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The Petrodollar System and Its Importance to US Financial and Political Dominance
Rashid Husain Syed

Global currencies have operated as economic and political tools of governments since the 1970s; the US currency has been tied to the international crude oil market. The author directs the US along the path of change away from the US dollar and toward the Chinese yuan. This shift in the petrodollar system will have major impacts on the economies of the US and China.

Chinese-African Relations in the Energy Sector
Natalia Hlavova

The author discusses the contractual bases and development of the relations between emerging economic giant China and African countries in the energy sector. These entities have strong ties, especially since 2000, when they jointly began the Forum on China-Africa Cooperation (FOCAC) based on ministerial conferences. Using the data on trade and investment in the energy sector, the author notes that in trade with energy resources Africa is an important importer of energy resources to China, and Chinese demand for these goods plays a big role in Africa. The investment in the African energy sector shifts from investment from OECD countries towards more investment from non-OECD countries, including China.

China Takes Up Global Leadership Role on Climate Change
Wenran Jiang

China continues to expand its role in global diplomacy. A key aspect of this, notes the author, is its changing policy stance regarding climate change. China’s far-reaching domestic programs and international leadership make it an important player in addressing climate change impacts.
Intriguing and interesting moves, attempting to topple the established order, are being made on the global energy chessboard. Efforts are on to loosen the grip of the US dollar on global oil trade. All these efforts carry long-term implications, challenging the US dominance of the existing, global, financial system.

Since the 1970s, the US dollar has dominated global oil trade. Forged by US President Richard Nixon and Saudi King Faisal bin Abdulaziz in 1974, the petrodollar system has wedded the greenback to the world’s most sought-after commodity – oil.

Once Saudi Arabia agreed to receive the oil payment in US dollars, others simply followed, paving the way for the domination of US dollars on global oil trading. The status quo continues – to this day. Every country requires US dollars to pay for its oil purchase, even while both buyers and producers could be non-Americans.

That appears to be changing.

Until the middle of the 20th century, the gold standard was the benchmark, controlling the global monetary system. Gold reserves in national banks set the limit on possible credit for each country. However, way back in 1971, President Richard Nixon unilaterally cut the convertibility of the US dollar into gold (the so-called Nixon shock). With the gold standard gone, global oil trading in US dollars became the basis of the strength of the greenback. This is evident from the fact that although the US contribution to global GDP is calculated at no more than 22 percent, 80 percent of international payments are made in US dollars – making the US dollar overvalued compared to other currencies.

Analysts thus underline this has helped US consumers buy imported goods at extremely low prices, giving them a significant financial advantage. The high demand for dollars in the rest of the world aided the US government to refinance its debt at very low interest rates. This made the importance of oil in maintaining the dominance of US dollars crucially pronounced.

With oil priced in dollars, the demand for US dollars remains immense, lending the US a greater and unrivalled economic and strategic power. After all, it is an issue of demand and supply. Courtesy of the 1974 Saudi – US arrangement, petrodollars continuously flow back into the US economy, creating growth that might not otherwise occur. This also generates huge and continuous demand for the US dollar, contributing to its status as the premier safe-haven for investors around the world.

With the US dollar remaining the dominant currency for oil trading, it provided the US with two major advantages that Rick Falkvinge pointed out in 2012. With, each dollar bought and stockpiled in a non-US country, it gave US citizens (or government) one dollar, generating an unmatched purchasing power to the US and its citizens against other nations, and, literally for nothing.

The US dollar being the world’s international trade currency meant that if a country wanted to buy something even from China, it needed to first buy US dollars by selling its goods and services to America, and then use that “hard earned” dollar to buy goods from China. Falkvinge emphasized, while this all happened, the US was simply minting dollars, without providing and extending goods or services to the country that needed US dollars to buy the goods required from China, Falkvinge emphasized.
The mechanism created an extraordinary external demand for the US dollar, propping up the United States’ over-consumption and feeding its oversized military, Falkvinge added. This growing US deficit is absorbed by countries that stockpile an increasing number of US dollars in their currency reserves. This group of countries are often called the ODIC, the Organization of Dollar-Importing Countries, Falkvinge pointed out.

Thus, despite running huge budgetary deficits, the US enjoys the leverage to borrow money at relatively low rates – crucial in keeping its economy afloat.

Things are beginning to change. With China emerging as the top global importer of oil, its leverage on the oil industry is growing. Beijing is hence challenging the established order, attempting to launch a yuan-denominated oil futures contract by the end of this year.

In July, the Shanghai-based International Energy Exchange (INE), a subsidiary of Shanghai Futures Exchange, completed a four-step trial in crude oil futures denominated in yuan. INE then announced it was undertaking preparatory works for the listing of crude oil futures in yuan.

China is also planning to introduce an oil benchmark priced in yuan in the coming months. This would also challenge the dominance of the US dollar in the oil trade.

There is a growing feeling among analysts that having an oil futures market in yuan should increase the demand for Chinese currency and the money may be recycled into the Chinese economy – just as the petrodollar was recycled into the US economy over the last four decades.

And China is not alone. Russia has also been seeking to operate in a non-dollar environment. During his visit to China last August, Russian President Vladimir Putin emphatically emphasized, “the petrodollar system should be a thing of the past.”

“Russia is discussing the use of national currencies in swap agreements with various countries” President Putin announced while in China. In July, the two countries signed a 68 billion-yuan ($10 billion) investment fund to ease ruble-yuan settlements. In 2014, the Russian Treasury announced a plan to increase the participation of ruble-based contracts while, at the Shanghai Summit, in a deal billed as the “the deal of the century” Russia committed to selling China US$400 billion worth of natural gas over the next 30 years, invoiced in rubles and yuans, political writer Dan Glazebrook wrote.

Today, many countries do not want to use US dollars for buying oil. Courtesy of its centrality in the trading of a strategic commodity such as oil, Washington gets an undue political leverage to exert pressure on countries not towing its political line. Many countries want to overcome that. China, Russia, and some others are therefore trying to move world trade and world finance away from the US dollar, financial and investment commentator Jim Rogers asserted while talking to RT.

