MINEGOLIA PART I
China and Mongolia's Mining Boom

By Clement Huaweilang Dai and David Tyler Gibson

This brief is part of the China Environment Forum-Circle of Blue joint ***Choke Point: China*** *initiative, which for three years has been supported by Skoll Global Threats Fund, Energy Foundation, China Sustainable Energy Program, Rockefeller Brothers Fund, U.S. Agency for International Development, and Vermont Law School.*

MINING MONGOLIA'S WEALTH

China's economic boom appears to be contagious. Over the past few years, China's northern neighbor has quietly caught the bug and become the world's second-fastest growing economy, experiencing a GDP growth rate of approximately 17.3 percent in 2011.[1] Mongolia's swift economic rise is driven by the massive development of mineral and coal mining, which now accounts for approximately 29 percent of the country's GDP growth.[2] The National University of Mongolia estimates that mining will double the country's GDP in the next decade.[3] Coal output alone is expected to grow 62 percent by 2015[4] – evidence of the government's willingness to tap this vital resource for domestic use and exports. The Mongolian government estimates that the opening of large mines to commercial operations will push the country's GDP growth to 19 percent in 2013.[5]

Foreign investors, particularly Chinese companies, are vying for "Minegolia's" resources. While this investment in the expanding coal, gold, and copper industries offers the promise of improving the livelihoods of the Mongolian people—the country has a poverty rate of 35.2 percent—dependence on mineral exports also subjects the country to economic vulnerability due to commodity prices' high volatility.[6] Mining is also creating serious environmental problems for this dry grassland country—not only polluting water and soil, but threatening the country's limited water resources with overuse. Coal mining in particular is driving a critical water-energy confrontation that mirrors challenges facing China's dry and coal-rich north.

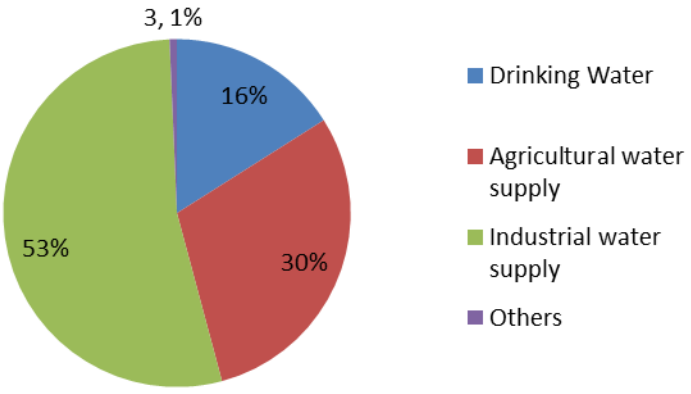
This research brief is the first installment of a CEF examination of the growing water-energy confrontation in Mongolia linked to foreign direct investment (FDI), particularly from China. The dilemma facing Mongolia's policymakers is how to balance economic development and environmental sustainability with an expanding conflict over water allocation between people and industry. Our second installment will focus more on the economics and governance of water usage in Mongolia's mining sector.

MINING'S WATER CHOKE POINT

Mongolia is a thirsty country. In fact, it is one of the 24 driest countries in the world.[7] Mongolians, however, have centuries of experience adapting their agriculture and nomadic herding to water scarcity, particularly in the country's dry south, where annual precipitation averages less than 50 mm. The shift to heavy water use in mining operations began in the 1990s, when mining accounted for 53 percent (60 million m^3 annually) of Mongolia's industrial water use. [8] By 2006, mining-associated water usage in Ulaanbaatar, Darkhan, and Erdenet rose to 93.8 million m^3 annually,[9] increasing the sector's water use to over 60 percent of the country's industrial water consumption.[10] Industrial water use, of which mining takes up the largest share, occupies 54 percent of Mongolia's total water use, with agriculture and domestic drinking water consuming 30 and 16 percent, respectively.[11] (See Figure 1.) Mining's thirst shows no sign of abating; according to a study by Eurasia Capital, Mongolia's mining industry will consume up to 200,000 m^3 per day by 2020—a 22-fold increase from the 2009 daily demand of 9,000m^3.[12]

