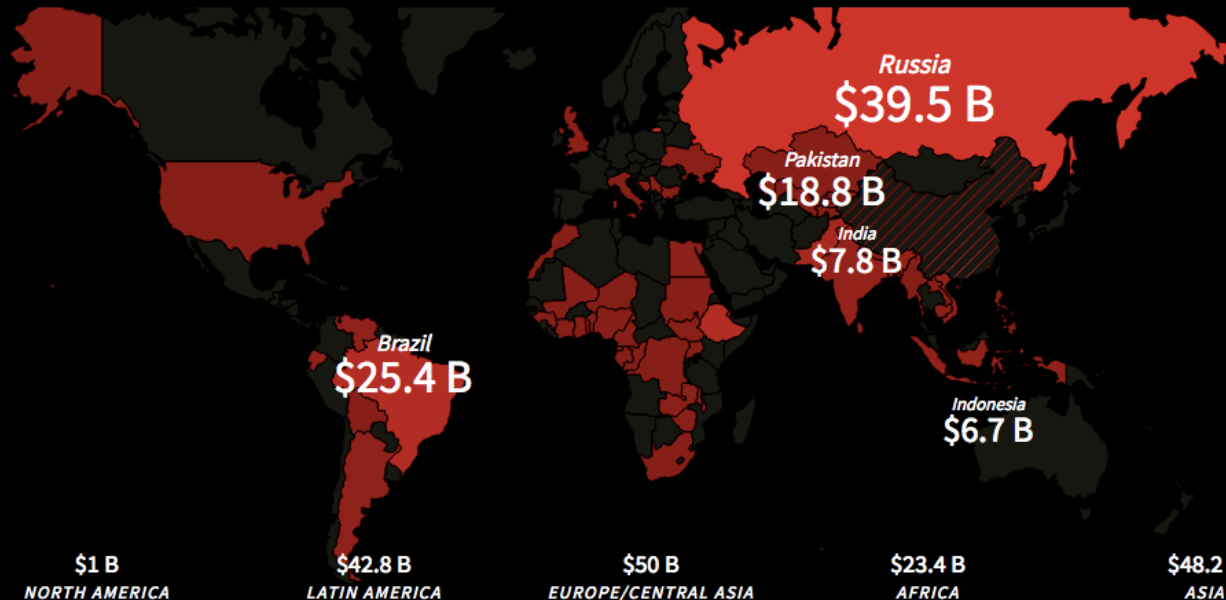
Chinese Development Bank (CDB) and Export-Import Bank of China (Ex-Im)

YEARS: 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 ALL

ABOUT

LOCATIONS ENERGY SOURCES ENERGY SUB-SECTORS LENDERS

ENERGY SOURCES  
ENERGY SUB-SECTORS  
LENDERS



Total Global  
\$165.4 B

<http://www.bu.edu/cgef>

Global Economic  
Governance Initiative





# Chinese Energy Finance 2016: +\$40b, largest thus far



Global Economic Governance Initiative



## China's Global Energy Finance

Chinese Development Bank (CDB) and Export-Import Bank of China (Ex-Im)