As China is the world’s biggest crude buyer, the new contract may allow exporters and traders to avoid US sanctions by trading oil in yuan. Besides China, Russia and other countries such as Iran, Pakistan and Vietnam, some other Asian countries are becoming interested, added Rogers. In 2012, Iran began to accept yuan for its oil and gas payments. Russia followed suit in 2015. “The world has been moving that way. Iran will accept renminbi (yuan) from China now. China and Russia have made swaps in rubles and renminbi. It is happening,” Rogers emphasized.

Kazakhstan’s President Nursultan Nazarbayev has reportedly also instructed his country’s national bank to de-dollarize the economy. The United Kingdom also plans to issue debt in yuan while the European Central Bank is discussing whether to include the yuan in its official reserves.

“If this takes off, this could literally spell the beginning of the end of US global (financial) power. The US dollar is the world’s leading reserve currency, basically because of oil – the world’s largest traded commodity – currently being traded in dollars. Countries seeking foreign exchange
reserves as insurance against crises within their own currencies tend to look to the US dollar precisely because it is effectively ‘convertible’ into oil,” Dan Glazebrook wrote in a column for RT last June.

The beleaguered Maduro government of Venezuela has also announced that it would no longer accept oil payments in US dollars. “I have decided to start selling oil, gas, gold and all other products that Venezuela sells with new currencies, including the Chinese yuan, the Japanese yen, the Russian ruble, among others,” Venezuelan President Nicolas Maduro announced on September 8 during a television broadcast. Reacting to the US-led embargo slapped on Venezuela, Maduro declared: “An economy free from the US imperialist system is possible.”

The centrality and value of the dollar are essential to the economic security of the US. As a consequence, should the market move oil trade out of the US currency and into the yuan and other foreign currencies, what could it mean for the dollar? A major question indeed.

"Moving oil trade out of dollars into yuan (and other currencies) will take right now between $600-$800 billion worth of transactions out of the dollar... (That) means a stronger demand for things in China, whether it's securities or whether it's goods and services. It is a growth plus for China and that's why they want this to happen," Carl Weinberg, chief economist and managing director at High Frequency Economics was quoted as saying in the press. This could also mean that the world's transaction currency would suffer "lesser demand for US securities across the board."

If China, the world’s largest crude importer, succeeds in replicating the US model, this would be the biggest threat to the US dominance of the financial world. After all, oil is the biggest commodity being traded in the world. As per a recent Bloomberg report, with oil priced at around $50 a barrel, the global oil market size is worth $1.7 trillion a year. All other commodities are dwarfed by this magnitude. The market size of gold, the next largest traded commodity, is estimated to be worth $170 billion, just 10 percent of the value of oil traded in a year. Iron, copper and aluminum were next, with their annual total worth $115 billion.

Attempts were made to switch away from the dollar in the past. But those behind the move had to pay a steep price, history tells.

Many have been asserting the “real” reason behind the war in Iraq in 2003 was Saddam Hussein’s decision to price Iraqi oil in the then “new” euro rather than in US dollars. In fact, in 2003 eminent scholar Noam Chomsky identified whether protecting the dollar and hence the US economy is worth the trouble of invading a country.

Thus, a regime change in Baghdad became imperative, as Saddam’s switch over move could have been catastrophic for Washington. Although it took Washington almost three years to prepare and go after Saddam, courtesy of operation “Shock and Awe”, the switchover from the US dollar to the euro is regarded by some as the last nail in Saddam’s coffin.

The US decision after the invasion to return Iraqi oil sales to dollar denomination and to convert all Iraqi foreign currency reserves back into dollars – which were in euros prior to the war – certainly provided credence to the theory.

William Clark, the author of Petrodollar Warfare: Oil, Iraq and the Future of the Dollar (New Society, 2005), wrote in his 2003 article "The Real Reasons for the Upcoming War with Iraq: A Macroeconomic and Geostrategic Analysis of the Unspoken Truth," "Although completely unreported by the US media and government, the answer to the Iraq enigma is simple yet shocking – it is in large part an oil currency war. One of the core reasons for this upcoming war (at the time of writing his essay) is this administration’s goal of preventing further Organization of the Petroleum Exporting Countries (OPEC) momentum towards the euro as an oil
transaction currency standard. However, to pre-empt OPEC, they need to gain geo-strategic control of Iraq along with its 2nd largest proven oil reserves."

Bart Gruzalski, professor emeritus of philosophy at Northeastern University in one of his essays says, the USA attacked Iraq because Saddam had W$D. Quoting the US author, physician, and former politician Ron Paul, he said, “Saddam Hussein demanded euros for his oil. His arrogance was a threat to the dollar; his lack of any military might was never a threat...There was no public talk of removing Saddam Hussein because of his attack on the integrity of the dollar as a reserve currency by selling oil in euros. Many believe this was the real reason for our obsession with Iraq. I doubt it was the only reason, but it may well have played a significant role in our motivation to wage war,” he emphasized.

A year after the war, Sohan Sharma, Sue Tracy and Surinder Kumar also claimed that the unprovoked “shock and awe” attack on Iraq was to serve several economic purposes, the first of which was to “safeguard the US economy by re-denominating Iraqi oil in US dollars.”

As Ron Paul also pointed out, “the health of our (U.S) economy depends on the international centrality of the dollar. This is what supports not only the economy but our military and our ability to fight foreign wars. Threatening all of this – economy and military – was a significant reason for those concerned about the economy and our military dominance in the world to take action (against Saddam).”

In late October 2000, Baghdad announced its intention to stop using the US dollar in its oil business, insisting it receive UN approval to sell oil through the oil-for-food program in euros after 6 November (2000). Iraq had threatened to suspend all oil exports – about 5 percent of the world’s total – if the United Nations turned down the request.

This threatened the status quo. Many felt Saddam’s decision to sell Iraqi oil in euros was perhaps one of the reasons the US went for “regime change” in Baghdad. The US decision after the invasion to return Iraqi oil sales to dollar denomination and to convert back into dollars all Iraqi foreign currency reserves, which had been in euros prior to the war, was certainly entirely consistent with this theory, Cóilín Nunan later argued in Energy Bulletin.

Iran too has been pushing for years to have the euro replace the dollar as the currency for international oil trade. Tehran has been toying with the idea of switching over from the US dollar, at least since 1999. A year earlier, an Iranian analyst, who went on to become a presidential adviser later, proposed a switch over to the euro in a newspaper editorial. Later in 2003, reports emerged that Iran was striving to create a bourse trading oil in euros. But the idea didn’t fly. In 2005-2006, the Tehran government came out with a plan to begin competing with New York’s NYMEX and London’s IPE with respect to international oil trades – using a euro-denominated international oil-trading mechanism.

