GLOBAL EMISSIONS REDUCTION:
MOTIVATORS, OBSTACLES AND THE ROLE OF GERMANY

EXTENDED VERSION

RESULTS OF A COMPARATIVE SURVEY OF EXPERTS IN CHINA, INDIA, RUSSIA AND THE USA

Konrad Adenauer Stiftung

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Foreword

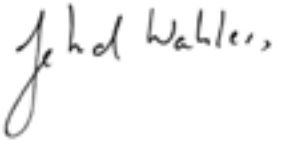
Dear readers,

The Paris Agreement on climate change came into effect on 4 November 2016. The declared common aim of the treaty – the limiting of global warming to well below two degrees Celsius – is remarkably ambitious, particularly in light of the fact that so far we have been unable to effectively uncouple economic growth from CO_2 emissions worldwide. This raises the burning question of how a long-term trend towards sustainable ways of living and doing business can be established worldwide, while also taking into account key issues such as reducing poverty and building prosperity, both now and in the near future.

The signatories to the climate agreement included the world's four largest producers of emissions: China, India, Russia and the USA. This study takes a detailed look at the different situations of the four countries with regard to reducing emissions. It was carried out by market research specialists Ipsos on behalf of the Konrad-Adenauer-Stiftung.

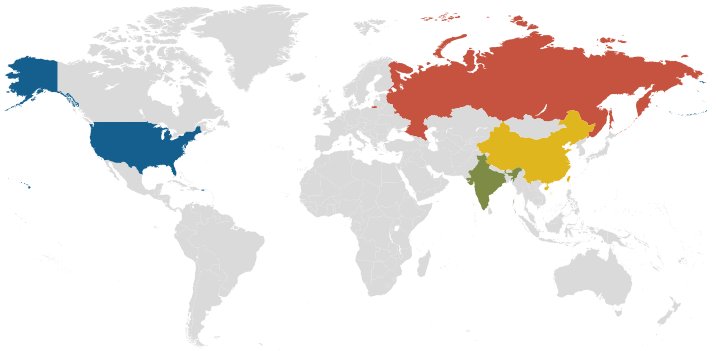
The report shows that there are many differences between the four countries, but also some similarities. It particularly highlights the fact that preventing climate change is still not a major motivating factor when it comes to reducing emissions. Issues such as combating poverty, economic competitiveness, air pollution and administrative enforceability vary greatly among the four countries. The results of this survey are also important for Germany's international engagement in the area of climate policy.

I hope you will find this report a stimulating read.



Dr Gerhard Wahlers

About the study



China
India
Russia
USA

The study presents a detailed and comprehensive picture of the motivating factors and obstacles that impact efforts to reduce emissions among the world's four largest emitters, who between them account for 50 percent of global carbon emissions.

In light of the Paris Agreement on climate change and the associated question of how to pursue the agreed climate objectives in the most effective and cost-efficient way possible, the results of the study provide stakeholders in government, business and civil society with useful information on how to draw up, review and set the direction of their international cooperation strategies and projects. Germany sees itself as a trailblazer and a key partner when it comes to fighting climate change. Thus, the study also examines the perception the four countries have of Germany.

The results of the study reflect the opinions of those surveyed. However, the section "Country comparisons and opportunities for Germany" is an exception in this respect. The authors of the study have taken – when appropriate – the expectations of Germany articulated in the interviews and used them to draw conclusions about potential implications for German stakeholders.

The study does not claim to be statistically representative. Instead, it takes a qualitative approach by taking a targeted selection of specific groups of people and asking them detailed questions in order to illuminate the prevailing views in the countries being studied.

About the study

	China	India	Russia	USA
Target groups	Experts on climate and environmental issues in the following areas: Business, Administration, Science, Think tanks/NGOs (five interviews per target group)			
Method	Qualitative expert interviews lasting 25-40 minutes			
Survey period	16 May – 27 May 2016	26 May – 16 Jun 2016	07 Apr – 14 Jun 2016	27 Apr – 29 Jun 2016
Interviews carried out	n=20	n=20	n=20	n=20
Local recruitment and interviewing	Ipsos China	Ipsos India	Ipsos Russia	Ipsos USA
Study coordination and reporting	Ipsos Germany Dr Hans-Jürgen Frieß (Project Leader) Katja Kiefer (Deputy Project Leader)			
Evaluation	Dr Hans-Jürgen Frieß, Katja Kiefer, Janine Freudenberg, Arne Hellwig, Carina Müller (all Ipsos)			

Brief overview

The Paris Agreement on climate change has been largely accepted. However, when dealing with emissions, economic issues remain of paramount importance. Geopolitical interests and the desire for global influence are having a beneficial impact on emissions reduction, with the exception of India. Generally speaking, all the countries studied display a growing, but still weak, public awareness of the problem. In general, perceptions vary more widely between the four countries than between the target groups surveyed (Administration, Business, Science, Think tanks/NGOs).

China: Economic opportunities, competitiveness, international image and, to a lesser extent, health aspects (smog, etc.) are important motivating factors when it comes to reducing emissions. The main obstacles to reducing emissions are the conflict of interest between economic growth and emissions reduction, and the problem of enforceability at provincial level. Germany is perceived as both a project partner and investor.

India: Key factors include combating poverty and the conflict of interest between economic growth and emissions reduction. The consequences of climate change and the risks associated with development are clearly recognisable, yet reducing emissions is not treated as a priority and international assistance is expected. Political and administrative inertia and incompetence are major obstacles. Germany is viewed as a financial supporter and investor.

Russia: The main focus is on the economic impact. Some Russians still question the idea of man-made climate change and hence the need to reduce emissions. Germany is primarily seen as an investor and also as a partner, particularly in the scientific field.

USA: The focus is on profitability when it comes to pursuing emissions reduction measures. Economic considerations act as both motivators and obstacles. Germany is seen as a business partner, but also as a competitor when it comes to bringing new technologies and business models to the market.

The role of Germany: Germany is considered a role model in terms of its technology and policies, so it is a welcome partner. However, the energy transition is viewed with some scepticism because of the associated costs. Systematically addressing each country's specific motivating factors and obstacles opens up more opportunities for collaboration.

Countries in detail

CHINA

INDIA

RUSSIA

USA

China in detail

Key findings

IMPORTANCE OF THE PARIS AGREEMENT: The Paris Agreement on climate change is very relevant in China and was widely supported by those interviewed. However, they were only cautiously optimistic about its global implementation.

MOTIVATORS AND INCENTIVES: Maintaining long-term competitiveness and national prestige are the two main motivators for reducing emissions. As the central actor, the state focuses on economic incentives.

OBSTACLES: The conflict of interest between emissions reduction and economic growth, consumer demand and social stability presents obstacles to meeting climate goals in China.

PERCEPTION OF GERMANY: Germany is seen as a role model in terms of protecting the environment, promoting business and technology, and making it a welcome partner on emissions reduction issues.

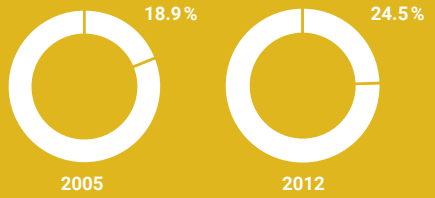
Country overview

AREA	POPULATION	GDP	PCI
9 597 995 km²	1.361 billion (2016)	9.851 billion € (2015)	3,945 € (2014)

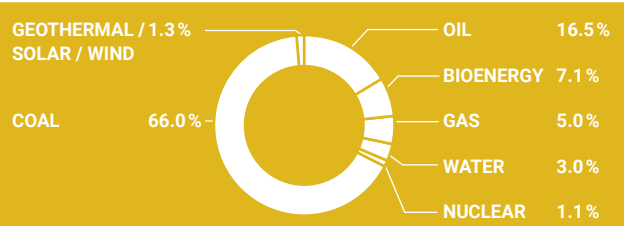
SYSTEM OF GOVERNMENT

- Socialist people's republic
- Ruling party: The Communist Party of the People's Republic of China
- No parliamentary opposition
- Central government in Beijing

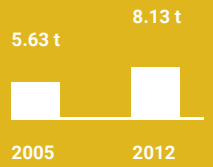
SHARE OF GLOBAL CO_2 EMISSIONS



PRIMARY ENERGY CONSUMPTION BY INDIVIDUAL ENERGY SOURCE 2014



CO_2 EMISSIONS PER CAPITA



NATIONALLY DETERMINED CONTRIBUTIONS TO REDUCING GREENHOUSE GASES
(NDCs, submitted on 3 Sep 2016, pursuant to Paris Agreement 2016)

- Peak CO_2 emissions by 2030 or (if possible) earlier
- Reduce CO_2 emissions per unit of GDP by 60 % to 65 % (compared to 2005)
- Increase non-fossil fuel energy sources in primary energy consumption to approx. 20 %
- Increase forested land to 4.5 billion m³ (compared to 2005)

AREA // POPULATION // SYSTEM OF GOVERNMENT // PER CAPTITA INCOME: http://www.auswaertiges-amt.de/DE/Aussenpolitik/Laender/Laenderinfos/01-Laender/China.html?nnm=383178 (accessed on 1 Sep 2016) // GDP 2015: http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx (accessed on 11 Jul 2016) // PRIMARY ENERGY CONSUMPTION: http://www.iea.org/stats/WebGraphs/CHINA4.pdf (accessed on 11 Jul 2016)
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Importance of the Paris Agreement

The Paris Agreement on climate change is considered to be very important in China and was widely supported by the experts interviewed. However, they were only cautiously optimistic about its global implementation.