YEARS: 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 **ALL**

**ABOUT**



**LOCATIONS**

**ENERGY SOURCES**

**ENERGY SUB-SECTORS**

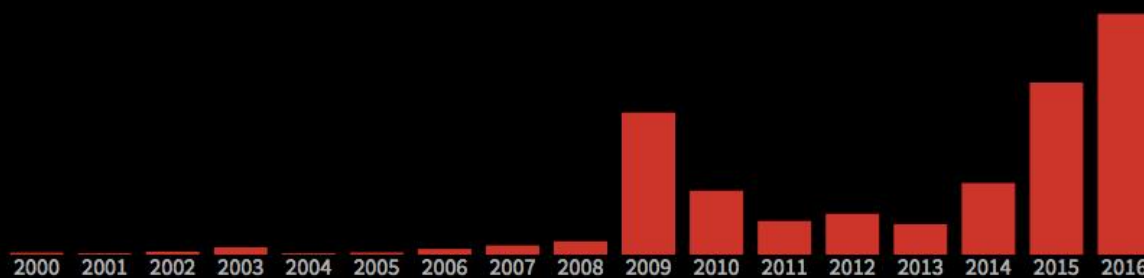
**LENDERS**

ENERGY SOURCES

ENERGY SUB-SECTORS

LENDERS

Global



<http://www.bu.edu/cgef>

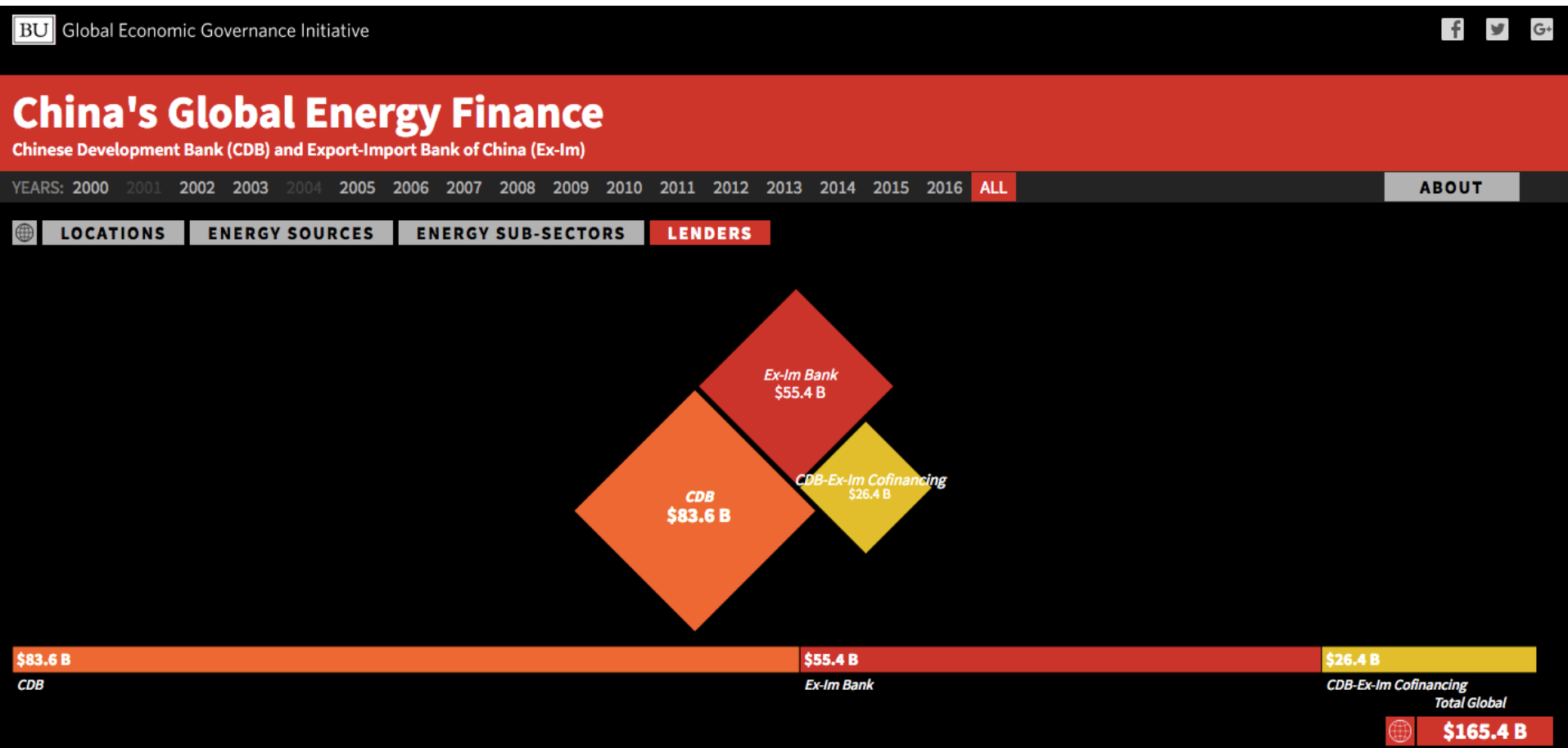


## Development Bank Finance for Energy, 2007-2014

<u>Bank</u>		<u>(\$USm)</u>	<u>annual ave</u>
World Bank	[REDACTED]	72,219	[REDACTED]0,317
AsDB	[REDACTED]	25,410	[REDACTED]B,630
IADB	[REDACTED]	9,631	[REDACTED]A,376
AfDB	[REDACTED]	11,676	[REDACTED]E,668
China Banks	[REDACTED]	117,590	[REDACTED]16,799
China Banks	[REDACTED]	117,590	[REDACTED]16,799
MDBs	[REDACTED]	118,936	[REDACTED]16,991
Total	[REDACTED]	236,526	