In 2007, Tehran made another “failed” attempt to persuade other OPEC members to switch away from the dollar, which its then-President Mahmoud Ahmadinejad called a “worthless piece of paper”. And while these ideas were on the table, US-led attempts at “regime change” in Tehran were regularly reported in media. The two seemed linked – in more ways than one.

To this day, Tehran remains a thorn in Washington’s plan.

Libya is another example. Despite having 150 tons of gold in national reserves, Libyan leader Muammar Gaddafi was overthrown and brutally murdered. Some believe his cardinal sin was the decision to sell oil in euros and then to replace the euro by introducing a gold dinar currency. He was derided and ridiculed. Then French President Nicolas Sarkozy went on to say, “Libya is putting at risk global financial stability”.

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The scenario is beginning to change – apparently because of China. Beijing today is the world’s largest crude oil importer. It imported 281.1 million tonnes of crude in the first eight months of 2017, averaging 8.44 million barrels per day (bpd). In some months, it crossed even the 9 million bpd mark.

However, the success of Chinese plans to launch oil futures contracts on the Shanghai International Energy Exchange depends on the acceptance of the move by major crude oil exporters such as Saudi Arabia. China needs to convince oil exporting countries to participate in the yuan-based transactions. There have already been some transactions in yuan, particularly with Iran which early-adopted yuan-based sales to avoid US Treasury sanctions. Russia too agreed to some yuan-based transactions due to US sanctions. Now Venezuela has also begun to price its oil in Chinese yuan.

However, many believe that the success of the Chinese benchmark project depends largely upon Saudi Arabia if it agrees to yuan-based transactions. Despite losing considerable Chinese market share to Russia, Saudi Arabia sells more than a million bpd to China.

Analysts strongly feel if Riyadh wants to avoid losing more ground in China, it may ultimately need to pay heed to the calls from Beijing to switch over to yuan-denominated sales.

Reports are emerging that China has also offered an outright purchase of five percent stakes in Saudi Aramco. If this goes ahead, it would provide additional leverage to Beijing, to convince Riyadh to switch over to yuan for its oil sales. Saudi Arabia led by Muhammad bin Salman could be interested in the offer, as this could be a win-win situation for both. It provides oil-thirsty China with a stake in the world’s largest and most integrated oil company, and it helps Riyadh bypass the stringent regulations for listing on major capital markets, which Aramco is finding increasingly difficult to meet.

Further, the 911 lawsuit against Saudi Arabia, currently with a federal judge, is a sword of Damocles hanging over Riyadh’s financial interests in the US.

However, the decision to abrogate the 1974 arrangement and switch over from the US dollar to yuan may not be easy politically for Riyadh, especially in view of the growing bonhomie between the Trump administration and Riyadh. President Trump, by calling to list the Aramco IPO on the NYSE, has personally jumped into the fray. But with China being the largest buyer of Saudi crude, one can argue that business would ultimately have to take precedence.

Carl Weinberg of High Frequency Economics was quoted in the press as saying: “I believe that yuan pricing of oil is coming and as soon as the Saudis move to accept it — as the Chinese will compel them to do — then the rest of the oil market will move along with them.” If the Saudis did this it could face the ire of the US but if it does not do so it could lose the Chinese market.

US dominance – political and financial – are under growing pressure. In this ever-changing world, a new economic order seems to be emerging on the horizon. In this evolving, global, economic order, the yuan is a potential threat to the dominance of the U.S dollar. And this carries major consequences. The unipolar era – as far as economics and finance are concerned – could literally be on the verge of collapse.

About the Author
Rashid Husain Syed is a Toronto-based analyst, commentator and speaker focusing on energy, the associated geopolitics and the Middle East. He has been writing for more than two decades on the emerging global energy scenario for international publications including, Globe and Mail, Saudi Gazette, Arab News and Dawn. He is regularly used by the BBC. He has the honour of being invited to the DoE in Washington and the IEA in Paris to deliver solo talks on energy and the evolving scenario. Having served as the Vice President of a leading Saudi trading and consulting house for almost a quarter of a century, he provides consultancy to various organizations. He can be reached at rhusainsyed@yahoo.ca.
Chinese-African Relations in the Energy Sector
Natalia Hlavova

Introduction
The growing involvement of China on the African continent is seen by economists, political scientists and world leaders anywhere between useful cooperation of developing nations to neocolonialism with China as a new centre for the African periphery. China is criticised for plundering African natural resources, offering unjust loans to underdeveloped countries and creating a new era of dependency in Africa. The most troubling feature of Chinese involvement in Africa, as perceived especially from the US and Europe, is the lack of democratic conditionality of capital flows. Despite the criticism, Chinese investment in Africa continues to grow significantly and relations between China and several African countries are tight. In this article, we focus on the relations between China on one side and individual African economies on the other, and also the relations between China and the entire African continent with a focus on the energy sector in these economies.

The aim of the paper is to identify the intensity of China-Africa relations in the energy sector based on the data on external trade and foreign investment. We also compare the countries in Africa according to their dependency on Chinese trade and investment in the energy sector and determine for which economies Chinese partnership is vital. On the other hand, we also consider which partnerships in Africa are crucial for the Chinese energy sector. The article uses data from all African economies except Somalia, where the lasting political instability results in unreliable or missing datasets. The data for the research are retrieved from the United Nations Conference on Trade and Development (UNCTAD) and the International Energy Agency (IEA) databases. We use statistical software PSPP to analyse the data.