"The aim [of the Paris Agreement] is definitely ***WORTH STRIVING FOR.*** *But it is the government's responsibility." (Business)*

"The government is paying more and more attention to the environment. It is aware of the smog, the changes in the environment and the high ***RESOURCE CONSUMPTION."*** *(Science)*

"It is a good ***OPPORTUNITY*** *to strengthen China's reputation as a great nation." (Administration)*

"The ***RESOLUTIONS*** *made at the conference are not very clear and they are not legally binding." (Administration)*

Good knowledge of the Paris Agreement: The goals agreed in Paris are well known; and all the target groups are very focused on them, with the exception of some interviewees in the business category.

Significant consensus: In light of increasing pollution and the growing consumption of resources, the aim of restricting the global rise in temperature to well below 2 °C is very relevant and worth striving for. Indeed, with the exception of some in the business category, some of the experts feel the agreement does not go far enough to motivate all countries to make greater efforts. The interviewees who work in state administration are particularly keen to position themselves as responsible pioneers in this respect.

Cautious optimism when it comes to feasibility: Although the national climate goals for China established by the Paris Agreement are considered ambitious, especially in light of the many economic, political and social challenges. Yet, they are not seen as unattainable. The general expectation is that China will not achieve its peak emission figure before 2030.

China sees itself as a global leader: All the groups surveyed see China as a responsible, driving force on the international stage when it comes to reducing emissions.

Perceived risks at international level: While the experts expressed confidence in themselves and their governments, they have their doubts about whether other countries will achieve the agreed targets.

Motivators and incentives

Maintaining long-term competitiveness and national prestige are the two main motivators for reducing emissions. As the central actor, the state focuses on economic incentives.

*"People should not see emissions reduction as a waste of money. It actually **SAVES** money." (Business)*

*"It's about green development and building a more environmentally aware society. We always knew that pressure from the international community would help China to **TRANSFORM** itself, grow and improve." (Administration)*

*"At the climate summit we made a **PROMISE** that we have to keep. We are trying to create good living conditions for the next generation." (Administration)*

*"Policy is the **KEY.**" (Think tanks/NGOs)*

Safeguarding competitiveness and with it the business model: Improved energy efficiency and more sustainable resource management through innovation, economic reform, education and developing core competencies are the foundations for China's long-term competitiveness and its social model.

Increased international responsibility and national prestige: China feels it is under pressure from the international community because of its high levels of emissions. So it could gain national prestige by taking on more international responsibility and through innovation.

Pollution as a burden: The clearly visible consequences of environmental pollution (above all health problems/costs) and the state's responsibility towards future generations are ensuring that politicians are turning their focus to environmental and climate issues.

The state provides the direction: All the target groups surveyed see the Chinese government as being the key political actor and therefore firmly in the driving seat. Emissions reduction is also about national prestige and government support.

The main focus is on economic incentives: China has set legal standards and restrictions to improve energy efficiency and to increase the share of renewable energy. The main focus however, is on economic incentives, such as a national emissions trading system from 2017 onwards, and on subsidies for the purchase of electric and hybrid vehicles.

*"There have been financial incentives to modernise technology and **SAVE ENERGY** for some years now. (...) There's also a project for consumers. (...) There are many measures in place to encourage energy saving." (Administration)*

*"The government supports wind, solar and hydroelectric power (...) through legislation and **SUBSIDIES.** As far as I can tell, the central government is the country's prime mover in this respect." (Science)*

*"They [the regulations] work. They encourage companies to undertake new **PROJECTS** as a matter of urgency." (Business)*

*"Reducing emissions is something new for many countries, including China. We look at advanced technologies and the **EXPERIENCES** of other countries and then discuss which ones we can also implement here in China." (Administration)*

State incentives and regulation

Leadership from above: China has a top-down system. The emphasis is on positive incentive systems such as subsidies.

Central guidelines have been drawn up:

11th and 12th 5-Year Plan: The first strategic packages for reducing emissions have been discussed and introduced over the last ten years.

13th 5-Year Plan: In the 13th 5-Year Plan China has set out its political, economic and social guidelines for the period to 2020. The main focus is on the modernisation of the economy through reforms. The aim is for industrial production to be upgraded through innovation and technological advances and thereby become more competitive. It is also important to improve the prosperity of the population as a whole and to introduce measures to better protect the environment. This includes raising public awareness of the issues.

Specific examples:

Introduction of a national emissions trading/cap & trade system by 2017

Modernisation/transformation of businesses in order to reduce emissions

Use of incentives in the household goods market to encourage consumers to buy more energy-efficient appliances such as fridges

Providing subsidies to encourage consumers to buy electric or hybrid vehicles

"If we make a real effort, then yes [we can do it]. We need to trust China. We are ***MORE CONFIDENT*** *than any other country." (Business)*

"If we look at it purely in terms of the bottom line, then companies will not feel reductions bring many benefits. But this is a mandatory ***RESPONSIBILITY*** *for companies. That should have a motivating effect." (Business)*

"There are some issues with the technology for measuring [emissions] so it needs to be ***DEVELOPED*** *and improved." (Science)*

"It all comes down to ***RICH AND POOR.*** *It's difficult to achieve much in poorer regions." (Science)*

All the target groups strongly support the government's decisions:

Administration: The main focus is on implementing and monitoring the various measures, including at local government levels.

Business: The reimbursements for each metric ton of CO_2 saved are viewed positively. These currently amount to 600 yuan (90 USD). The experts in this category also like the interest-free loans that only have to be paid back when the business returns to profit.

Science: The experts welcome the government's decision to produce reports that systematically evaluate progress, and also its subsidies for electric and hybrid vehicles.

Think tanks/NGOs: The inclusion of provincial governments in decision-making processes is seen as sensible and potentially very useful.

Overall, the interviewees see the government as having a duty to intervene in terms of both legislation and funding:

Business: There have been calls for government incentives for investments in energy efficiency, for platforms for the exchange of ideas and information, for more participation in the legislative process, and for clear rules that are enforced consistently.

Administration: The main emphasis here is on the need for legislation, controls, tax incentives and investment in infrastructure, along with a standardised method for measuring CO_2 emissions.

Science: The main focus here is on guidelines, knowledge and instruction, as well as incentives to encourage investment. The experts are also keen to see a fair allocation of resources and a greater focus on raising awareness among the general public and business.

Think tanks/NGOs: The harmonisation of technological developments, government leadership, and funding are seen as key issues.

Obstacles

The conflict of interest between emissions reduction and economic growth, consumer demand and social stability are all obstacles to the implementation of climate targets in China.

*"Our current **STAGE OF DEVELOPMENT** means that China is lagging behind when it comes to energy consumption and energy efficiency. There is a significant gap between China and the developed nations." (Administration)*

*"[Here in China] there's a significant **GAP** between developed and underdeveloped regions. People in the economically weaker regions are mostly just focused on ensuring they have something to eat." (Science)*

*"Local politicians are often **LIMITED** in their mindsets and awareness. They need to have a better understanding of the global context." (Think tanks/NGOs)*

*"**LEGISLATION** needs to be detailed and take a range of circumstances into account so that it can actually be implemented effectively. Otherwise nothing much will happen." (Business)*

The conflict of interest between emissions reduction and growth and the pursuit of profit: Efficiency gains require investment, which initially reduces profits and often cannot be financed. The proportion of energy consumption from alternative energy sources is growing, but so is consumption of coal, oil and gas.

Provincial governments are worried about the social consequences: Provinces that rely heavily on energy-intensive industries (chemical and steel) are particularly worried about the potentially destabilising social consequences (job losses) of expensive energy-related modernisation programmes.

Poor environmental awareness: To date, the general public and local politicians have displayed low levels of environmental awareness. There is a general desire for social advancement, consumerism and turning a quick profit. This makes it more difficult to communicate the need to prevent climate change and to persuade the public to accept corresponding measures.

Legislation on emissions reduction is still not specific enough: So far, legislation has not taken sufficient account of the differences and specifics of different provinces and industry sectors in order to effectively reduce emissions.

Lack of monitoring systems: Systems for measuring and calculating emissions are still not mandatory. This means that incentive schemes for emissions reduction are not having the desired effect.