Environmental worries loom over water rights. Oyu Tolgoi, the biggest foreign invested gold and copper mining project in Mongolia, is expected to account for one-third of Mongolia's GDP by 2020.[14] However, the project is targeted to use 920 liters of water per second for the next 30 years alone. As mines like the Oyu Tolgoi continue to "swallow" huge amounts of surface water, herders throughout Mongolia are being forced to relocate.[15]

Figure 1. Total Annual Water Use of Mongolia, 2005/2006



Source: *Modified from the World Bank data (January, 2009).*[13]

Explosive growth in mining is exacerbating Mongolia's water scarcity problem. In 2009, daily mining water demand was estimated to be 190,000 m^3, [16] and the WWF-Mongolia office has expressed concern about drinking water availability for the nearly one million nomadic people and their livestock.[17]

Corroborating that concern, National Geographic disclosed that one of the most severely affected regions is the Onggi River area, where approximately 60,000 nomadic herders and one million head of livestock are in danger of running out of water.[18] The overlapping and competitive government management of water (see Table 1 below) has likely hindered comprehensive regulatory measures to halt the excessive water drain by mining. As a result, citizen protests are on the rise, drawing attention to communities displaced by mining.

Mongolia has emerged as a fast growing, natural resources-based economy in recent years. Growing numbers of protests organized by nongovernmental organizations hint that they and threatened communities may play a greater role in pushing the government to better regulate the mining industry. FDI has played a significant part in developing the economy, but the environmental challenges of mining investments must also be addressed. If the government fails to assess the potential environmental impact of FDI in the mining industry, the country will likely face significant social and environmental costs in the near future.

OPENNESS TO FOREIGN INVESTMENT

According to Mongolian law prior to the 2012 election period, when foreign investors joined any Mongolian entity as a joint venture partner, shareholder, or agent, they could own 100 percent of the registered business with no legal, regulatory, or administrative requirements. Although the legality of the proposed activity was regulated under Mongolian law, the government did not have any pre-screening requirements for investments or investors. Land ownership, petroleum extraction, certain rail projects, and strategic mineral deposits were the only exceptions to this open FDI policy.[19]

Table 1. WATER GOVERNANCE STRUCTURE IN MONGOLIA

Government Agencies/Institutes	Responsibilities
Ministry of Environment and Tourism	Water conservation
Ministry of Food, Agriculture and Light Industry	Water use and licensing
Ministry of Road, Transportation, Construction and Urban Development and others	Agriculture, pasture land water supply, urban drinking water or industry and mining
Ministry of Health	Water Quality, ecological and environmental sanitation and hygiene
Mongolian Academy of Science The National Institute of Meteorology and Hydrology Agency for Meteorology, Hydrology and Environmental Monitoring	Water-related research and monitoring functions

Source: Modified from Basandorj. D (October 2010).[20]

Currently, the Ministry of Road, Transportation, Construction and Urban Development (MRTCUD) and others agencies besides the Ministry of Water Resources are in charge of pasture land water supply, urban drinking water, and water for industry and mining. However, the major responsibility of MRTCUD is to promote transportation and urban development.[21] Water conservation, water use and licensing, water quality, ecological and environmental sanitation, and water related research are governed by other ministries.[22]

In addition, the government's 2012 decision to institute a 68 percent tax cut on windfall profits from Mongolian copper and gold mining has paved the way for further foreign investment.[23] Over the past two decades, Mongolia has attracted over $2.4 billion in FDI, of which Chinese investments account for 50.99 percent. Canada's investments trail behind in second place with a share of 8.26 percent of total FDI between 1990 and 2010.[24] (See Table 2.) The flood of FDI into Mongolia has accelerated so rapidly that, in 2011, FDI reached $5.3 billion while GDP was $8.2 billion.[25] If FDI into extractive mining continues at its current pace without sufficient regulation to limit the impact on water, Mongolia could face a water-energy confrontation similar in intensity to what China is presently experiencing.