The Chinese Energy Sector
According to the International Energy Agency (2016), China is the biggest energy producer but a net energy importer. The most important source of energy in China is coal (73%), followed by biofuels (8%) used mostly for heating and cooking, oil (8%) and natural gas (4%). The Chinese government plans to reduce the country’s dependency on coal to diversify its energy mix and to reduce the amount of CO2 emissions. However, China plans to further secure its oil and natural gas supply by investing in oil rich countries and building new pipelines. (Zhu, 2016) The Chinese plan to reduce CO2 emissions and pollution relies on nuclear energy and renewable sources of energy. China has 35 operating nuclear reactors and 20 more are in construction. (World Nuclear Association, 2016) The most important renewables in the Chinese economy are biofuels, water, wind and solar energy. Recently, the increases in investment into wind and solar energy has made China the biggest supplier of components for wind and solar power plants. (Chu, 2015)

Since the oil shocks in the 1970s, energy security became one of the elements of overall security in the country. While in the beginning energy security meant only secure oil supply, energy security now includes the supply of a variety of energy resources and security of the whole supply chain. (Erahman et al., 2016) The researchers studying energy security define it very differently resulting in the list of 45 definitions collected by Sovacool (2011). The same situation can be seen in measuring energy security. One of the most complex indicators of energy security is the Energy Architecture Performance Index (EAPI) (World Economic Forum, 2017) which includes three categories of indices and every category is evaluated with a score from 0 to 1, where 1 is the best score. The three categories for evaluation are further divided based on the indices used for each category. The three categories are:

- Economic Growth and Development
- Environmental Sustainability, and

In 2017 Chinese energy security measured by the EAPI is 0.58 which places China as 95th out of 127 evaluated countries. The positive aspects of the Chinese energy sector are its electrification...
rate and the diversification of import counterparts. However, China has the highest particulate matter concentration of all the evaluated countries.

China is the biggest producer of CO2 emissions in the world (The World Bank, 2017) so there is significant international pressure to implement measures mitigating those emissions and the negative effects on the environment. China is suffering from climate change challenges such as potential sea-level rise and natural disasters. But its economic situation and low international support lead to low mitigation capacity in China. (Rong, 2010)

Cooperation between China and African countries is institutionally-backed by the Forum on China-Africa Cooperation (FOCAC). The Forum was established at the Ministerial Conference in October 2000 in Beijing. FOCAC became the forum for cooperation among China, the Commission of the African Union and 50 African states which have established diplomatic relations with the People’s Republic of China (PRC). (FOCAC, 2006) In 2016, there remain three countries in Africa having diplomatic relations with the Republic of China (Taiwan) and are therefore excluded from any cooperation with the PRC. These countries are Burkina Faso, Swaziland and Democratic Republic of Sao Tome and Principe. (Ministry of Foreign Affairs of the PRC, 2016 a) Another African country outside of FOCAC is Gambia, which cut diplomatic ties with the PRC in 1994 and cooperated rather with Taiwan. Although Gambia ended their ties with Taiwan in 2013, they had to wait until March 2016 to rebuild their diplomatic relations with the PRC. On March 17, 2016, the PRC and the Islamic Republic of The Gambia issued a joint communiqué on resumption of diplomatic relations signed in Beijing by the ministers of foreign affairs of both countries. (Ministry of Foreign Affairs of the PRC, 2016 b) The diplomatic ties to the PRC allow countries to participate in FOCAC, and also increase the trade relations between African countries and the PRC. (Didier, 2016)

The Chinese interest in Africa can also be documented by the number of Chinese embassies there. China has an embassy in each of the 50 African FOCAC member states. In total, the PRC has 167 embassies all over the world, so it has an ambassador in almost every state. This fact corresponds with the influence the PRC has in world economic and political affairs.

The establishing document of FOCAC is the Beijing Declaration of the Forum on China-Africa Cooperation and was signed after the first ministerial conference held on October 10-12, 2000. The declaration stresses that FOCAC establishes the cooperation between developing states to undermine the existing gap between the rich North and the poor South. In ten points of the declaration the parties call for equality of states, peaceful dispute settlement, reform of international institutions, freedom in approach to human rights, development assistance, support for intra-African integration, fight against diseases, cancellation of debt and deeper China-Africa cooperation within FOCAC and towards the rest of the world.

The Forum operates based on ministerial conferences held in China and Africa approximately every three years:

1\textsuperscript{st} Beijing, PRC, 10-12 October 2000.
2\textsuperscript{nd} Addis Ababa, Ethiopia, 15-16 December 2003.
3\textsuperscript{rd} Beijing, PRC, 4-5 November 2006.
4\textsuperscript{th} Sharm El Sheikh, Egypt, 8-9 November 2009.
5\textsuperscript{th} Beijing, PRC, 19-20 July 2012.
6\textsuperscript{th} Johannesburg, South Africa, 4-5 December 2015.

The next Ministerial Conference will be held in the PRC in 2018. The declaration of the Johannesburg Summit is a short general document, but another issued at the conference, The Forum on China-Africa Cooperation Johannesburg Action Plan, (FOCAC, 2015 b) contains more detail concerning future energy cooperation. In part 3.3.8 the parties “encourage and support the participation of Chinese businesses in investment, construction and operation of power
projects in Africa” in all energy sectors from mining to power plant maintenance. Part 3.4, Energy and Natural Resources, calls for mutually beneficial exploitation of natural resources, more value addition in the mining sector in Africa and technology transfer. The energy sector is also listed as one of several sectors benefiting from favourable loans from China.

Many Chinese investment projects in Africa are connected to the energy sector ranging from oil mining projects through big dams to wind power plants. Chinese investment policy is criticised for ignoring political, social and environmental standards implemented by Western institutions in pursuit of economic development. (Taylor, 2006) This policy is especially dangerous for Africa as its main advantage for Chinese interests lies in its natural resource wealth and mining activities of countries with poor environmental records. These African economies belong to the most important producers of oil (Nigeria, Angola, Equatorial Guinea), natural gas (Nigeria), gold (South Africa, Ghana, Mali) and diamonds (Botswana, South Africa, DRC). (Hlavová, 2017) However, the policy of non-interference with internal issues from China is changing and Chinese investment institutions regard environmental protection as a vital part of investment projects. (Bosshard, 2008) The change in Chinese practices can also be seen in less harmful displacement induced by development projects. (Hlavová, 2016) Chinese companies operating in Africa also started to face backlash from local environmental activists and governments and had to align their practices with environmental regulations. Also, Chinese authorities issued guidelines on international investment for state-owned enterprises. Chinese companies operating in Africa cannot afford to neglect the standards of environmental protection and their actions tend to comply with Chinese and African standards which are approaching environmental standards in some developed countries. (Mol, 2011)

In the introductory part to this paper we described the interdependence in the energy sector between China and African countries as trade dependence and investment dependence. China imports energy resources from African countries and invests in the African energy sector. Chinese dependence on energy resources from Africa can be traced by the data on Chinese imports divided according to SITC, an investment site. Energy resources are in Section 3 of SITC. We studied fuel imports from Africa to China since the beginning of the FOCAC in 2000, until 2014. The data were retrieved from the UNCTAD database. (2016)

The biggest African partner for China in energy resources is Angola (the sum of all fuel imports between 2000 and 2014). Angola was also the biggest fuel exporter from Africa in all given years except 2001 and 2002 when it was surpassed by Sudan. If we consider the sum of all fuel imports in the period between 2000 and 2014, the biggest partners for China after Angola are Sudan (imports in 2000-2011), Congo, Libya, Equatorial Guinea and Algeria. Imports from Angola during this period are more than 54% of all fuel imports from Africa. The second biggest importer, Sudan, is responsible for only 10% of all imports. The Angolan share on total fuel imports to China is 10.6%.