"It's about negotiating at local level. (...) ***LOCAL GOVERNMENTS*** *are still totally focused on increasing GDP, so they prefer to let emissions increase." (Administration)*

"We need an ***INSTITUTE WITH CLOUT*** *that can examine how to implement measures and how emissions can be made both measurable and manageable." (Science)*

"Local politicians are often limited in their thinking and awareness. They need to have a better understanding of the ***GLOBAL CONTEXT."*** *(Think tanks/NGOs)*

Individual development differences without appropriately tailored regulations: The wide differences between the provinces present a major obstacle as there are still no individual incentives tailored to the specific circumstances of each province and the companies operating within them. For example, newer companies using more advanced technology have the same emissions reduction targets as companies that use older technology.

Lack of experience: China only began implementing measures relating to reduced emissions, renewable energy and a decentralised power grid a few years ago. The country therefore regularly faces new challenges with implementation and still fails to pay enough attention to the specific needs of individual provinces.

Skills gap: At regional level, local politicians still have inadequate knowledge and understanding of the issues involved. For them, growth targets are still paramount.

Emissions trading scheme still in the early stages: The emissions trading scheme has not yet been introduced nationwide. So far there have been seven pilot projects. The main complaint from companies is that there is often little room for open trade because of too much governmental intervention.

Perception of Germany

Germany is seen as a role model with regard to environmental protection, business and technology, and so is a welcome partner on emissions reduction issues.

"We introduced German technology, and costs that originally stood at 60 yuan are now down to 2 yuan. It has also saved us 5,000 metric tons of normal coal. These kinds of savings are ***AMAZING*** *for companies." (Business)*

"Germany has made incredible progress in the area of renewable energy. This already represents a significant proportion of its energy consumption. That's really important and China can ***LEARN*** *from this." (Science)*

"They [the Germans] have invested a lot of energy, money and commitment [into environmental protection] in order to achieve the desired effects. But the ***COSTS*** *are high." (Administration)*

"In many different areas of environmental protection, especially in the area of technology, Germany has shown itself to be an excellent ***PARTNER,*** *a partner we should work with." (Think tanks/NGOs)*

At the cutting edge: German industrial plants and products are a byword for competitiveness, quality engineering and energy efficiency, especially when it comes to energy-intensive industrial operations, water and power supply and district heating. The transfer of German technology and ideas is seen as vital for helping to reduce emissions in China.

Experience in administration and regulation: As environmental pioneers and a leading power in the EU, Germany is considered very attractive and a reference point for emissions legislation, emissions trading and economic incentives such as the feed-in tariff for renewable energies.

The energy transition is viewed with respect – and scepticism: Germany is respected for the fact that it has so far made implemented its energy transition without adverse economic effects – even though it is viewed as very expensive. However, the experts believe Germany's energy supply is not secure because of the volatility of renewable energy and the decision to move away from nuclear power.

Socially and culturally attractive and a welcome partner: Precision, reliability, high quality standards, being law-abiding and having a sense of responsibility are all seen as positive German attributes that could help to build close, trusting partnerships. Generally speaking, Germany is seen more as a (potential) reliable business partner than as a competitor.

India in detail

Key findings

IMPORTANCE OF THE PARIS AGREEMENT: India believes the objectives of the Paris Agreement are worth striving for. However, implementation is considered to be a major, long-term challenge for the country.

MOTIVATORS AND INCENTIVES: Extreme weather events, pollution and international support all provide India with motivation to introduce emissions reduction measures. Examples of sustainable thinking and action are not widespread, but they are increasing.

OBSTACLES: Poverty, underdevelopment and weak government are seen as the major obstacles to a rapid reduction in emissions. These hurdles can only be overcome in the longer term.

PERCEPTION OF GERMANY: Germany enjoys a good reputation in India and is a welcome partner. Its energy transition is considered courageous but it is criticised for the cost implications.

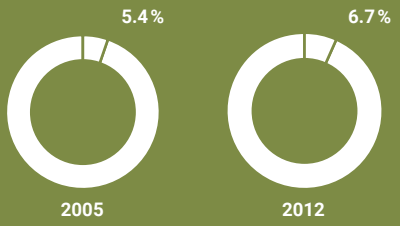
Country overview

AREA	POPULATION	GDP	PCI
3 287 000 km²	1.25 billion (2016)	1.874 billion € (2015)	1,260 € (2015)

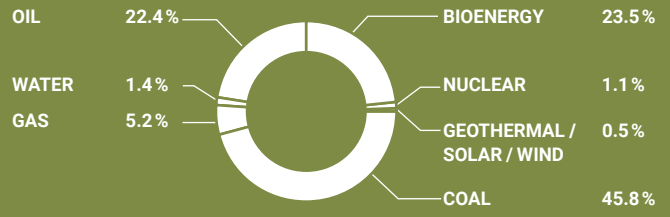
SYSTEM OF GOVERNMENT

- Parliamentary democracy

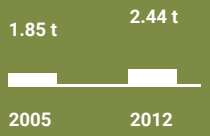
SHARE OF GLOBAL CO_2 EMISSIONS



PRIMARY ENERGY CONSUMPTION BY INDIVIDUAL ENERGY SOURCE



CO_2 EMISSIONS PER CAPITA



NATIONALLY DETERMINED CONTRIBUTIONS TO REDUCING GREENHOUSE GASES
(NDCs, submitted on 2 Oct 2016, pursuant to Paris Agreement 2016)

- Promote a healthy and sustainable way of life
- Strive to go down a more climate-friendly path than other similar countries
- Reduce the emissions intensity of GDP to between 33 % and 35 % by 2030 (compared to 2005)
- Produce 40 % of additional installed electrical energy capacity from non-fossil fuel sources by 2030. This will be achieved through technology transfers and low-cost international loans, including from the Green Climate Fund (GCF).
- Achieve additional CO_2 reductions of 2.5 to 3 billion metric tons of CO_2 equivalents through additional forestation by 2030
- Improve adaptation to climate change through investment in development programmes in sectors that are vulnerable to the effects of climate change (e.g. agriculture, water resources, health)
- Mobilise further funding to implement the above mitigation and adaptation measures
- To rapidly introduce new technologies in India and carry out joint research and development into these kinds of new technologies

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Importance of the Paris Agreement

India believes the objectives of the Paris Agreement are worth striving for. However, implementation is considered to be a major, long-term challenge for the country.

*"I don't know all the details behind the decisions made in Paris, but it's clear that we need to focus on the present and the **FUTURE.**" (Administration)*

*"There's hardly anyone in the whole country who really **UNDERSTANDS** what greenhouse gases and global warming means." (Think tanks/NGOs)*

*"It isn't **REALISTIC** because the population is growing, so the need for products is growing too." (Business)*

*"Compared to other countries, I think we're a long way behind. We're taking **BABY STEPS** when it comes to the environment and emissions reduction." (Science)*

Basic knowledge of the Paris Agreement: Only a few respondents in the Administration, Think tanks/NGOs and Science categories had any detailed knowledge of the resolutions passed in Paris over and above the main goals.

The Paris climate protection goals are viewed as worth striving for: Reducing emissions is seen as necessary in order to minimise the already noticeable effects of climate change (droughts, floods) and to safeguard the country's potential for economic and social development.

But achieving the Paris targets will take time: Achieving the climate goals set out in the Paris Agreement is likely to be a major challenge for India due to underdevelopment and financial weakness. Realistically, a reduction in absolute emissions is only likely after 2030 and emissions are likely to continue to rise until then.

India knows it is lagging behind: The country sees itself as a straggler in global terms and is not particularly interested in the question of national prestige. It is not opposed to international climate goals but sees itself as being reliant on external economic and political assistance.

Motivators and incentives

Extreme weather events, pollution and international assistance all motivate India to introduce emissions reduction measures. Examples of sustainable thinking and action are not that widespread but are starting to become more common.

*"Temperatures can climb as high as 45 °C to 47 °C. This shows there's a **PROBLEM,** because temperatures are rising daily. That's why we need to do something." (Business)*

*"Creating more **AWARENESS** is one aspect. If we can do that, people's willingness [to reduce emissions] will grow." (Business)*

*"You know, one thing I am pleased to see is that something is happening with the younger generation. They are **ENCOURAGING** other people to make use of opportunities and not pollute the environment." (Science)*

*"Young companies are already looking at ways of **MONITORING** emissions from cars, buses and trains." (Think tanks/NGOs)*

Social and economic vulnerability: The variability of the monsoon and the resulting droughts and floods, as well as high levels of air pollution in the cities, all combine to create additional social and economic costs (poor people in particular tend to be the worst affected, due to failing harvests) and provide good reason for reducing emissions.

International assistance and role models: International assistance and success stories encourage India to take steps to reduce emissions. Institutions such as the World Bank can influence governmental decision-making through funding programmes.

Growing environmental awareness: Levels of environmental awareness are still generally low. However, student-organised environmental activities and the innovative business ideas of some newer companies that are not only focused on international competitiveness, but also on their responsibility towards future generations, show that examples of sustainable thinking and action in society are starting to become more common. This shows that there is support for both the economic transformation of the country and participation in international climate protection initiatives.

The government should regulate and implement: There is a desire for government incentives (including subsidies for renewable energy and tax breaks for reducing emissions) to be made more widely available and implemented more quickly (e.g. promotion of natural gas vehicles, expansion of public transport, loans for businesses, education programmes).