However, during the height of the 2012 election, the question of growing FDI was raised as an issue of national concern. This debate led to the government's decision that a foreign entity may only own up to 49 percent of the shares in strategic industries including mining, finance, media and telecommunications, which went into effect in May 2012. Furthermore, foreign investment by state-owned companies must now receive parliamentary approval.[26] Commentators agreed that the new regulations were aimed at a pending Chinese bid for a Mongolian coal firm. While not yet required across the board, strict environmental impact assessments for foreign investments in mining and oil could help the Mongolian government limit damaging over-extraction and pollution of the country's water resources.

TABLE 2. TOP 10 INVESTOR COUNTRIES IN MONGOLIA, 1990- 2010 ($1,000)

	Countries	%	Total	1990-2004	2005	2006	2007	2008	2009	2010
1	**China**	50.99	**2,468,235**	441,786.38	227,922.28	172,014.03	339,614.67	497,800.88	613,058.80	176,038.36
2	**Canada**	8.26	**400,005**	174,206.58	1,542.25	72,180.37	497.15	2,739.57	1,028.00	147,811.12
3	**Netherlands**	6.08	**294,081**	5,265.58	221.70	475.86	58.50	4,069.20	51,028.60	232,962.18
4	**South Korea**	5.29	**255,813**	85,180.14	19,004.49	16,434.78	22,991.38	41,765.41	31,673.98	38,763.43
5	**US Virgin Islands**	4.6	**222,438**	48,394.23	5,033.92	6,111.67	35,449.00	6,157.89	19,305.18	101,986.27
6	**Japan**	2.86	**138,570**	66,208.26	5,840.80	4,727.59	2,450.10	46,623.46	5,594.78	7,125.37
7	**Hong Kong**	2.63	**127,350**	25,033.35	773.02	350.50	8,255.51	1,757.81	11,032.44	80,148.35
8	**Bermuda**	2.5	**121,059**	1,604.48	4,962.86	-	30.30	6.46	-	114,455.56
9	**USA**	2.39	**115,690**	45,725.48	5,564.06	37,165.78	4,285.67	6,466.89	2,571.52	13,911.20
10	**Russia**	2.24	**108,250**	37,163.16	7,450.14	11,654.52	39,774.38	3,795.42	6,139.20	2,273.18

Source: Economic and Commercial Section of the U.S. Embassy in Ulaanbaatar, Mongolia (2011).[27]

Chinese Investment in Mongolian Mining

In 2010, the stock (total amount) of Chinese FDI accounted for $1.4 billion, or 32.4 percent of the total FDI stock in Mongolia. For that year, new Chinese FDI (flow) totaled $193 million, accounting for only 11.4 percent of Mongolia's new FDI (flow).[28] The potential for Mongolia to sate China's coal appetite—particularly coking coal for steel production—drives Chinese state-owned enterprise investments in this sector. As early as 2005, 53 percent of Chinese investment in Mongolia was in the mining industry, focused primarily on coal. While other international companies are entering the market, China remains a major player in Mongolia's mining industry. However, it is worth noting that while China only imports 8 percent of its coal and produces the rest domestically, 43 percent of these imports are from Mongolia.[29]

The roads and railroads linking these neighboring countries have facilitated low cost transportation of coal and minerals from Mongolia to China. China has historically been Mongolia's largest trade partner. Both sides recognize the mutual benefits of cooperating with each other and, in 2010 Chinese Premier Wen Jiabao's call for "stronger investment cooperation with Mongolia" catalyzed a rapid increase in Chinese investments.[30] One year later, the public heard similar support from Mongolian President Elbegdorj during his trip to China.[31] Most recently, at the third meeting of the China-Mongolia cooperation commission on mineral resources and energy in January 2013, both Chinese and Mongolian officials called for expanded cooperation in the mining and energy sectors through joint development of mining and transportation projects.[32]

China Investment Corporation and China Shenhua Group are the two major Chinese companies investing in Mongolia (see Table 3).