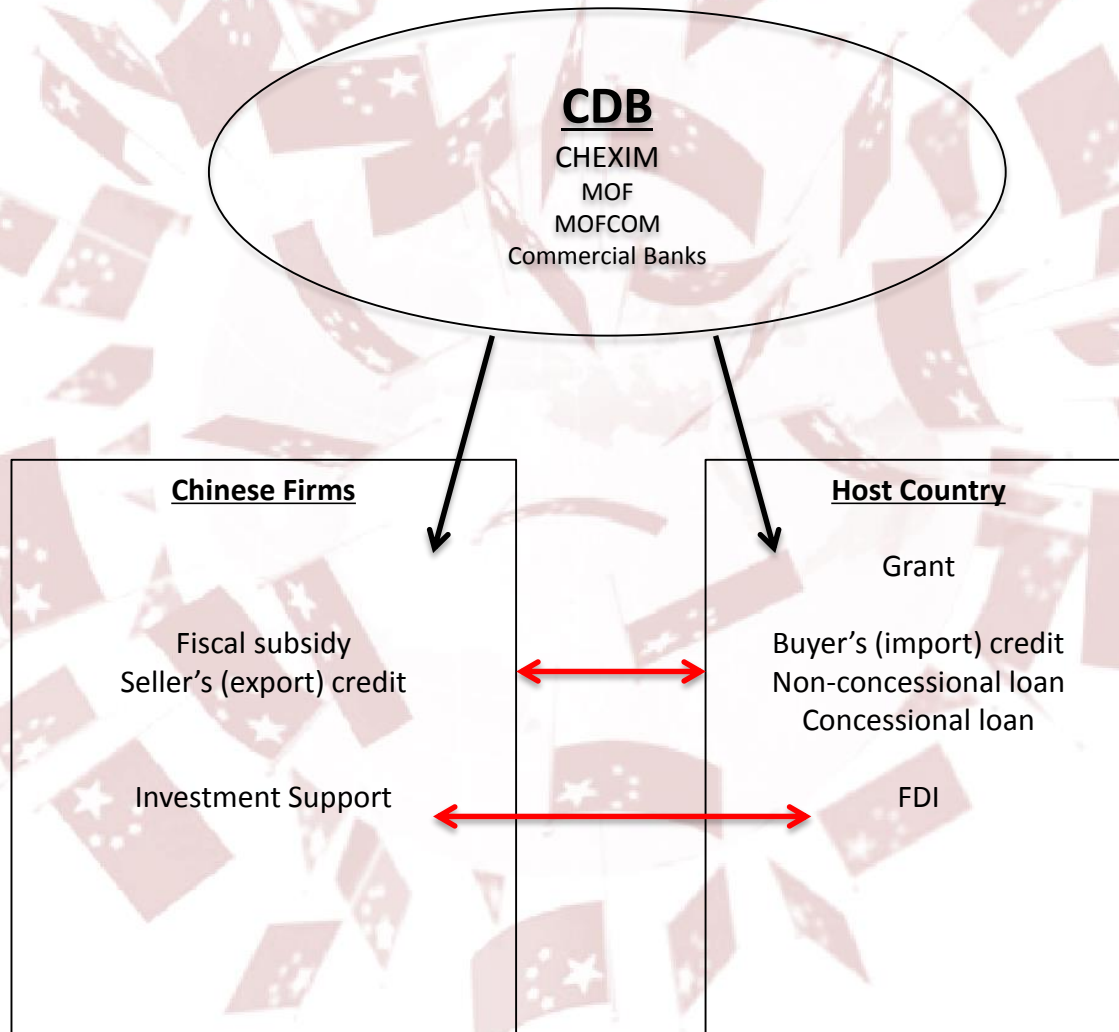


# CDB leads the way



<http://www.bu.edu/cgef>

# The China 'Consortia'



# Composition of Chinese Energy Finance

BU Global Economic