There are 15 countries in our data which did not export any fuels to China during the period studied or do not have any available data on fuel exports. These countries are Benin, Burundi, Cabo Verde, Central African Republic, Comoros, Eritrea, Guinea-Bissau, Lesotho, Malawi, Mauritius, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone and Swaziland.

The most important of fuel imports categories is group 333 – petroleum oils, oils from bitumen minerals, crude. The average share of this group during the studied period is 97.4% and never fell under 94%. Other groups’ shares fluctuate during this period. The biggest groups after crude oil are 343 – Natural gas, whether or not liquefied (1% on average), 342 – liquefied propane and butane (0.8% on average) and 321 – coal, whether or not pulverized, not agglomerated (0.8% on average).

If we consider the interdependence between China and Africa in energy resources trade from the point of African fuel exports, we can see that the share of African countries on total world fuel
export is oscillating around 10% without any clear tendencies between 2000 and 2014. The average African share during this period is 11.5%.

From the Chinese perspective, African countries energy resources exports are much more valuable than the world economy. African fuel exports to China during the period 2000-2014 accounted for 20.4% share on total Chinese fuel imports. The development of Chinese dependence on African fuel imports is shown in Figure 1. The figure shows that although the African share on Chinese fuel imports grew significantly for several years after the initiation of closer cooperation between the states under FOCAC, after 2007 the share of African exports falls to almost pre-FOCAC levels. The shrinking share of African fuel exports to China is not accompanied by declining shares of African fuel exports in the world economy.

**Figure 1: Chinese Fuel Imports from Africa**

![Figure 1: Chinese Fuel Imports from Africa](image)

Source: Author’s calculations

Figure 1 also includes data on total amount of African fuel exports to China in USD. These data show us that the decline in African share is not caused by declining value or amount of fuel exports from Africa to China, but rather by growing Chinese demand for fuel resources fulfilled by exports from other parts of the world. The total amount of African fuel exports to China has grown significantly since 2000 with only a slight decline in the last two years.

For Africa, on average, China is a less important destination for its fuel exports than African fuel imports are for the Chinese economy. In general, only 10.8% of African energy exports go to the Chinese market. In Figure 2, we can see the growing interdependence in energy resources trade between African economies and China after the initiation of FOCAC. The figure shows a similar pattern as China’s dependence on fuel imports from Africa grows. However, Chinese dependence on fuel imports from African countries is still significantly higher than in 2000 when the FOCAC initiative began. The amount of energy resources traded from Africa to China is growing, but Chinese imports from other territories and also African exports to other countries are growing faster than energy resources trade between Africa and China.

Although Africa is more important for China in fuel exports than vice versa, the share of China as a destination for African exports is still higher than the Chinese share on total world fuel imports. Only about 6.6% of total world fuel exports goes to China, in comparison to 10.8% of African fuel exports.
However, there are some African economies whose fuel exports are heavily dependent on Chinese demand. China is the biggest customer for fuel exports from Sudan (76.9%), Mauritania (68.4%), Angola (39.9%), Congo (37.7%) and DRC (34.1%). The share to China of the exports from the Sudanese economy before the division of South Sudan in 2011 was 73.3%.

In Figure 3 we can see the importance of China as the destination for fuel exports from five African countries identified as those most dependent on Chinese demand. The data are incomplete because in some cases the category of fuel exports was not calculated separately in the past. We use the data for Sudan only after 2011, when the country in its present shape came to existence after South Sudan independence. The development of its dependence on Chinese demand follows the same path of growing dependence as the period before 2011.

From Figure 3 we can see that the share of China as the importer of energy resources from Mauritania is very volatile during the studied period.

The missing data about the value of fuel exports from the DRC to China allow us only to analyse the period between 2011 and 2014, where, after a significant spike of the Chinese share, there is a slow decline. The value of fuel exports from DRC to China is still growing and the decline in China’s share is due to rapid growth in fuel exports to other countries.
Export and import values from Africa and to China are well documented and the data are structured according to SITC, which allows us to study various foreign trade categories. The situation with investment is complicated because many countries, including those in Africa, do not have statistical evidence of the origin of foreign direct investment (FDI).

We based our research of FDI to Africa on data from African sources, mainly from the African Development Bank Group. (2016) Their methodology reports net flow of FDI from all countries and then separately from OECD countries. The data do not allow us to track Chinese investment separately, but only together with FDI from all developing countries together.

From the data on net inflow of FDI to Africa in the period between 2000 and 2012 we see how volatile FDI is, both from OECD countries and from developing countries. We can see the net inflow of FDI to Africa on Figure 4. It consists of data on net inflow of FDI to Africa from all countries, OECD countries and non-OECD countries. As we are focusing on China and Chinese investment in Africa, we also use the data on the share of non-OECD member states’ investment in the figure reported as a percentage of total inflow of FDI to Africa.

Figure 4: Sources of FDI in Africa

![Image: Source: Author’s calculations]

Certainly, positive development in Africa can be seen on the indicator of total inflow of FDI during the studied period. From 9.2 billion USD in 2000 the flow of FDI grew to 55.2 billion USD in 2012. After several peaks and drops in flows from OECD and non-OECD countries, we can identify clear trends after 2007 with declining flows from OECD countries and rising flows from other developing countries. This also leads to a growing share of non-OECD countries in total FDI flows to Africa resulting in over 80% in 2012. Recent years show that non-OECD countries outperform traditional investors in Africa and the trend is the shift to cooperation within the group of developing economies.