China Investment Corp. (CIC) is a nearly $300 billion sovereign wealth fund that has invested $700 million in Hopu-backed Iron Mining International Ltd.[33] This investment was followed by a $500 million deal with SouthGobi Energy Resources (a Canada-based coal producer operating in the southern deserts of Mongolia) early in Oct 2009. In 2010, SouthGobi Energy Resources Ltd. launched its initial public offering in Hong Kong and secured CIC and Singapore's Temasek as cornerstone investors.[34]

TABLE 3. CHINESE INVESTMENT IN MONGOLIA RESOURCES SECTOR[35]

Beginning Date for Investment	Company	Project	Value	Note
Late 1990s	Xinhuang Aoshi Xinglong International Industrial, China Heilongjiang International & Technical Cooperative Corp., Beijing Shougang Mining Investment	Tumurtei Khuder Co. Ltd (Iron Ore)	–	Assisted by $12.5m preferential loan from the Chinese government
4/2008	Hopu Investment	Lung Ming Iron Ore Project	US$300 million	Partnered with Temasek
11/2009	CIC	SouthGobi Convertible Bonds	US$500 million	–
11/2009	CIC	Lung Ming Iron Ore Project	US$700 million	–
1/2010	China Investment Corp. (CIC)	SouthGobi Energy Resources IPO	US$50 million	–
6/2011	Shenhua Energy	Tavan Tolgoi Coal Mine	US$1 billion	Expected to be listed as one of three strategic foreign investors
Unknown	China Aluminum Corp.	OYU TOLGOI Copper-gold Mine	–	Possible partnership with Ivanhoe Mines

China Shenhua Group, a leading mining and energy company in China, has been selected as a stakeholder to jointly develop Mongolia's Tavan Tolgoi coal mine, one of the world's largest unexplored reserves of coking coal.[36] The Mongolian government selected a consortium including the U.S.-based Peabody Energy, China's Shenhua and a Russian-Mongolian group.[37] Shenhua will play a significant role in the future development of this coking coal deposit.

However, there is a question about how much Chinese firms will be willing to invest in Tavan Tolgoi and other southern Mongolian mines. The coal mine lies on a downward sloping section of the Gobi, sloping towards Inner Mongolia. According the Alicia Campi, if firms were to completely develop Tavan Tolgoi and other coal mines near Inner Mongolia, it would cut off the flow of water to Inner Mongolia – one of the largest bases of coal production in China. In other words, any large-scale development of southern Mongolia's coal deposits would threaten to desiccate Inner Mongolia's massive network of coal bases.

More Players Digging In

There are signs that the Mongolian government's open investment policy towards China may be shifting. For example, Chinese FDI in Mongolia, surged in 2011 to over 1 billion USD, but it is expected to have cooled significantly in 2012 due to regulatory concerns. Some commentators speculate that this drop signifies the Mongolian government's concern about China's increasing control over Mongolia's strategic natural resources.[38] Analysts point to shifting uneasiness among Mongolians over foreign, especially Chinese, investments heading into the 2012 election cycle. Chalco, a state-owned Chinese aluminum firm, walked away from its nearly 1 billion USD bid to acquire SouthGobi Sands, a Mongolian coal mining firm. Indeed, the above mentioned foreign ownership law passed in May 2012 was specifically aimed at killing the Chalco deal. This shift in attitude is also visible in the Tavan Tolgoi coal project, the world's largest untapped reserves of coal in southern Mongolia. The bidding of this mine has been opened up to more international investors. According to a draft proposal, the China Shenhua Group, a state-owned enterprise, would theoretically own 40 percent of the share, while Peabody Energy, a St. Louis-based mining company, would take 24 percent.[39] The remaining shares would be held by a Russian-Mongolian Consortium.[40] However, there is speculation that this will be renegotiated, and the outcome will not be in Shenhua's favor. *The New York Times* recently reported that the Mongolian government has been reluctant to continue the practice of selling its commodities under market price—sometimes as much as 30 percent under—to China,[41] indicating that Chinese investments in extractive industries may begin to face diminishing returns and other obstacles.