Governance Initiative



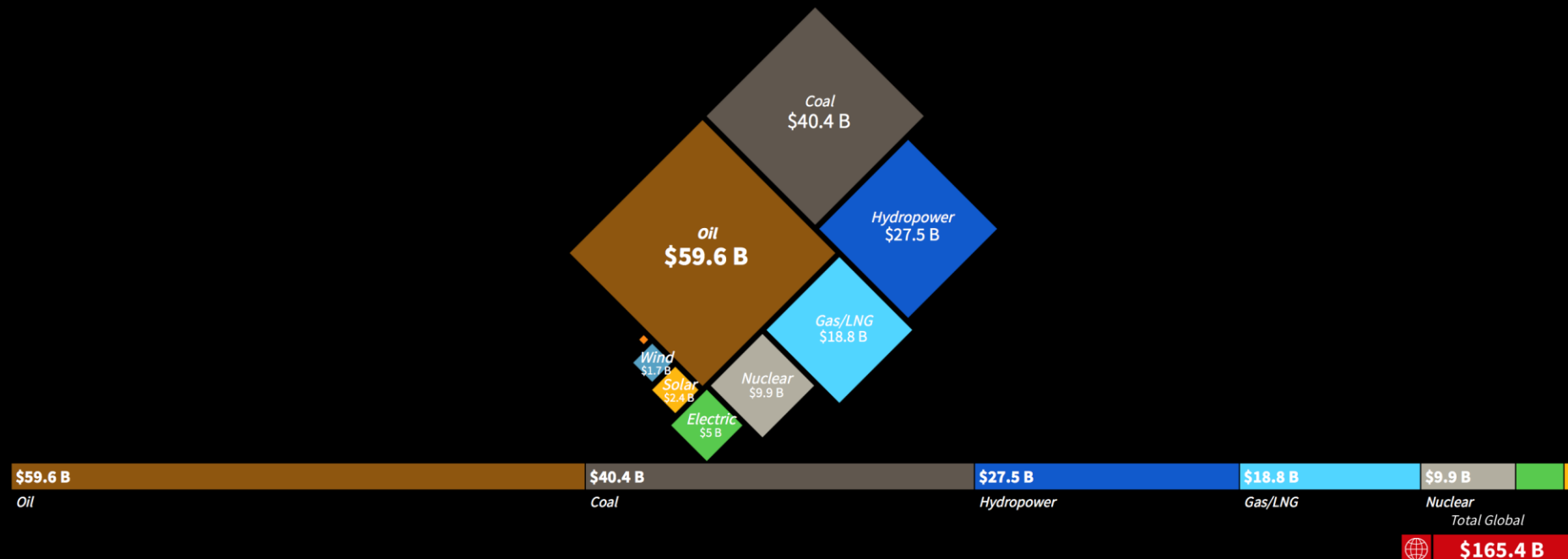
## China's Global Energy Finance

Chinese Development Bank (CDB) and Export-Import Bank of China (Ex-Im)