"The Prime Minister has said he will ***SUBSIDISE*** *any company that wants to produce LED lighting." (Science)*

"We celebrate ***EARTH DAY*** *by planting trees." (Administration)*

"Some initial steps have been taken. I've already mentioned the example of diesel cars being replaced with CNG-powered alternatives. ***ODD-EVEN*** *is another example." (Science)*

State incentives and regulation

The government led by Prime Minister Narendra Modi is intensifying its efforts to develop and implement positive incentive schemes and initiatives: In general, the aim is to provide support for both business and society. However, there is still overall uncertainty regarding the political will to implement such initiatives.

Swachh Bharat Abhiyan (Clean India Mission): Introduced by the Indian government under Narendra Modi in 2014, the initiative aims to clean up the infrastructure of the country, such as the streets, by 2019.

Support for initiatives by charitable organisations: Positive mention was made of the fact that public authorities are providing financial support for environmental initiatives (e.g. planting trees in schools). This helps to raise public awareness and shows that the government values such projects and is committed to supporting them.

Odd-even days in Delhi: An initiative introduced in 2016 by Delhi's Chief Minister Arvind Kejriwal, only allows vehicles with odd or even-numbered registration plates to drive in the city on specific days. CNG vehicles are exempt from these restrictions.

Earth Day: This worldwide annual event has been held every year since 1970 to demonstrate support for environmental protection and sustainable action. The day attracts coverage in the media, which gives tips on how to be more environmentally friendly in daily life.

Further subsidies and restrictions: Subsidies for CNG vehicles, the use of gas instead of coal and wood in households, subsidies for renewable energies, subsidies for the production of LED lighting and tax breaks for reducing emissions.

Potential: Use of renewable energy, introduction of advanced waste management systems, expansion of the public transport network.

*"I'm talking about renewable energy. We have huge **RESERVES,** but how many companies are actually working in this sector?" (Science)*

*"There are **SUBSIDIES** if certain emissions levels are maintained." (Business)*

*"Even things like the candle marches are **USEFUL.** They show that people don't want nature to simply be destroyed." (Science)*

*"I believe I'm putting a lot of faith in the current government. It is trying to do things that are **INNOVATIVE."** (Think tanks/NGOs)*

The relationship between pollution, social problems and the need to reduce emissions is recognised:

Administration: People's welfare is increasingly threatened by climate change. However, the introduction of initial civil society initiatives is starting to raise hopes that effective communal action could be possible in the long run.

Business: The drivers of emissions reduction are rarely of a commercial nature. The main motivators for reducing emissions are the destruction of the environment and its impact on people. The experts believe education is key.

Science: University initiatives and discussion groups are addressing this issue, and some of them are supported by the media.

Think tanks/NGOs: The experiences and results seen in other countries arouse the hope that change is possible in the long term in order to improve society as a whole.

Incentive schemes are increasingly being organised at local and regional levels. But the extent to which these schemes are driven or inspired by a national plan remains unclear.

Administration: Some officials refer to initiatives that are heavily focused on raising awareness among the poorer sections of society. "Mission Clean India" is a good example.

Business: There is general support for subsidies (e.g. for building factories that adhere to new standards), as they ease the burden on businesses.

Science: The introduction of social initiatives such as the introduction of environmental standards and their importance was highlighted.

Think tanks/NGOs: The government's first steps are seen as a good start, but nothing much has happened beyond the ideas phase.

Obstacles

Poverty, underdevelopment and a weak government are the main obstacles to a rapid reduction in emissions. These hurdles can only be overcome in the longer term.

*"**PEOPLE** are basically interested in earning money. They want more cars and they don't really care about anything else." (Science)*

*"It's going to be pretty **DIFFICULT** for India, because there's so much corruption here." (Think tanks/NGOs)*

*"People simply lack the **EDUCATION.**" (Administration)*

*"We're currently **DESTROYING** the natural environment in which we live (...). Instead of doing something about it, we're building malls and huge office complexes." (Science)*

*"We might see evidence of real success in 50 to 60 years, maybe even 100, but there are no immediate signs of any real impact or success. And as long as China doesn't make any changes, it'll make **NO DIFFERENCE** whether or not we do anything here in India." (Business)*

Conflict of interest between emissions reduction and growth: Economic and population growth, along with efforts to combat poverty, all increase energy consumption and emissions. Long-term environmental protection seems relatively unimportant compared to the battle for survival and consumerism.

Regulatory weaknesses and a lack of political will: Politicians are too passive. Unclear measures and programmes, along with delayed, inconsistent and/or incomplete implementation as a result of corruption, incompetence or apathy in the administration are proving to be obstacles to systematic emissions reduction.

Lack of monitoring and sanction systems: There is no effective system for sanctioning companies that do not comply with regulations. This often leads to regulations being ignored because companies are afraid they will lose out to their competitors.

Lack of capital, know-how, technology and innovation: Many of India's manufacturing technologies are old and very emissions-intensive. Modernisation is generally expensive and therefore often avoided. The transfer of knowledge between companies often fails because of the difficulty of implementing it into daily life.

Lack of awareness: Environmental issues such as climate change are rarely mentioned in the media, society and education. This means that people in India have very limited awareness of climate change and its consequences and know little about the urgent need to take counter measures. People do not see the need to take personal responsibility for their actions.

*"Many people are not particularly educated. They believe one person **CAN DO VERY LITTLE.**" (Science)*

*"Things are not going the way we would like them to. There are no specific policies. Even laws relating to particular industries or regions – if they exist – do not provide **CLEAR GUIDELINES.**" (Think tanks/NGOs)*

*"Even if an inspection is carried out and it turns out that I am not complying with the standards, what are the consequences? **NONE.** There are no penalties, and no laws that will shut down your business." (Business)*

*"Why should you do it [update old technology] when there's **NO PROSPECT** of any financial benefit?" (Business)*

*"We need **FAIR POLICIES,** not just money." (Think tanks/NGOs)*

The interviewees in the Business and Administration categories tended to look at obstacles from an economic perspective.

Administration: There is a lack of innovation. The economy is based on old, emissions-intensive technologies. Input from abroad can help to provide solutions, but these solutions often fail to get off the ground because it is difficult to implement them.

Business: The cost of modernising production processes is linked to high volumes of investment, which would have an impact on economic growth. Companies lack role models in government and business.

Science: Too many resources are wasted in everyday life (e.g. light, plastic bags, wood) and by business (e.g. waste disposal, waste use).

Think tanks/NGOs: The population continues to grow, adding to the steady rise in emissions. For example, the transport sector is growing at a time when there is a lack of public transport and the expansion of the infrastructure for electric vehicles has stalled.

Insufficient action on the part of government, and a general mistrust of government:

Administration: The agricultural sector is still not getting enough attention. There are insufficient controls over intensive livestock farming and resources are being wasted by failing to convert energy using biogas plants.

Business: Only new factories have to obtain quality certificates. Old factories are exempt, so companies feel they are being unfairly treated. There is a general sense of mistrust towards the government (e.g. tax evasion, corruption).

Science: According to scientists, not enough research is being carried out into biogas and biodiesel.

Think tanks/NGOs: Regional decision-makers often make decisions without involving stakeholders, which often leads to resistance.

Perception of Germany

Germany enjoys a good reputation in India and is a welcome partner. Its energy transition is considered courageous but is criticised for the cost implications.

*"Germany is one of the world's most **TECHNOLOGICALLY** advanced nations. Its renewable energy sector is particularly good. So Germany is certainly a preferred partner for joint projects." (Administration)*

*"Germany has achieved a great deal [in the area of renewable energy use]. I've looked at the studies and reports. Germany has made major strides in the right **DIRECTION.**" (Think tanks/NGOs)*

*"Germany is **WITHOUT DOUBT** very good, but its process for reducing emissions is very expensive. No doubt Germany can afford to pay, but the costs are very high in comparison to the USA or Norway." (Business)*

*"If Germany and India can work together, that will definitely be a **HELP** for us." (Science)*

Technologically very advanced, but expensive: Germany is held in high regard for its cutting-edge technology and innovation, particularly in the areas of renewable energy, recycling and the automotive industry. However, interviewees in all the target groups complained about the high costs of German technology and a lack of customer service, especially compared to Japan, which provides more in this respect. This is viewed as an obstacle to developing closer ties.

Success on the environmental front: Germany's successful efforts to protect the environment, including emissions reduction, set standards that India can learn from.

The energy transition – bold or reckless? Germany's energy transition is recognised as a bold step. However, in practice it is viewed with some scepticism because of the high levels of investment required and the cost to the consumer. As a result it is not considered to be transferable to India.

Important partner: From India's perspective, Germany is indispensable as a long-term, reliable partner on a bilateral and multilateral level (e.g. governmental consultations prior to the Paris climate change conference or within the framework of the G20) and as the leading EU nation. Joint projects offer a great deal of potential, particularly in the area of emissions reduction.