Since the failed Chalco deal, China has appeared more cautious in its dealings with Mongolia, an acknowledgement of China's increasing need for its neighbor's coal. China recently compromised on a rail deal that would ship coal from Tavan Tolgoi to China. The Mongolian government decided to make the rail width conform to Soviet standards, meaning that it cannot connect to China's railroad. That decision will add a cost 2 to 4 dollars per ton of coal, or 120 million dollars a year. There are other signs that China's desire for coal is overriding other concerns too.[42] In a classic instance of Chinese political reprisal in 2002, Beijing stopped freight trains from entering China for two days when the Dalai Lama came to preach to Mongolian Buddhists. However, according to a recent report by the Associated Press, "last November, the Dalai Lama returned, and Beijing protested in words only. It did not cancel long scheduled Cabinet-level meetings".[43] Such a reaction stands in stark contrast to China's recent behavior over other politically sensitive issues, such as the Diaoyu/Senkaku Islands dispute with Japan.

MIND THE REGULATORY GAPS

According to the U.S.-based environmental NGO Pacific Environment, mining and industrial activities in Mongolia have created irreversible environmental damage to the vast majority of its waterways, while exposing Mongolians to serious

human health risks.[44] Other indicators of mining's deleterious effects include:

- A 2009 study by the Mongolian Ministry of Nature, Environment and Tourism found that 852 rivers, 1,181 lakes, and 2,277 springs in Mongolia have dried up due mainly to poor management of forests and mines.[45]
- Another 2009 study by the United Nations Development Program attributed the degradation of nearly 30 rivers in southern Mongolia to mining and industrial activities, echoing the results of a similar report on water ecosystem degradation by the World Health Organization in 2005.
- A Pacific Environment study reported that gold mining alone is responsible for the disappearance of around 900 streams and small rivers in Mongolia over the past 15 years.[46]

In 2009, the Mongolian government passed the "Law on Prohibition of Mining Operations at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forested Areas," which, if fully implemented, would help protect areas critical for water and biodiversity. A 2010 IUCN study highlighted that under this law mines could lose their licenses if found in violation to its environmental protection requirements.[47]

Other laws encourage poor mining practices. For example, high windfall taxes that were set on gold mines and a government mandate that "all gold mined in Mongolia must be sold to the Mongol Bank at a fixed price" has encouraged small- and medium-sized mines to operate illegally outside of the regulated mining industry.[48] Researchers such as Jeffrey Reeves believe these unregulated mines pose the greatest threat to Mongolia's rivers and water supplies.

Behind the water-mining crisis is the uneven and pro-industry water pricing system. According to Tsedenbaljir, an official at the Water Authority of Mongolia, the number of mining companies with water use permission jumped from 38 in 2005 to 137 in 2007.[49] Small businesses purchase water at a rate of $0.48 per 1,000 liters, which is significantly higher than the industry price of $0.006 per 1,000 liters.[50] This dramatic pricing difference is ostensibly a subsidy to the industry. Reforming Mongolia's water governance structures to prioritize conservation has proven complicated; water issues have shifted from being solely under the control of the Ministry of Water Resources before 1987 to now being overseen by multiple ministries.[51] Some water researchers recommend that Mongolia adopt a heavy pollution tax that takes social and environmental costs into account,[52] which would likely raise the price of water and create new incentives for industries to conserve.

The low cost of water for industry is only the tip of the iceberg. According to NPR, a telling example of industry's dominance in consuming water occurred in 2010, when the Mongolian central government abolished the South Gobi local government's decision to protect a seasonal lake and allow its water to supply a nearby coal mine.[53]

Part II of this "Minegolia" research brief will explore efforts to reform Mongolia's investment regulations and improve water management, as well as discuss opportunities for international engagement to mitigate the water damage caused by foreign extractive industries.

Clement Huaweilang Dai was a CEF research assistant during the summer of 2012 who is now a Market Analyst at Quadion LLC. He can be reached at clementhdai@gmail.com. Tyler Gibson was a 2012-2013 research assistant with CEF who now is a program associate at the blue moon fund. He can be reached at dtg2007@gmail.com. *Special thanks to Huilan Han's background research data and editing assistance from the CEF and ECSP teams in writing and editing this research paper.*

[1] Central Intelligence Agency (2012). Central Intelligence Agency. [Online]. Available: https://www.cia.gov/library/publications/the-world-factbook/geos/mg.html

[2] Economy Watch (April 8, 2012). Mongolia Industry Sectors. [Online]. Available: http://www.economywatch.com/world_economy/mongolia/industry-sector-industries.html