YEARS: 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 **ALL**

**ABOUT**

**LOCATIONS** **ENERGY SOURCES** **ENERGY SUB-SECTORS** **LENDERS**



<http://www.bu.edu/cgef>

Global Economic  
Governance Initiative

BU

# Sectoral Distribution: POWER

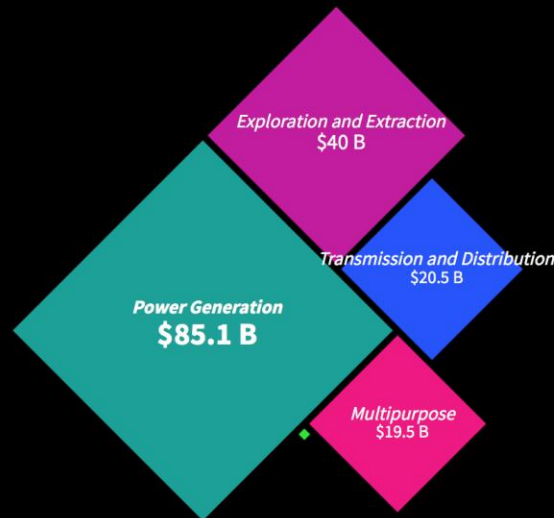
## China's Global Energy Finance

Chinese Development Bank (CDB) and Export-Import Bank of China (Ex-Im)

YEARS: 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 ALL

ABOUT

LOCATIONS ENERGY SOURCES ENERGY SUB-SECTORS LENDERS



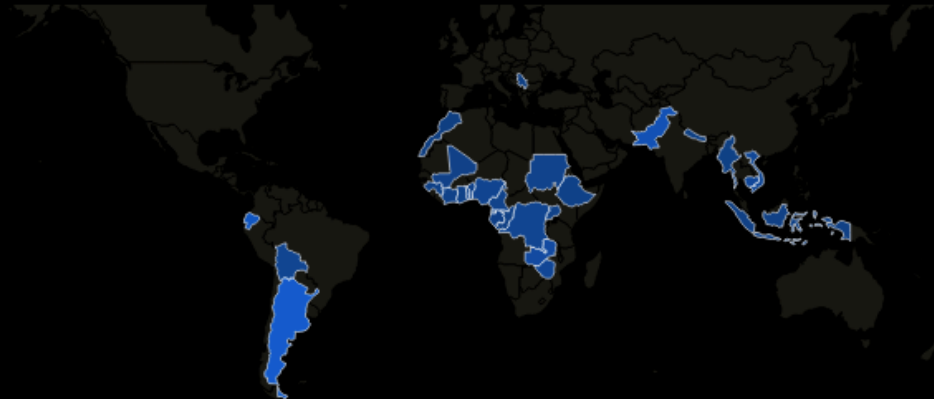
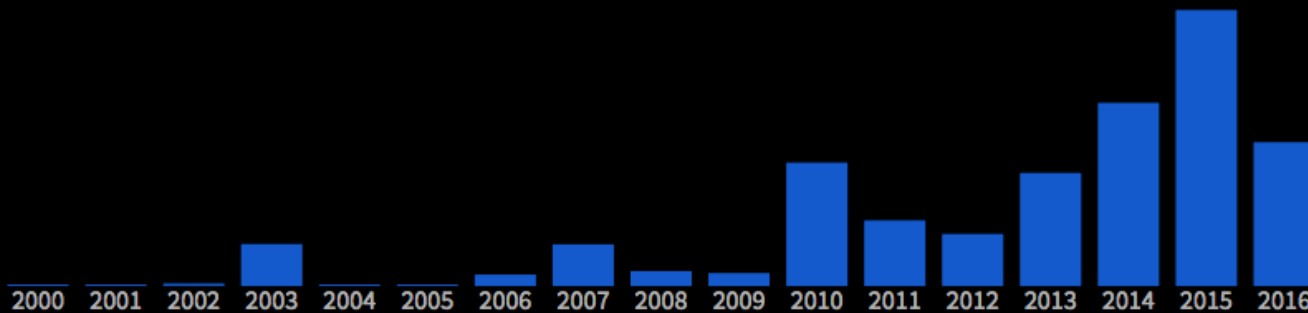
# Power: Coal and Hydro