Russia in detail

Key findings

IMPORTANCE OF THE PARIS AGREEMENT: The Paris resolutions were greeted with widespread indifference. The goal of limiting global warming to below 2 °C is considered to be unrealistic.

MOTIVATORS AND INCENTIVES: Overall, there is little appetite for emissions reduction. It plays a very subordinate role. Geopolitical and economic factors are considered much more important.

OBSTACLES: Business, politics and society, in general, (still) have little interest in a low-emission future. It is considered to be very expensive and is very much on the backburner during the current crisis.

PERCEPTION OF GERMANY: The interviewees had a very positive impression of Germany. They would like to see close collaboration on the environment and to combat climate change.

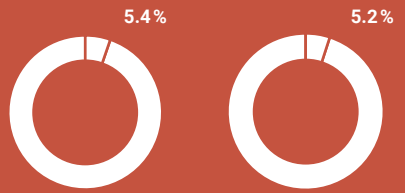
Country overview

AREA	POPULATION	GDP	PCI
17 098 200 km²	144 million (2016)	1.187 billion € (2015)	8,137 € (2015)

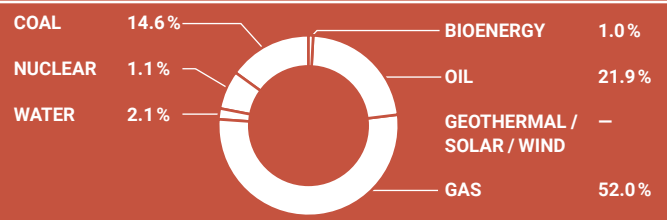
SYSTEM OF GOVERNMENT

- Presidential republic
- Federal state structure

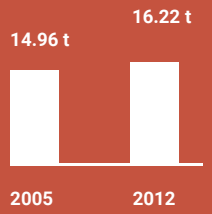
SHARE OF GLOBAL CO_2 EMISSIONS



PRIMARY ENERGY CONSUMPTION BY INDIVIDUAL ENERGY SOURCE 2014



CO_2 EMISSIONS PER CAPITA



NATIONALLY DETERMINED CONTRIBUTIONS TO REDUCING GREENHOUSE GASES
(NDCs, pursuant to Paris Agreement 2016)

- Limit GHG emissions to between 70 % and 75 % by 2030 (compared to 1990); this is based on the maximum absorption capacity of forests

AREA // POPULATION // SYTEM OF GOVERNMENT // PER CAPITA INCOME: http://www.auswaertiges-amt.de/DE/Aussenpolitik/Laender/Laenderinfos/01-Laender/RussischeFoederation.html?nnm=383178 (accessed on 1 Sep 2016) // GDP 2015: http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx (accessed on 11 Jul 2016) // PRIMARY ENERGY CONSUMPTION: http://www.iea.org/stats/WebGraphs/RUSSIA4.pdf (accessed on 11 Jul 2016)
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Importance of the Paris Agreement

The Paris resolutions were greeted with widespread indifference. The goal of limiting global warming to below 2 °C is considered to be unrealistic.

*"I'm not sure if the Kyoto Protocol and emissions reduction are absolutely **NECESSARY.**" (Science)*

*"We had already **MET** the requirements, even before the Agreement was signed." (Administration)*

*"How achievable is the **1.5 °C TARGET?** There's no point in discussing it. It's just not realistic for Russia and the rest of the world." (Think tanks/NGOs)*

*"We signed the joint agreement and want to be one of the driving **FORCES.** The government has now told us we have to develop tactically and strategically in order to comply with the movement towards producing less CO2." (Business)*

Good knowledge of the Paris Agreement and climate change in general: Although the Paris resolutions were largely greeted with indifference, the interviewees still had a good understanding of the Agreement and climate change in general.

The Paris resolutions have been accepted: Russia does not believe man-made climate change has been proven. There is little sense of obligation because it is felt Russia has had little impact on climate change. It signed the Paris Agreement because it is non-binding and it suits Russia's geopolitical desire to exert its global influence.

At a national level, the climate targets are considered to be realistic: The emissions reduction targets compared to 1990 are easy for Russia to achieve, in light of the significant drop in production levels during the 1990s and the current economic crisis.

Scepticism over global implementation: In Russia it is felt that the interests of developing and emerging countries are in conflict with the resolutions of the Paris Agreement (especially with regard to growth and combating poverty). Their interests represent major obstacles to significant global emissions reduction, or even carbon neutrality.

Not a driving force: Russia is following the international trend in terms of being part of international climate protection efforts, without wishing to take on a leading role.

Motivators and incentives

Overall there is little appetite for emissions reduction. It plays a very subordinate role. Geopolitical and economic factors are considered much more important.

*"It is always beneficial to engage because it affects the country's **IMAGE** on the world stage." (Science)*

*"If there is the political will to agree to this and implement things, then we can buy a green image for our nation, which would also be good for our **COMPETITIVENESS** in business." (Administration)*

*"During the recession everyone was involved in finding solutions to **RESOURCE PROBLEMS.** Nowadays, ecology is not a priority for most of our companies." (Business)*

International prestige: Russia wants to be a respected member of the international community. This requires it to support climate resolutions.

Saving money, safeguarding competitiveness: Investment in production plant and infrastructure that also encourages energy efficiency and emissions reductions can lead to long-term cost savings. This also helps Russia to comply with international trade agreements (e.g. WTO) and improves competitiveness in the long term.

International incentives: Climate protection loans and other mechanisms already enshrined in the Kyoto Protocol provide an incentive to improve energy efficiency.

Resource efficiency: Russia has huge oil, gas and coal reserves, but they should not be wasted. Therefore the energy sector is trying to significantly increase its energy efficiency, which in turn should have a positive impact, particularly on electricity prices. There is potential for generating wind power on Russia's coasts.

There is a need for clear, binding guidelines for businesses: Russia has so far failed to introduce any noteworthy laws or programmes with a view to tackling climate change. But this is expected to happen in the medium term. The interviewees expressed a desire to see the consistent, binding and systematic implementation of legislation and programmes in order to avoid any individual discrimination.

State incentives and regulation

*"A key element of Putin's campaign was based on the idea that Russia is a power that is extremely environmentally aware [and will do everything possible to protect the environment.] [...] Even if the **LEGISLATIVE** framework in this particular area leaves a lot to be desired, things are starting to change in Russia." (Science)*

*"Major manufacturers with significant **EXPORT POTENTIAL** have an interest in accessing foreign markets so they can earn money. If gaining this access means having to modernise in order to ensure value creation and competitiveness, then the environment will be a side effect of this." (Business)*

*"Companies that export wield influence. In this sector, the amount of carbon produced is important. I think people are already paying close attention to this in industry when it is important to **CONVINCE** consumers that products have been manufactured properly." (Administration)*

Efforts to comply with the Paris resolutions: More political meetings are being held. New ideas are emerging on energy and climate issues. But the lack of clear strategy should be addressed in the medium term.

Current efforts being made by the government: So far the government has been reluctant to propose any specific guidelines. And yet managing resources to achieve greater energy efficiency and competitiveness seems to be a priority. Economic factors are persuasive arguments for manufacturing in a more energy-efficient manner.

There is a desire to see a clear set of measures for business: Interviewees in the Business category were particularly keen to see the government draw up and implement clear legislation. It is important that programmes apply equally to all involved, as companies are very worried about being disadvantaged and losing their competitive edge.

Potential: The use of renewable energy is still in its infancy. However, it is felt that wind power has potential. The country's vast coastal regions provide an ideal location. The incentive of increasing exports is also a potential source. If companies want to compete in western markets, they will have to make their production processes more sustainable and energy-efficient.

International incentives: Some interviewees mentioned international incentives, such as the Green Climate Fund set up in the wake of the Kyoto Protocol, and the international ISO 14000 standard for environmental management. However, it should also be pointed out that the current somewhat fraught foreign policy situation is having a negative impact on international cooperation.

Obstacles

Business, politics and society (still) show little interest in moving towards a lower-emission economy. It is considered to be very expensive and is very much on the backburner during the current crisis.

*"In order to be in a good **FINANCIAL** position, it is necessary to work [in carbon-intensive sectors] because they pay well and provide social security benefits. There is no other choice." (Science)*

*"It is very **EXPENSIVE** to look after the environment." (Science)*

*"What **HOLDS US BACK** the most is funding." (Business)*

*"It is linked to the fact that **AT THAT TIME** in the 1990s many scientists were forced to leave our country. This is why the older generation sometimes finds it difficult to accept new trends." (Think tanks/NGOs)*

Lack of government engagement: The political priority is economic growth rather than emissions reduction, particularly as this does not tie in with the interests of the country as a major oil, gas and coal producer.

Lack of public awareness: The Russian public has little interest in climate change, primarily because it is not considered to be man-made.

High investment costs: Companies are reluctant to invest in updating old technology because this eats into their profits. They therefore reject legislation that requires them to install emission-reducing technology.

Bureaucratic blocks to renewable energy: Scientists and NGOs complain of random bureaucratic blocks to the expansion of renewables and the decentralisation of the energy supply.