[3] National Public Radio (May 21, 2012). Mineral-Rich Mongolia Rapidly Becoming 'Minegolia.' http://www.npr.org/2012/05/21/152683549/mineral-rich-mongolia-rapidly-becoming-minegolia

[4] Tolgoi, Oyu; Ulaanbaatar, Oyu. (Janurary 21, 2012). Booming Mongolia: Mine, all mine. The Economist. [Online]. Available: http://www.economist.com/node/21543113

[5] Xinhua News (May 24, 2012). Mongolia expects high economic growth in 2013. [Online]. Available: http://www.chinadaily.com.cn/xinhua/2012-05-24/content_5993310.html

[6] The World Bank (2012). World Development Indicators: Mongolia. [Online]. Available: http://data.worldbank.org/country/mongolia.

[7]Earth Justice (2012). Earthjustice Joins in Fight to Stem Mining Pollution in Mongolia. [Online]. Available: http://earthjustice.org/features/earthjustice-joins-in-fight-to-stem-mining-pollution-in-mongolia

[8] Eco-efficient Water Infrastructure Network (November, 2008). The Status and Challenges of Water Infrastructure Development in Mongolia. [Online]. Available: http://www.ecowaterinfra.org/knowledgebox/documents/Mongolia-%20country%20report2.pdf

[9] Ibid.

[10] Percentages are calculated based on the absolute value data provided by Eco-Efficient Water Infrastructure Network in the report of the Status and Challenges of Water Infrastructure Development in Mongolia.

[11] The World Bank (January 25, 2009). Groundwater Assessment in the Gobi Region: Background document for the preparation of a Regional Environmental Assessment for the Gobi region to support the development of a Regional Development Strategy by the Government of Mongolia. [Online], Available: http://siteresources.worldbank.org/MONGOLIAEXTN/Resources/Water_Resources_Report.pdf

[12]Eurasia Capital (April, 2009). Infrastructure in Mongolia: Challenges and Opportunities. [Online]. Available: http://www.associm.com/newsletters/pdf/INFRASTRUCTURE_final.pdf

[13] The World Bank (January 25, 2009). Groundwater Assessment in the Gobi Region: Background document for the preparation of a Regional Environmental Assessment for the Gobi region to support the development of a Regional Development Strategy by the Government of Mongolia. [Online], Available: http://siteresources.worldbank.org/MONGOLIAEXTN/Resources/Water_Resources_Report.pdf

[14] Tolgoi, Oyu; Ulaanbaatar, Oyu. (Janurary 21, 2012). Booming Mongolia: Mine, all mine. The Economist. [Online]. Available: http://www.economist.com/node/21543113.

[15] Mining refugees also drive herders into town, fleeing environmental devastation. Mongolia has tens of thousands illegal gold prospectors, whose use of mercury and cyanide has poisoned rivers. Tolgoi, Oyu; Ulaanbaatar, Oyu. (Janurary 21, 2012). Booming Mongolia: Mine, all mine. The Economist. [Online]. Available: http://www.economist.com/node/21543113.

[16] The World Bank (January 25, 2009). Groundwater Assessment in the Gobi Region: Background document for the preparation of a Regional Environmental Assessment for the Gobi region to support the development of a Regional Development Strategy by the Government of Mongolia. [Online], Available: http://siteresources.worldbank.org/MONGOLIAEXTN/Resources/Water_Resources_Report.pdf

[17] World Wildlife Fund (January, 2012). Freshwater Issues in Mongolia and WWF Mongolia's planned contribution towards a solution. [Online]. Available:http://awsassets.panda.org/downloads/fw_issues_in_mn_jan2007.pdf.

[18] Lovgren, Stefan. (October 17, 2008). "Mongolia Gold Rush Destroying Rivers, Nomadic Lives." National Geographic. [Online]. Available: http://news.nationalgeographic.com/news/2008/10/081017-mongolia-mining-missions.html.