**Distribution of Power Projects across Development Banks, 2007-2014**

	<u>China</u>	<u>WB</u>	<u>IADB</u>	<u>AfD</u>	<u>AsDB</u>
coal	66%	0%	0%	3%	7%
gas	2%	25%	1%	0%	0%
oil	5%	2%	6%	3%	0%
hydro	27%	50%	79%	53%	62%
wind	1%	5%	0%	0%	15%
solar	0%	16%	12%	41%	6%
bioenergy	0%	2%	1%	0%	10%
Renewable <sup>2</sup>	28%	73%	93%	94%	93%
Renewable <sup>2</sup> Non-hydro	1%	23%	14%	41%	31%

# Project Detail

## Hydropower



3	Pakistan – 3 projects	<a href="#">collapse all</a>	\$3.4 B
▼	PROJECT: Karot Hydropower Project		\$1.6 B
	LOCATION: Karot Village, Islamabad, Pakistan   BORROWER: Government   LENDER: CDB-Ex-Im Cofinancing   ENERGY SOURCE: Hydropower   ENERGY SUB-SECTOR: Power Generation		
▼	PROJECT: Suki Kinari Hydropower Project with ICBC		\$1.4 B
	LOCATION: Mansehra District, Khyber Pakhtunkhwa   BORROWER: Government   LENDER: Ex-Im Bank   ENERGY SOURCE: Hydropower   ENERGY SUB-SECTOR: Power Generation		
▼	PROJECT: Neelum–Jhelum Hydropower Plant		\$448 M





Chinese Energy Development Finance

# RISKS AND BENEFITS

# Risk(ier) Business

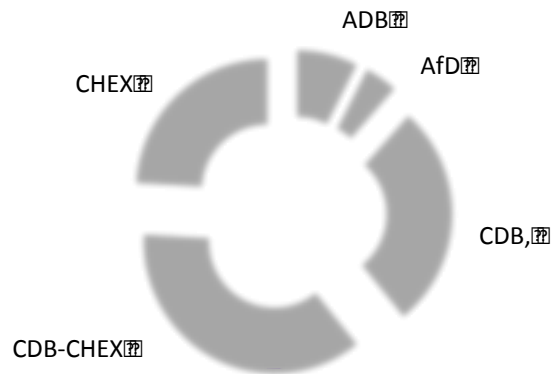
## Twenty-Top-Recipients-of-Chinese-Energy-Finance

<u>Country</u>	<u>Amount (\$m)</u>	<u>no WB</u>	<u>OECD risk rating</u>
Russia	31,000	*	4
Brazil	12,576		4
India	8,944		3
Ecuador	8,374	*	6
Turkmenistan	8,100	*	6
Pakistan	6,948	*	7
Indonesia	6,935		3
Venezuela	6,020	*	7
Vietnam	5,171		5
Argentina	4,914	*	7
Ethiopia	2,277	*	7
Niger	2,215	*	7
Sudan	2,084	*	7
Cambodia	1,776	*	6
Ghana	1,713		6
Kazakhstan	1,647	*	6
Sri Lanka	1,341	*	6
Bosnia & Herzegovina	1,326	*	7
Zambia	1,187		5
Tanzania	1,164		6

# Coal Increasingly Risky

## Development Bank Coal Finance

(\$USB)

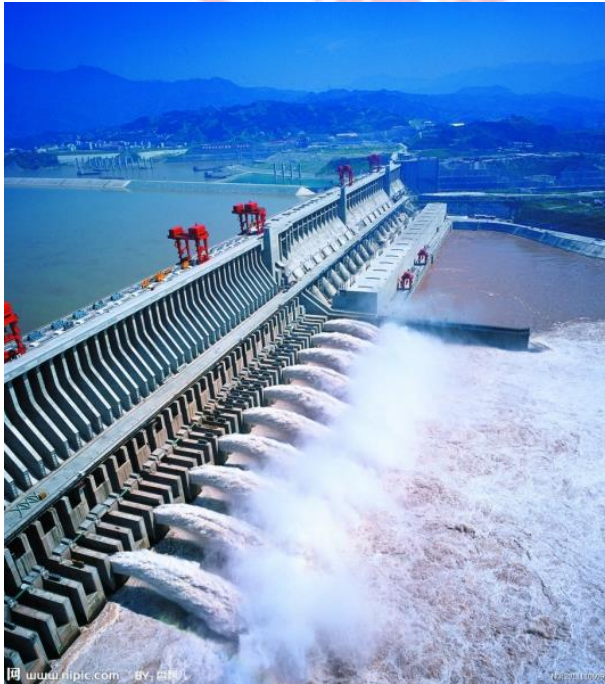


- 66 percent of all Chinese overseas power plants
- 58 percent of the coal plants are subcritical
- Annual emissions 594 MMT
- Estimated annual social costs \$29.7 billion (\$117 – 892 over lifetime)
- Potential for stranded assets