If we look at the data for individual African economies, the most prominent destination for foreign capital flows is Nigeria, accounting for 14.3% of all FDI flows to Africa during the studied period. Nigerian success in attracting investment can be explained by the size of the economy, its natural wealth and its position as a regional power. Nigerian investment success is closely followed by two other major economies on the African continent, namely Egypt with 13.6% and South Africa with 11.1% of all African FDI flows. The smallest share of investment to Africa flows to Comoros, Guinea-Bissau and Sao Tome and Principe, which can also be explained by the sizes of these countries.
The dependence of individual countries on investment either from OECD countries or non-OECD countries varies significantly. In some countries over the 2000-2012 period, the outflow of FDI from non-OECD countries was higher than inward flow. The country with the highest outflow of FDI from non-OECD countries is Angola, one of the biggest exporters of oil in Africa. The positive net FDI flow has changed to negative in 2005 and this trend continues to 2012. Even bigger was the outflow of non-OECD countries’ FDI from Mauritius, but this negative result was partly balanced by the FDI inflow from OECD economies.

Critics of Chinese involvement in Africa often point out that unlike OECD countries (especially USA and European Union member states) China imposes no political conditions for cooperation. This system should result in stronger relationships between China and countries excluded from cooperation with OECD partners, as China is one of the few developing countries massively investing abroad. In several African countries, the share of non-OECD countries on net flow of FDI between 2000 and 2012 is more than 100%, which means that OECD countries have withdrawn their investment while non-OECD countries supersede this loss. The countries with the biggest share of non-OECD countries net FDI flow are Guinea-Bissau (145.5%), Niger (131.2%), Cape Verde (114.8%), Sao Tome and Principe (107.2%), Ethiopia (104.8%), Chad (102.5%), Mali (101.5%), Guinea (101%) and DRC (100.7%).

The level of democracy in Africa, as measured by the Polity IV index (Center For Systemic Peace, 2014) is +1.61 on average between 2000 and 2012, on the scale from -10 (absolute autocracy) to +10 (absolute democracy). In the countries where non-OECD countries invest more than OECD countries the measure of democracy are in some cases far higher than the African average. Only three of those countries have a lower Polity IV score than the African average: Chad (-2.00), Ethiopia (-1.46) and Guinea (-0.54). Other countries have higher than average scores: DRC (+3.31), Guinea-Bissau (+4.31), Niger (+4.77), Mali (+6.31) and Cape Verde (+9.85). There are no data available on the Polity IV score for Sao Tome and Principe.

The countries least dependent on FDI flows from non-OECD countries also have very different democracy scores. Angola and Mauritius have much higher share of net FDI flows from OECD countries claiming that they cooperate only with democratic regimes. While Mauritius has the highest score (+10) meaning absolute democracy, Angola is on the negative side of the scale with a score of -2.15. The results of our analysis show there is no correlation between OECD countries FDI and the degree of enhanced democratic principles of African countries and no correlation that non-OECD countries, including China, only invest in less democratic countries.

According to Chinese data on development assistance and investment, there are currently 217 Chinese investment projects in the African energy sector. (Open Data on International Development, 2016) These include power transmission projects, power plant construction, renewable energy projects and training facilities for energy sector professionals. The highest numbers of Chinese energy projects are based in Sudan, Kenya and Ethiopia.

In July 2015, the Chinese company China State Construction Engineering Corporation (CSCEC) signed a deal with the Zimbabwean company PER Lusulu Power to build a thermal power plant. (Energy Daily, 2015) The deal will finance the first stage of a four-stage project to increase the capacity of Zimbabwean electricity generation capacity by 2000 MW. The first phase of the project should be completed in 2019 and increase the capacity of power supply in Zimbabwe from 1100 MW to 1700 MW. (Mail & Guardian Africa, 2015) The deal of 1.1 billion USD will be financed by Chinese financial institutions. (Dzirutwe, 2016)

China also invests in renewable energy, for example in South Africa. The Chinese company Scatec Solar will build and operate a solar plant in the Northern Cape region, together with a Norwegian Investment Fund for Developing Countries and a local Trust. Scatec Solar is a 42 percent shareholder in this project. The solar plant should increase the power supply in South Africa by 258 MW. (Renewable Energy Focus, 2015)
Another solar power plant will be built in Kenya with financing from China based on concessional funding. The amount of the deal is 128 million USD adding 55 MW to Kenyan power production. China will not only finance the deal; the Chinese company Jiangxi Corporation for International Economic & Technical Cooperation will build the plant. The solar panels will also be supplied from China, by JinkoSolar Holdings. (Xinhua, 2016)

This paper focuses on the relations between China, one of the biggest economies in the world, and developing African countries. We assessed their relations in trade and investment in the energy sector over the 2000-2014 period. In 2000 the Sino-African cooperation became more formal with the initiation of the Forum on China-Africa Cooperation (FOCAC). Since 2000 six ministerial conferences took place in China and Africa as a result.

The paper compares the importance of these partnerships on energy trade. China is a net importer of energy resources from many countries including those in Africa. We have determined that China is dependent on those countries for on average 20.4% of its import demand. FOCAC led to growing dependence of China on Africa until 2007 when that dependence started to decline. Despite the percentage decline, the amount of fuel exports from Africa to China is growing in magnitude, due to China’s significant increase in demand for energy imports and its growing economy. The most important importer of energy goods to China is Angola while China is especially important for Sudan, Mauritania, Angola, Congo and DRC.

The data on total investment from China to individual countries in Africa in the energy sector is not available. We used African data which categorizes foreign investment in Africa into two categories: investment from OECD countries and investment from other countries. Both categories show significant volatility but after the sharp decline in investment in 2004, the pattern is stable. We see the decline in investment from OECD countries and an increase in investment from other countries, including China. The share of non-OECD countries FDI in the African energy sector has risen to more than 80% of the world total.

China is often criticised for investing in developing countries that do not meet the democratic standards of developed nations, namely the European Union and the US. We compared OECD investments and Polity IV scores of African countries. The level of democracy in African countries with mostly OECD investments showed no pattern toward higher democratic principles than those invested in by non-OECD countries.

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One of the most dramatic policy reversals the Trump administration carried out is to withdraw the United States from the Paris Climate Conference, making the country the most important and the only one that is not a part of the global climate action compact. This also means that the *U.S.-China Joint Announcement on Climate Change* negotiated by President Barack Obama and President Xi Jinping in 2014-2015 is no longer in place. With the US abandoning its leadership role on global climate actions, China has proactively demonstrated to the world that it will not follow the United States, will continue to commit itself to the goals of reducing CO2 emissions, and will meet all key emission reduction targets in the coming years and decades.