[19] Economic and Commercial Section of the U.S. Embassy in Ulaanbaatar, Mongolia (February 2, 2011). 2011 Mongolia Investment Climate Statement. U.S. Department of State. [Online]. Available: mongolia.usembassy.gov/root/media/pdf/mongolia-ics-2011.pdf

[20] Basandorj. D (October 2010). Strategy of Eco-efficient Water Infrastructure Development for Mongolia Water Programme and Water Law. United Nations Economic and Social Commission for Asia and the Pacific. [Online]. Available: http://www.ecowaterinfra.org/knowledgebox/documents/new/Mongolia-strategy%20complete.pdf

[21] Ibid.

[22] Ibid.

[23] U.S. Commercial Services. (2012). Mission Statement. [Online]. Available: http://export.gov/trademissions/chinamongolia2011/eg_main_033366.asp.

[24] Foreign Investment and Foreign Trade Agency (2010). Registered Foreign Direct Investment in Mongolia By Sectors. [Online]. Available: http://www.investmongolia.com/fiftanew/contents/inc.googledocviewer.php?file=Registered FDI by country&path=images/PDF/Publication/Statistics/Statistic 2010 (english).pdf.

[25] Roberts, Dexter (June 21, 2012). Mongolia's Uneven Boom. Businessweek. [Online]. Available: http://www.businessweek.com/articles/2012-06-21/mongolias-uneven-boom

[26] Bator, Ulan (May 18, 2012). Mongolia passes watered-down foreign investment law. Reuters. [Online]. Available: http://uk.reuters.com/article/2012/05/18/mongolia-mining-idUKL4E8GI3HV20120518

[27] Economic and Commercial Section of the U.S. Embassy in Ulaanbaatar, Mongolia (February 28, 2011). 2011 Mongolia Investment Climate Statement. U.S. Department of State. [Online]. Available: http://mongolia.usembassy.gov/root/media/pdf/mongolia-ics-2011.pdf.

[28] 2010 Statistical Bulletin of China's Outward Foreign Direct Investment. Ministry of Commerce. [Online]. Available: http://hzs.mofcom.gov.cn/accessory/201109/1316069658609.pdf, And United Nations Conference on Trade and Development Statistics. Mongolia, Inward. [Online] Available: http://unctadstat.unctad.org/TableViewer/tableView.aspx

29 Song Guoming. (2006). "Wei Zhongqi Mengguo Juekuangre Jiangwen." Chinese Mining Magazine. Ministry of Land and Resources.

30 Pang, Xinglei (June 2, 2010). Chinese premier proposes stronger investment cooperation with Mongolia. People's Daily. [Online]. Available: http://english.peopledaily.com.cn/90001/90776/90883/7009215.html

[31] Mongolian president calls for cooperation in mineral exploration with China. BBC monitoring International Reports 26 Aug. 2011. Custom 150 Journals.

[32] Xinhua News (January 16, 2013) "China, Mongolia to deepen cooperation in mining, energy sectors." People's Daily Online. [Online]. Available: http://english.peopledaily.com.cn/90883/8093954.html

[33] Flaherty, Michael; Master, Farah (Oct 29, 2009). CIC invests $700 million in Hopu-backed mining firm. Reuters. [Online]. Available: http://www.mineweb.com/mineweb/view/mineweb/en/page67?oid=91617&sn=Detail

[34] Ying, Wu (January, 26, 2010). Chinese Capital Takes the Lead in Mongolian Mining. Caixin. http://english.caixin.com/2010-01-26/100111218.html

[35] Ying, Wu (January, 26, 2010). Chinese Capital Takes the Lead in Mongolian Mining. Caixin. http://english.caixin.com/2010-01-26/100111218.html.

[36] Zhang, Yunbi;Wu, Jiao. (January 13, 2012). "China, Mongolia to Boost Ties." China Daily. [Online]. Available: http://www.chinadaily.com.cn/cndy/2012-01/13/content_14436254.htm.

[37] Ibid

[38] Gopalan, Nisha. (April 30, 2012). "Mongolia Wary of Chinese Investment." The Wall Street Journal. [Online]. Available: http://blogs.wsj.com/deals/2012/04/30/mongolia-wary-of-chinese-investment/

[39] Levin, Dan. (June 26, 2012). "In Mongolia, a New, Penned-In Wealth." The New York Times. [Online]. Available: http://www.nytimes.com/2012/06/27/world/asia/mongolias-coal-deposits-draw-neighbors-attention.html?pagewanted=all.