# Big Hydro (Can be) Risky Too

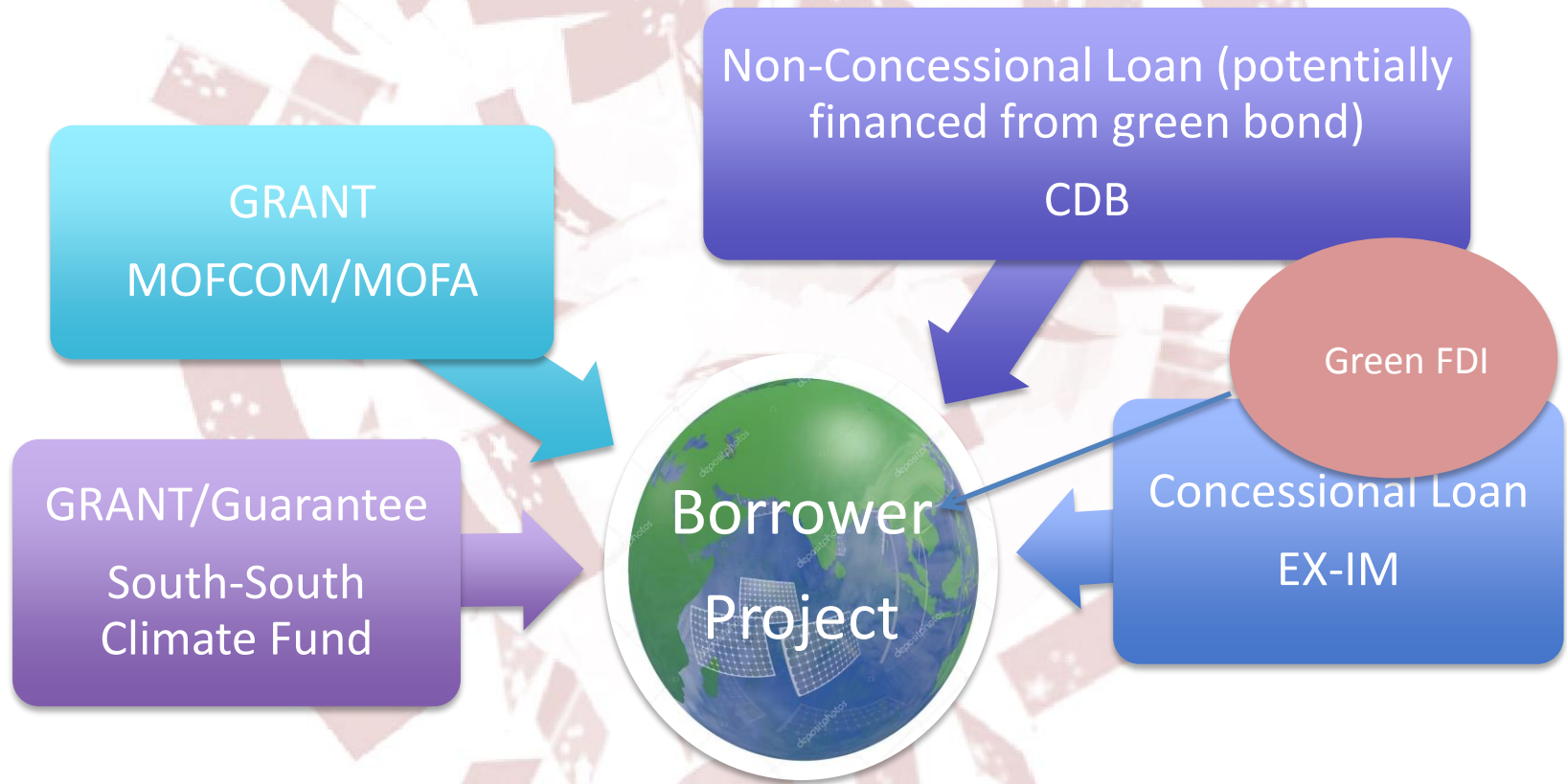


## Associated Risks

- Social protest
- Loss of livelihoods and relocation of people
- Loss of biodiversity
- Increase in carbon dioxide emissions