Low taxation on fossil fuels: The low level of taxation on fossil fuels means businesses and the general public have little incentive to reduce their consumption.

Shortage of young talent: Many young engineers and other skilled workers have left Russia since the 1990s. This brain-drain has left the country with a skills gap that hampers the development of innovative technologies.

*"Developed countries in Europe and the USA have thermal power plants, but many of them manufacture in developing countries and outsource production. Now the developing countries have to pay the **BILL** for this, because factories have high levels of emissions that do not really belong to that country." (Business)*

*"We work with them [the companies] and compel them to implement environmentally friendly measures and take specific **MODERNISATION** steps in order to reduce emissions of waste gas. This is working well with the oil refineries in Moscow." (Administration)*

*"Since the Kyoto Protocol, 50 % of Green Climate loans have being pocketed by China. That's crazy. That's a huge help for companies. [...] So theoretically Russian businesses can also access them. But in **PRACTICE** this depends on the political situation, that's how it looks at the moment." (Business)*

*"Here it is important that the **STANDARDS** are also monitored, because reports on emissions are not always correctly submitted." (Business)*

Very few measures have been introduced: No specific national environmental measures have been laid out (apart from the forestry law). Few local programmes were mentioned, such as MosEcoMonitoring in Moscow.

Low penalties for polluters: The penalties for breaching environmental standards are low. Some companies prefer to pay fines rather than comply with emissions limits.

Resistance from industry: Some large corporations have commissioned studies that dispute climate change.

There is no central system for measuring and monitoring emissions: Some interviewees see the lack of an official monitoring system as an obstacle.

Effects on the environment: As an emitter, Russia has felt very few effects of climate change. Little has changed, and only a few environmental movements have been set up.

Little criticism of the current situation: Just one or two interviewees in the Science and Think tanks/NGOs categories voiced criticism that Russia lacks foresight. They suggest that the country will pay a high price, if its domestic economy keeps lagging behind those of other countries because of its failure to innovate.

International sanctions: Sanctions are currently an obstacle to technology transfer and to the financial assistance needed to bring technology up to date.

The behaviour of industrialised countries is felt to be unfair: Western countries outsource their production so that they can reduce emissions at home. This is considered to be unfair.

Lack of binding international agreements: There were some complaints about the lack of binding international agreements on greenhouse gas emissions (particularly from the Science group). There is no international monitoring body that can impose sanctions to ensure compliance.

Perception of Germany

The experts interviewed had a very positive image of Germany. They would like to see close collaboration on the environment and combating climate change.

*"Germany **IS THE LEADER** in this area [environmental and energy technology] and would be the best partner for Russia." (Business)*

*"Germany is a country that Russia works with very well in this area [climate protection]. (...) You provide a good example for others to **FOLLOW."** (Science)*

*"In terms of greenhouse gas emissions and **WORKING TOGETHER** on technology, I think Germany is a sound partner. You have the best chemical industry, the best technology, the best thought-out plans." (Think tanks/NGOs)*

*"Germany might be rejecting **NUCLEAR POWER,** but in reality it has not totally given up on it. [In emergencies] it buys nuclear power that is generated in neighbouring countries." (Administration)*

Technical prowess: German products are considered to set the benchmark for quality and innovation, including in environmental technology (solar and wind power) and emissions reduction (e.g. waste management, processing and insulation).

Leaders in climate policy: Germany is considered to be the global trailblazer in the use of renewable energies and emissions reduction.

Strong environmental awareness: The German public has a high level of environmental awareness, and other countries could learn from this.

Ambivalent energy transition: The interviewees expressed respect for the energy transition but felt it lacked credibility (with the suspicion that French nuclear power guarantees Germany's electricity supply). They believe it is not really transferable to Russia, because of its geographic position, difference in size, and its very different financial situation.

Key partner: Russia values its relations with Germany. The potential for closer cooperation on the environment and climate change is viewed as considerable – because of the tradition of close, trusting partnerships between the two countries and the fact that they share many common objectives. Germany's search for lucrative markets for business and investment coincides with Russia's need for investment, new technologies and economic modernisation.

USA in detail

Key findings

IMPORTANCE OF THE PARIS AGREEMENT: The Paris resolutions are welcomed, seen as necessary, and viewed as realistic because of the economic opportunities that they present. As long as the federal elections do not lead to a fundamental change of direction, the USA sees itself as playing a leading international role.

MOTIVATORS AND INCENTIVES: In the USA emissions reduction is above all driven by short and medium-term economic concerns.

OBSTACLES: Political constraints set at federal level and the strength of the oil, gas and coal industry lobby are preventing the USA from doing more to reduce emissions. More is happening at state level.

PERCEPTION OF GERMANY: Around the world and in the USA, Germany is seen as a world leader in the area of environmental policy and a key partner on emissions reductions.

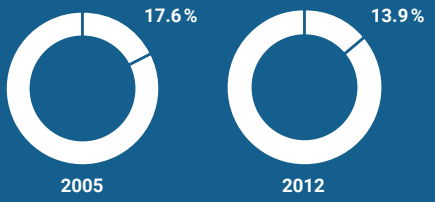
Country overview

AREA	POPULATION	GDP	PCI
9 857 306 km²	319 million (2016)	16.010 billion € (2015)	50,060 € (2015)

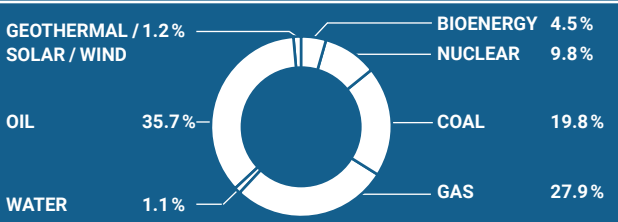
SYSTEM OF GOVERNMENT

- Federal and presidential republic
- System of a separation of powers with "checks and balances"
- Two-party system

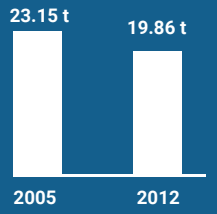
SHARE OF GLOBAL CO_2 EMISSIONS



PRIMARY ENERGY CONSUMPTION BY INDIVIDUAL ENERGY SOURCE 2014



CO_2 EMISSIONS PER CAPITA



NATIONALLY DETERMINED CONTRIBUTIONS TO REDUCING GREENHOUSE GASES
(NDCs, submitted on 3 Sep 2016, pursuant to Paris Agreement 2016)

- Reduction in GHG emissions of 26 % to 28 % by 2025 (compared to 2005)

AREA // POPULATION // SYSTEM OF GOVERNMENT // PER CAPITA INCOME: http://www.auswaertiges-amt.de/DE/Aussenpolitik/Laender/Laenderinfos/01-Laender/USA.html?nnm=383178 (accessed on 1 Sep 2016) // GDP 2015: http://www.imf.org/external/pubs/ft/weo/2016/01/weodata/index.aspx (accessed on 11 Jul 2016) // PRIMARY ENERGY CONSUMPTION: http://www.iea.org/stats/WebGraphs/USA4.pdf (accessed on 11 Jul 2016)
SHARE OF GLOBAL CO_2 EMISSIONS: Data taken from Climate Analysis Indicators Tool (CAIT), Washington, D.C.: World Resources Institute, 2015, http://cait.wri.org (accessed on 11 Jul 2016) // Data taken from Climate Analysis Indicators Tool (CAIT), Washington, D.C.:World Resources Institute, 2015, http://cait.wri.org (accessed on 11 Jul 2016) // CO_2 EMISSIONS PER CAPITA: Data taken from Climate Analysis Indicators Tool (CAIT), Washington, D.C.: World Resources Institute, 2015, http://cait. wri.org (accessed on 11 Jul 2016) // Data taken from Climate Analysis Indicators Tool (CAIT), Washington, D.C.: World Resources Institute, 2015, http://cait.wri.org (accessed on 11 Jul 2016) // CLIMATE TARGETS: http://cait.wri.org/indc (accessed on 11 Jul 2016)

Importance of the Paris Agreement

The Paris resolutions are welcomed, seen as necessary, and viewed as realistic because of the economic opportunities they present. As long as the federal elections do not lead to a fundamental change of direction, the USA expects to play a leading international role.

*"We do not want to have to spend a huge amount of money on dealing with **CLIMATE CATASTROPHES.**" (Business)*

*"**TOGETHER** we can find a way to reduce emissions and implement things." (Administration)*

*"The USA can position itself as a leader; our electricity grid and the infrastructure have to be adapted, and that's big **BUSINESS.**" (Business)*

*"There is **NO WAY** of forcing countries to do what they agreed [in Paris]." (Think tanks/NGOs)*

Good knowledge of the Paris Agreement: Overall, those surveyed displayed a good understanding of the Paris Agreement. But only a few had really detailed knowledge.

The resolutions are welcomed: With a strong focus on their own country, the climate goals agreed in Paris are seen as necessary for limiting the (already noticeable) consequences of climate change (such as more frequent and stronger hurricanes, floods and droughts).