This paper provides a summary of China’s climate policy evolution in recent years, especially since the UN Climate Change Conference in Paris in 2015, an up-to-date assessment of these policy implementations in practice, and Beijing’s international efforts in positioning itself as the world leader in fighting global warming.

For nearly four decades since China carried out the dramatic market-oriented reform program in the late 1970s, the Chinese economies averaged around 10 percent annual growth, creating the world’s longest economic development miracle, lifting China status to the world’s largest economy measured by purchasing power parity standards; on the way to replacing the United States as the number one economic power by US dollar standards. But such an explosive growth, overly focusing on GDP targets and exports of goods, comes with severe damage to the environment, the ecological system and the climate. Today, China stands as the largest CO2 emitting country with 26 percent of the global share, partly because 62 percent of China’s total primary energy use still comes from coal.

As China’s air, land, water and other pollutions worsened in recent years, the public cry for a more balanced development approach has been growing, leading the highly centralized government to take notice and action. In the area of climate change, the Chinese government has turned from being a passive observer to a proactive participant in recent years, making more efforts as global momentum builds in reducing greenhouse gas (GHG) emissions.

Beijing’s initial systemic climate change policy expression could be found in its *12th Five Year Economic Development Plan* covering the period 2011-2015. For the first time, China puts green and low-carbon development as an important component of what was defined as the “ecological civilization construction,” and a crucial opportunity to accelerate “the shift in the country’s economic development mode and promote the economic restructuring.” Such a paradigm shift was profound for China, given the fact that the cheapest energy source in the country is coal, and local resistance to a new, low carbon development model is very strong.

But the government designed strong policy measures to push for such a paradigm shift during the *12th Five Year Plan*. First, the central government targeted at adjusting the industrial structure by eliminating “backward production capacity,” e.g., making production more environmentally-friendly and efficient, by transforming and upgrading traditional industries to meet new green standards, by supporting the development of “emerging industries” – sectors that are less energy-intensive with high tech elements – and by accelerating the development of the service industry which is also less energy-intensive.

Second, the *12th Five Year Plan* aimed at optimizing the energy structure. This was done by:

- imposing strict controls over coal consumption
- promoting the clean use of fossil fuels
- pushing the development of non-fossil energy sources, and
- speeding up overall energy sector reform, making the entire energy and power generation systems more efficient.
Third, the government pushed for better energy conservation and energy efficiency by:

- enhancing the management of energy-saving accountabilities at the local government level
- improving energy efficiency standards and labeling through the introduction of hundreds of new standards and certification processes
- promoting energy-saving technologies and products
- boosting energy conservation in the construction and transportation sectors and in public institutions, and
- speeding up the development of the circular economy with large scale pilot projects across the country.

Fourth, measures were taken to control GHG emissions from non-energy activities by:

- better managing non-carbon dioxide GHGs
- controlling emissions from agricultural activities and waste disposals, and
- increasing forestry and grassland carbon sinks.

Fifth, a range of new measures was taken to make Chinese economic sectors more adaptable to climate change, including in the agriculture sector, water resources management, forestry, marine and meteorology sectors, and disaster prevention resulting from climate changes. Many low carbon pilot and demonstration projects were locally planned, together with strengthened coordination on strategic planning, institutional construction, capacity building at all levels, and broader public participation in raising the awareness of global warming and its impacts.

In the just released 2017 edition of China’s Policies and Actions for Addressing Climate Change, the Chinese government highlighted more policy initiatives as a part of the new 13th Five Year Plan from 2016-2020. In contrast to the previous five years, the new blueprint of economic growth endorses new strategic industries that are high tech and low carbon, such as electric vehicles. There is a nationwide drive to reduce industrial capacities that are energy intensive, and more push for the growth of the service sector. A new target is set for reducing the percentage of coal in China’s total energy mix from 64 percent in 2015 to below 58 percent in 2020. The energy saving efforts are now more systemic in implementation and monitoring, and the reduction of coal use and the clean burning of fossil fuels are given even more priority. At the same time, investment and promotion of non-fossil energy sources are strengthened, with new targets set for the coming years and decades.

A more detailed plan was developed in making China more adaptive to an environment that is already feeling the impact of climate change while public participation in creating a low carbon society is integrated into the government-led process. Another element beyond government regulations is to introduce more market-oriented measures such as carbon trading, trading of emission rights, and low carbon financing themes.

In sum, China today has clearly passed the debate stage on how to react to the global warming trends, and there is public consensus that China must move swiftly in dealing with environmental problems and climate change challenges.

**Assessment of Policy Results**

Given the very centralized nature of the Chinese system, government driven policies are implemented much more efficiently than more decentralized states or states with much weaker governments. This is despite the fact that there is substantial resistance from relevant sectors, local governments and other interest groups.4

Per the reporting period 2011-2015, China’s energy-related carbon dioxide emissions per unit of GDP was reduced by 20 percent, exceeding the compulsory target of 17 percent reduction previously proposed. This has laid a good foundation for achieving China’s goal of cutting carbon dioxide emissions per unit of GDP by 40-45 percent from the year 2005 to 2020. Such a goal was achieved mainly due to a 5.7 percent drop of industry’s contribution to GDP in 2015 from the 2010 level while the service sector increased by 6.1 percent.5
In 2016, the service sector’s contribution to GDP increased another 7.8 percent, to 58.2 percent of China’s GDP.

One measure of reducing the industry’s contribution to the economy is to eliminate “backward production capacity”:

### Backward Production Capacity Elimination, 2011-2015

<table>
<thead>
<tr>
<th>Industry</th>
<th>Mton</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Smelting</td>
<td>90.89</td>
</tr>
<tr>
<td>Steel Production</td>
<td>94.86</td>
</tr>
<tr>
<td>Electrolytic Aluminum</td>
<td>2.05</td>
</tr>
<tr>
<td>Cement</td>
<td>657</td>
</tr>
<tr>
<td>Plate Glass</td>
<td>169 (million weight cases)</td>
</tr>
</tbody>
</table>

The limit on the use of coal during the 12th Five Year Plan was not as successful but still substantial. The annual consumption of coal rose by only 2.6 percent in comparison to the 7.5 percent annual increase during the 11th Five Year Plan in 2006-2010. And in 2016, the increase of coal consumption was kept at 1.4 percent. The government managed to take out “backward” thermal power units with a total generating capacity of 28 GW, and shut down over 1,000 “backward” coal mines, mostly illegally operated, with a total capacity of 70 Mt.