# CHINA CAN LEAD

## Blending Instruments for Green Finance



# THANK YOU!

Global Economic Governance Initiative

WORKING PAPER 2014-1

## GLOBAL ECONOMIC GOVERNANCE

### Fueling Growth and Financing Risk: The benefits and risks of China's development finance in the global energy sector

KEVIN P. GALLAGHER, KUNING HANGLI, AND SHENSHENG WANG

Kevin P. Gallagher  
Professor of Global  
Development Policy and  
co-director of the Global  
Economic Governance  
Initiative at Boston  
University, Boston, MA  
Kuning Hangli  
Assistant Professor,  
Tongji University  
Shensheng Wang  
Professor of  
Economics, Tsinghua  
University

EXECUTIVE SUMMARY

Increasingly, Chinese state-owned banks have emerged as global leaders in development finance to provide and to finance for energy projects in developing countries. In particular, China has funded or co-funded two new multi-lateral development banks (MDBs) and a series of regional and bilateral banks that will increase Chinese development finance abroad by orders of magnitude. Such a response to the global development finance system has not only increased the world's alternative infrastructure and energy supply and has also contributed to increasing Chinese financial development in a global scale.

China's global energy portfolio is heavily exposed to energy infrastructure, climate, and social risks factors. To mitigate such risks and avoid the financial sustainability development challenges for the 21<sup>st</sup> Century, Chinese development banks will need to shift the composition of its global energy lending to a significant extent.

This paper provides the first estimates of China's global development finance activities in general and China's policy/strategy in foreign governments for energy in particular. It also shows China's policy/strategy and how they have shaped the evolution of global development finance – and how these developments have shaped the world's energy landscape. With the onset of Latin America's trade and institutional development boom in financial markets, China is poised to be the largest development bank to be used in Western hemisphere for the first time in its history.

The authors are Professor, Kuning Hangli, Assistant Professor, Shensheng Wang, and Professor, Kevin P. Gallagher, Boston University, Boston, MA.

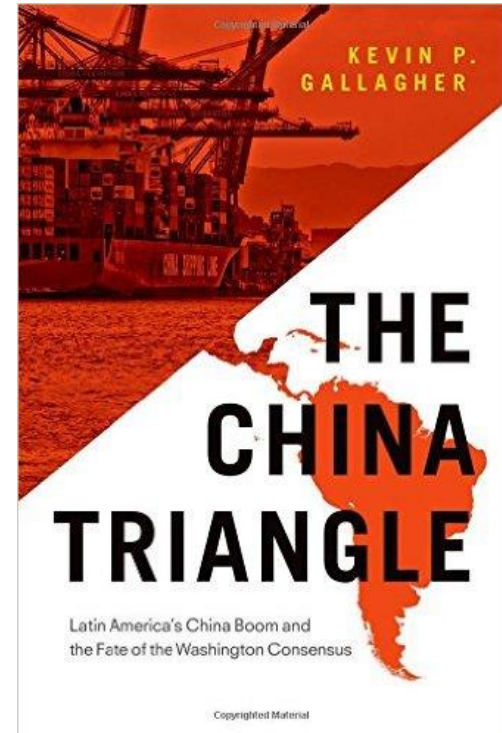
BOSTON  
UNIVERSITY

Global Economic Governance Initiative

### The Globalization of Chinese Energy Companies: The Role of State Finance



By Kuning  
Hangli and Kevin P. Gallagher



# www.bu.edu/gegi

Global Economic  
Governance Initiative

BU