The targets are realistic, but there are doubts about their implementation: For the USA, significant emissions reductions are seen as challenging but also technologically and financially achievable because of the associated economic opportunities. Politicians, businesses and the public are all expected to take responsibility for implementing them. But the interviewees expressed doubts about whether other countries will keep their commitments. There is also concern about whether the goals can be implemented in the medium term, mainly because of the country's political divide and the strong oil, gas and coal lobby.

The USA as a trailblazer: Most of those surveyed believe the USA will play a leading international role, firstly in economic terms, but also in terms of taking on global responsibility. But the results of the federal elections could lead to a change of direction on climate policy.

Motivators and incentives

In the USA emissions reduction is above all driven by short and medium-term economic concerns.

"We don't have to compromise on growth and development in order to achieve climate goals. It will be expensive if we do nothing. Many people who are not downright environmentalists are making good ***ARGUMENTS.***"
(Think tanks/NGOs)

"One thing that people here in the USA are ***NOTICING*** *is the fact that the weather is becoming more extreme. It affects people and worries them." (Administration)*

"Some companies are doing an excellent job and installing solar panels (...). Universities are also doing good work (...) and at some point they will be able to say: (...) we are achieving our climate goals (...) and we are ***SAVING*** *money."*
(Business)

Cost-savings and profits: Technology for improving energy efficiency and the use of renewable energies are now proving to be profitable.

More damage and rising costs as a result of global warming: More frequent and devastating natural catastrophes such as droughts and hurricanes (e.g. "Sandy" in 2012 and "Katrina" in 2005) have caused significant damage and many deaths. The expense of rebuilding and the cost of interrupted supply chains run into billions and has an impact on corporate risk management.

More sustainable consumption and new market opportunities: There is increasing consumer demand for greener products, and companies are responding to this. Companies such as Google and Tesla are drivers of innovation. By developing technologies to reduce emissions, they are improving their image and opening up new opportunities in the market.

International respect: The USA's global responsibility as a major emitter is recognised. It could improve its global image by taking more of a lead on emissions reductions.

Increased political engagement: There has been increased political engagement at the federal level over recent years (particularly with the Clean Power Plan); but more initiatives are needed. At the regional level, states such as California and New York are raising the bar for other states. Overall, there is a desire to see more tax incentives, subsidies, blanket carbon pricing, educational programmes and a reduction in the influence of the oil, gas and coal lobby.

*"If you take a look at the **CLEAN POWER PLAN,** you see that we can do this. At least it's a major step in the direction of the agreed targets." (Think tanks/NGOs)*

*"There are the [incentives] that in the USA we call **CAFE** for car manufacturers. There is also the Clean Power Plan, which the Environmental Protection Agency is trying to implement in order to encourage power plants to reduce their emissions. There are greenhouse gas initiatives at state level, including in California, where there is an emissions trade with fixed upper limits, and on the east coast, which has introduced the latest initiatives. Some states are investing heavily in hydrogen fuel cells, electric vehicles and so on. So a lot is happening." (Business)*

*"A couple of states are taking the lead. California probably plays the most important role; it has introduced a **CAP & TRADE PROGRAMME."** (Science)*

Government incentives and regulation

A number of incentive systems have been set up at the federal and state levels:

Clean Power Plan: This was launched by the Obama administration in 2015 with the aim of combating climate change and encouraging the use of renewable energy. It is being rolled out at the state level.

CAFE standards: The Corporate Average Fuel Economy standards were agreed in 1975 with the aim of defining standards for fuel consumption. In 2009 President Obama announced he would tighten the limits set in 1985. New agreements were signed on this in 2011.

Clean Air Act: Enacted in the 1960s with the aim of reducing national levels of air pollution and greenhouse gases. The last major amendments were made in the 1990s.

California Global Warming Solutions Act (AB32): The legislation passed in California in 2006 with the goal of reducing greenhouse gases by introducing of a cap-and-trade system for emissions.

Specific examples in the industrial and consumer markets:

Subsidies for renewable energies such as solar and wind energy

Tax breaks on purchases of hybrid or electric vehicles

Financial incentives and technical help for agriculture and forestry

Education and information programmes on renewable energy

*"Companies that think globally and responsibly (...) are keen to change things, recycle and become more energy efficient (...) and the **COST** of renewable energy has plummeted over the last five years." (Think tanks/NGOs)*

*"We need the government to **STEER** everything, but that is currently the problem for the USA." (Business)*

*"It is simply the case that they (businesses) have neither the means nor the right platforms to build **RELATIONSHIPS** and then find people who share their views and will fund their activities." (Business)*

*"I think some companies are way ahead of the public opinion, because sometimes they have to be one step **AHEAD.**" (Administration)*

Increase in willingness and efforts to reduce emissions: Companies and organisations are increasingly introducing innovative technology to reduce emissions. The public considers them to be advanced in the way they are producing energy from solar panels and reducing carbon emissions through the use of electric or natural gas vehicles and building insulation.

Businesses are beginning to make the most of the economic potential of reducing emissions:

Brand reputation: Customers have increasingly high expectations, and are therefore looking for suppliers that are socially responsible and sustainable in their business practices. Companies are trying to improve their image by combining these values with innovation. Apple and Google are good examples of this.

Development of new business models: The focus is on energy production (including the solar industry), electro-mobility, consumption monitoring and carbon storage (including algae farms).

Producing cost savings: Costs are reduced through energy efficiency and the decrease in renewable energy costs over the last five years.

Many demands on the government: The interviewees called on the government to continue to develop existing programmes; to draft legislation on implementing climate targets (at national level); to support scientific research and networking among companies/investors; to promote emissions-neutral behaviour (e.g. through grants, tax breaks for emissions trading); and to raise public awareness via information and education programmes. The aim is to divide the burden of emissions reduction fairly among all stakeholders in society while pushing back against lobbyists for outdated technologies, and encouraging investment in a more modern infrastructure (electricity grids).

Obstacles

Political obstacles from both sides at national level and the influence of the oil, gas and coal industry lobby are preventing the USA from doing more to reduce emissions. More is happening at the state level.

"Legislation on fuel has remained unchanged for 30 years. (...) We basically subsidise gasoline. This is ***COUNTER-PRODUCTIVE,*** *the tax on gasoline should be much higher." (Think tanks/NGOs)*

"I don't want to sound like a broken record, but ***MONEY*** *talks in the USA." (Business)*

"The idea of ***CLIMATE CHANGE SCEPTICISM*** *is a totally artificial construct that has been fuelled by the oil and gas lobby." (Administration)*

"We are one of the few nations where the majority of people do not believe in evolution. How can we ***PERSUADE*** *them to believe in climate change?" (Science)*

It is difficult to make plans because of political obstacles: Political polarisation leads to obstructing legislation being drafted (e.g. Clean Power Plan). And the Presidential election harbour the risk of rolling back laws and regulations that limit emissions. As a result, companies are holding back on investment. Plans to expand infrastructure, such as charging stations for electric cars, are being delayed by individual states.

Estimates of costs and returns are an obstacle to change: Investment in energy efficiency and renewable energy sources tend to have a long payback period. In contrast, oil, gas and coal are (still) very cheap – and therefore attractive – fuels.

Spreading uncertainty: The oil, gas and coal industry lobby are opposed to major emissions reductions. It has commissioned studies to spread uncertainty, such as by questioning the reliability of renewable energy and disputing the fact that climate change is man-made.

Lack of public interest: Lack of education and information along with a culture of consumerism mean that most US citizens have little interest in or commitment to preventing climate change. Despite the increasing frequency of natural disasters, it seems that most people are still unwilling to act more sustainably because emissions reductions do not seem to have an immediate impact on slowing down climate change.

*"I think there is nowhere else in the world where a particular **LOBBY** [oil, gas and coal industry] is so strong as here in the US when it comes to influencing elections, political opinion, and even the policies of elected representatives." (Administration)*

*"There is a project that is trying to supply Illinois and other eastern states with electricity from wind farms in Kansas. The people of Missouri are **BLOCKING** this. They don't want any power lines going across their state because they don't see any benefit to them." (Science)*

A number of new plans have failed to be introduced in all states:

The Clean Power Plan has been blocked at national level: It is being obstructed by political and business interests.

The Obama administration's high-speed rail plan has not been rolled out across the whole country: This was also the responsibility of state governments. The construction of a harmonised network for promoting transport systems with lower emissions has failed.

Attempts to decentralise electricity have been blocked by individual states: In this way, the establishment of new infrastructures (such as charging stations for electric vehicles) have been halted.

Commissioning reports to spread uncertainty: These are often financed by the oil, gas and coal industry. They dispute climate change and try to obstruct the introduction of renewable energy.

Opportunities are wasted: Not all available technologies are currently being exploited because there is a lack of capital, networks, clear legal frameworks and programmes.

Perception of Germany

Around the world and in the USA, Germany is seen as a world leader in the area of environmental policy and a key partner on emissions reductions.