[40] Xinhua News (July 29, 2011). Chinese, Mongolian companies sign coal deal worth 250 Million USD. [Online]. Available: http://news.xinhuanet.com/english2010/china/2011-07/29/c_131017828.htm

[41] Levin, Dan (June 26, 2012). "In Mongolia, a New, Penned-In Wealth." The New York Times. [Online]. Available: http://www.nytimes.com/2012/06/27/world/asia/mongolias-coal-deposits-draw-neighbors-attention.html?pagewanted=all.

[42] Hutzler, Charles (December 05, 2012). "Mongolia finds China can be too close for comfort." Bloomberg Newsweek. [Online]. Available: http://www.businessweek.com/ap/2012-12-05/for-mongolia-chinas-too-close-for-comfort#p1

[43] Ibid.

[44]Angarova, Galina. (April 2009). "Gold Mining in Mongolia Threatens Lake Baikal." Pacific Environment. [Online], Available: http://pacificenvironment.org/article.php?id=3003

[45] MNET (Ministry of Nature, Environment, and Tourism). 2009. Mongolia's Fourth National Report on Implementation of Convention on Biological Diversity. Government of Mongolia: Ulaanbaatar, Mongolia. [Online]. Available: http://www.cbd.int/doc/world/mn/mn-nr-04-en.pdf.

[46] Angarova, Galina (April 2009). Gold Mining in Mongolia Threatens Lake Baikal. Pacific Environment. [Online], Available: http://pacificenvironment.org/article.php?id=3003

[47] IUCN (World Conservation Union). (2010). *Mining in Mongolia: Engaging local communities to help reduce the impacts of mining.* [Online]. Available: http://www.iucn.org/about/work/programmes/b

usiness/key_res/bbp_publications/?5662/Mining-in-Mongolia.

[48] Reeves, Jeffrey. (2011). "Mongolia's Environmental Security." *Asian Survey* 51. 3 (May/Jun): 453-471.

[49] Tsedenbaljir, Ya. Authority of Mongolia, Water Management in the Mongolian Mining Industry. [Online], Available: http://www.pecc.org/resources/doc_view/1135-water-management-in-the-mongolian-mining-industry.

[50] The United Nations Educational, Scientific and Cultural Organization (March, 2003). The United Nations World Water Development Report II: Water: a shared responsibility. [Online], Available: http://unesdoc.unesco.org/images/0014/001454/145405e.pdf#page=512

[51] Basandorj. D (October 2010). Strategy of Eco-efficient Water Infrastructure Development for Mongolia Water Programme and Water Law. United Nations Economic and Social Commission for Asia and the Pacific. [Online]. Available: http://www.ecowaterinfra.org/knowledgebox/documents/new/Mongolia-strategy%20complete.pdf

[52] Ibid.

[53] Langfitt, Frank (May 22, 2012). Mongolia's Dilemma: Who Gets the Water? National Public Radio. [Online], Available: http://www.npr.org/2012/05/22/152698675/mongolias-dilemma-who-gets-the-water

www.wilsoncenter.org/program/china-environment-forum

Since 1997, the **China Environment Forum** (CEF) – an initiative of the Wilson Center's Global Sustainability and Resilience Program – has implemented projects, workshops, and exchanges that bring together U.S., Chinese, and other environmental policy experts to explore the most imperative environmental and sustainable development issues in China and to examine opportunities for business, governmental, and nongovernmental communities to collaboratively address these issues.

The networks built and knowledge gathered through meetings, publications, and research activities have established CEF as one of the most reliable sources for China-environment information and given CEF the capacity to undertake long-term and specialized projects on topics such as building new U.S.-China energy and climate networks, the water-energy nexus in China, environmental governance, food safety, water management, nongovernmental organization development, environmental justice, and municipal financing for environmental infrastructure.

Established by Congress in 1968 as a living memorial to the 28th President of the United States, the **Wilson Center** tackles critical global challenges by providing an essential bridge between policymaking and actionable ideas drawn from the world's finest research, analysis, and nonpartisan dialogue.

Cover Photo: Genghis Khan Statue. Courtesy of flickr user eBold.