The drive to increase the share of non-fossil fuels resulted in impressive changes, with non-fossil energy shares increasing in China’s total power generation, as shown below, with solar capacity growing in explosive terms.

### 2015 National Installed Power Capacity, 1.525 TW

<table>
<thead>
<tr>
<th>Capacity of:</th>
<th>Total (GW)</th>
<th>Increase from 2010 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro</td>
<td>320</td>
<td>0.5</td>
</tr>
<tr>
<td>Nuclear Power</td>
<td>27.17</td>
<td>1.5</td>
</tr>
<tr>
<td>On-grid Wind</td>
<td>130.75</td>
<td>3.4</td>
</tr>
<tr>
<td>On-grid Solar PV</td>
<td>42.18</td>
<td>164</td>
</tr>
</tbody>
</table>

As a result, the ratio of non-fossil fuel consumption during the 12th Five Year Plan increased by 2.6 percent, with total power generation of non-fossil fuels, including hydro, nuclear, wind and solar, occupying 27 percent of China’s total power generation. According to Bloomberg, China dominated in global investment in renewable energy in 2015. In 2016, China further reduced over-capacity steel production by 65 million tons and over-capacity coal production by 290 million tons.

### China Dominated Renewable Energy Investment in 2015

![China Dominated Renewable Energy Investment in 2015](image)

Source: Bloomberg New Energy Finance
In the areas of green construction efforts, China boosted nearly 4,000 nationwide projects with green building labels, with a total construction area more than 450 million square meters. In the transportation sector, “carbon dioxide emissions per unit of transport turnover in commercial vehicles and vessels decreased by 15.9 percent and 20 percent, respectively, compared with the 2005 level, and fuel consumption per ton-kilometer and carbon dioxide emission per ton-kilometer in the civil aviation sector were both reduced by 13.5 percent.”

But the key challenge facing China is still the large percentage of coal used in China’s total energy mix, which is responsible for the majority of China’s CO2 emissions. The reduction goals, as ambitious as they are, may not change the situation significantly in the foreseeable future. For example, with more robust economic activities, coal consumption jumped about 5 percent in the first half of 2017, and thermal power generation grew by 5.4 percent in the first 10 months, seriously challenging the target of further reducing 200 million tons of coal use by 2020. Another serious problem with curbing the use of coal is how to deal with the fact that most of the coal use is widespread across industries by medium and small enterprises, and by farmers in the vast countryside (which still has close to half of China’s 1.4 billion population). These types of coal use are mostly unregulated, inefficient, low in quality, and direct-burning without anti-pollution devices. The central government is yet to find a way to effectively deal with the situation.

China’s international stand on climate change has gone through dramatic changes in the past 10 years, from being passive to neutral to participating to more proactive role changes. For many years, China, together with other developing countries, insisted that Western industrialized countries were historically responsible for global warming and they should pay for the cost while claiming that developing economies have a right to continue to use more fossil fuels due to their early stages of development and industrialization. When Western media criticized China for sabotaging the UN Copenhagen Climate Conference in 2009, Beijing was furious and denied such accusations. But it was also a turning point where the Chinese leadership wanted to be an active participant on climate change issues. Other than the increasing international pressure, China began to realize the dire consequences of its own environmental problems after decades of neglect and the impact of global warming. With China turning into the number one CO2 emitting country in recent years, there is growing realization that combating global warming trends must be a global effort and China must be a part of the solution.

So, in 2015, China submitted the Enhanced Actions on Climate Change: China’s Intended Nationally Determined Contributions to the UNFCCC, becoming the first developing country to submit such a document. The Paris Climate Conference saw a much more visible role of China, with President Xi Jinping speaking, and China setting ambitious emission targets, promising to reach the peak of emissions by 2030, and cutting CO2 emissions per unit GDP by 60-65 percent from 2005 level.

China engaged the United States during the later years of the Obama Administration to put a strong US-China joint support to the Paris Conference process, pushing for its early approval through numerous multilateral and bilateral initiatives. But when Donald Trump was elected US President, and signalled that he would pull the United States out of the Paris Climate Change process, Beijing wasted no time in expressing its firm commitment to the process, thus positioning itself as an emerging leader in the entire UN process. When President Xi Jinping gave the keynote speech at the Davos World Economic Forum in early 2017, all eyes were on China for global leadership, not just in the realm of climate change but also free trade and multilateralism. Such a reverse role between the US and China was not even conceivable a couple of years ago, and yet China is widely recognized as the indispensable driving force in the fight to stop global warming.

As widely reported, in the just concluded UN second “conference of the parties” since the Paris Conference, or COP23 in Bonn, China played an active role in promoting collaboration among both developed and developing countries. It even co-hosted a working group session on Nationally Determined Contributions with the US delegation.

With the United States under President Trump turning to more protectionist and predatory approaches on the international stage, China seeks to fill the leadership vacuum by advocating not
only more worldwide climate change actions, but also free trade, multilateralism and inclusiveness. With President Xi Jinping consolidating his domestic power at the recently concluded 19th Communist Party Congress, he can turn more attention on promoting China’s global leadership role. We can expect more proactive measures from Beijing on climate change areas as it will not pass up this opportunity to assert its leading role when the opportunity was so easily handed over.

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Endnotes
4 Unless noted otherwise, statistics are taken from the official release of China’s Policies and Actions for Addressing Climate Change 2016 (English) and 2017(Chinese) editions.
5 Ibid. p.8, p.12.
6 Author’s summary according to official statistics in China National Development and Reform Commission, China’s Policies and Actions for Addressing Climate Change (2016).
7 Ibid. pp. 13-14.
8 Author’s summary according to official statistics in China National Development and Reform Commission, China’s Policies and Actions for Addressing Climate Change (2016).
12 According to UN procedures, the United States, even if it intends to withdraw from Paris Climate Change conference obligations, it can’t leave the process until 2020, making the US still part of all scheduled activities.
13 https://www.carbonbrief.org/cop23-key-outcomes-agreed-un-climate-talks-bonn