*"Germany can be a role model for us with its **EXPERTISE."** (Think tanks/NGOs)*

*"Germany is a **WORLD LEADER** and the actions it has taken have led to real reductions in greenhouse gas emissions." (Science)*

*"I think Germany is not only at the cutting edge of technology, but also that it has a pretty good **FEEL** for legislation that can effectively bring these technologies to the market." (Administration).*

*"Germany has to demonstrate that the way it is handling with renewable energy is **COMPETITIVE."** (Business)*

Germany as a role model and partner: Germany is considered to be a role model and constructive actor in international climate policy. Public concern with environmental issues is assessed as very high. From the USA's point of view, Germany is also a leader in energy and resource efficiency and in renewable energy. Thus, it is the key European partner for joint projects.

A sound economy, cutting-edge technology: Germany is admired for the fact that it has manged to increase the proportion of renewable energy used in energy consumption by one third without any obvious damage to its economy. In terms of solar and wind power, geothermal energy and resource management, Germany's economy is considered to be very innovative and competitive.

Bold policies, experienced administration: There is respect for the way Germany is implementing, funding and administering the energy transition and for the experience it has gained from this. The feed-in tariff system, particularly with regard to the spread of solar power, is considered to be exemplary.

The downside of the energy transition: Rising electricity prices and high investment costs relating to the energy infrastructure are associated with the energy transition. The interviewees in the Science category had particular doubts about the future competitiveness of the German economy and hence the country's ability to act as a role model. They find it paradoxical that the energy transition has led the country to turn to domestic coal and French nuclear power in order to guarantee its electricity supply.

Country comparisons and opportunities for Germany

"It is a good opportunity to strengthen China's ***REPUTATION*** *as a great nation." (China, Administration)*

"It isn't realistic because the population is ***GROWING,*** *so the need for products is growing too." (India, Business)*

"I think Russia signed the Agreement because it did not want to oppose it and wanted to follow the ***TREND."*** *(Russia, Business)*

"There is no way of forcing countries to ***IMPLEMENT*** *what they agreed to [in Paris]." (USA, Think tanks/NGOs)*

Importance of the Paris Agreement

Varying levels of support for the Paris Agreement and different views of roles: The goals agreed in Paris are viewed by China, India and the USA as necessary because of the increasingly apparent negative consequences of climate change, and China and the USA in particular view them as economic opportunities. However, in Russia they are accepted rather than welcomed. China and the USA see themselves as leaders on global emissions reductions, at least under their current national policy orientation. In contrast, India and Russia think of themselves as stragglers who do not oppose the Paris climate goals but who require economic assistance to implement them.

Different countries have different challenges when it comes to meeting the climate targets, and there are doubts about whether other countries will implement them: In Russia the challenge is considered minor in light of its decline in industrial production and consequent drop in emissions during the 1990s. In the USA the targets are viewed as financially and technologically viable, while in China underdevelopment makes it seem ambitious but achievable in the medium term. In India it is seen as a major long-term challenge because of its high poverty levels. In every nation there are also doubts about whether other countries will actually implement the climate goals, particularly in light of the emerging and developing nations' economic growth targets, which run counter to efforts to combat climate change. Therefore the general view is that the target of less than 2 °C will be difficult to achieve.

Implications for Germany

Increased engagement at European level: The fact that China and the USA, the two countries that previously lagged behind, are now increasingly driving forces in global efforts against climate change has a positive effect on the process. It also confirms the declining importance of Europe, which for a long time was the prime mover in this respect. Germany's commitment to preventing climate change within the UN framework and the G7/G20 should be strengthened still further, primarily through continuing to develop European climate policy. On the other hand, after a difficult consensus-building process with other EU member states, it is pointless to focus too unilaterally on Germany's own climate goals. In global terms, only the EU as an economic power and a carbon emitter has the necessary clout and a potentially effective regulatory framework through its emissions trading scheme.

Working with the largest emitters: The German joint initiative strategically supports developing countries submitting Nationally Determined Contributions (NDCs) as is required under the Paris Agreement, and it appears to be a sensible one. However, Germany also has to engage with countries that produce the highest emissions, because their behaviour is key to preventing climate change. From Germany's perspective, the positive attitude of these countries towards the Paris Agreement increases the opportunities for partnerships.

"It's about green development and building a more environmentally aware society. We always knew that a certain amount of pressure from the international community would help China to ***TRANSFORM*** *itself, grow and rise up." (China, Administration)*

"If the two countries work together and we use German technology and bring it to India, this would be very ***PROFITABLE*** *for us." (India, Business)*

"If we want to produce green electricity, then I would prefer to work with Germany because we need a lot of money to ***ACHIEVE*** *that." (Russia, Business)*

"We don't have to compromise on growth and development in order to achieve climate goals. It will be expensive if we do nothing. Many people who are not downright environmentalists are making good ***ARGUMENTS."*** *(USA, Think tanks/NGOs)*

Motivators and incentives

Economic considerations are key to reducing emissions: In the USA and increasingly in China, investment in emissions reduction is paying off through improved energy efficiency and competitiveness. Some renewable energy sources also offer attractive opportunities for investment. With the exception of the USA, international subsidies also provide strong incentives to modernise the industrial and energy sectors. At the same time, with the exception of Russia, increasingly frequent natural disasters as a result of climate change are viewed as a major burden, both economically and socially.

Geopolitical interests as a motivating factor: Apart from India (still), the countries' desire to improve their national image and strengthen their role as international leaders is encouraging them to reduce emissions.

Public awareness is a motivating factor, but still a weak one: Experts in every country mentioned their responsibility towards future generations as a motivating factor. However, all the countries lack a strong public awareness of the problem at all levels of society, though it is growing. In the USA and to some extent in China, the urban middle classes are beginning to develop a more environmentally friendly mindset. Businesses are responding to this with appropriate products.

*"[Here in China] there's a significant **GAP** between developed and underdeveloped regions. People in the economically weaker regions are mostly just focused on ensuring they have something to eat." (China, Science)*

*"They [the Germans] can **HELP,** but our people lack the basic skills [for implementation]." (India, Think tanks/NGOs)*

*"What **WORKS** in other countries will not necessarily work or work unconditionally here." (Russia, Administration)*

*"I don't want to sound like a broken record, but **MONEY** talks in the USA." (USA, Business)*

Obstacles

Opposing economic interests: In India, Russia and above all China, fast growth is generally preferred to more sustainable development paths in order to combat poverty and increase prosperity. Ambitious climate targets with short timeframes are generally considered to be damaging for the country's economy.

Outdated practices and resistance of potential losers: Customary heating methods in China and India, along with the interests of the oil, gas and coal industry and energy-intensive companies that produce vital earnings and create many jobs, pose obstacles to combating climate change in all four countries. Production that is more energy-efficient and resource-efficient requires enormous amounts of investment.

Lack of political will and administrative capability: The four countries display varying degrees of political will, but overall their commitment is weak. Over recent years there has been a clear increase in national policy initiatives in China and the USA. In contrast, India and Russia have so far only introduced fairly rudimentary measures. With the exception of the USA, the governments and administrations of the countries examined lack the necessary regulatory and technical skills to consistently draft legislation and systematically implement it. Corruption is a major problem in this respect.

Implications for Germany

Regular monitoring of proposed partnerships: In light of the aspects mentioned above, it is advisable for German stakeholders to regularly monitor their partnership proposals. Unlike in Germany, emissions reductions in the four countries are primarily considered and discussed with a view to short and medium-term economic considerations. The partnerships that promise to have the greatest impact are those that aim to achieve emissions reduction by tackling each country's particular motivating factors and obstacles in a very targeted manner. This may be easier said than done, because of course preventing climate change remains the key objective. However, it is probably more effective to treat it as a side-effect to other goals. This requires a change of mentality among many stakeholders who have for the first time made a commitment to preventing climate change.

Increased cooperation above and beyond national governments: Regardless of the level of political commitment at the national level, the four countries surveyed all have many stakeholders at various levels (local, regional) and in different fields (business, science, civil society) with whom it seems possible to build effective partnerships on emissions reduction. German stakeholders should once again consider expanding their programmes in this respect.

Country comparisons and opportunities for Germany

*"If you want to improve laws and regulations, you can **LEARN** from more developed countries that have successfully adapted their systems. When it comes to technical advantages, we need partnerships with countries that are pretty good at reducing energy consumption and lowering emissions, such as Germany." (China, Business)*

*"Germany is always a preferred partner. It has technology and know-how that it can **SHARE** with us." (India, Administration)*

*"Of course we would **PREFER** to have German manufacturers working locally and setting up business here so that the products are Russian." (Russia, Administration)*

*"It would be helpful if Germany would commission a PR agency in the USA **TO TELL** people all the good things that the country has achieved." (USA, Think tanks/NGOs)*

Perception of Germany

Well-respected, but some scepticism: Germany is well respected in the countries studied because of its commitment to preventing global climate change. Over recent years it has attracted particular admiration for its technology in the area of energy and resource efficiency and for its speedy expansion of renewable energy. In political and administrative terms, Germany is respected for its many years of experience with environmental issues. However, German technology is considered to be expensive. The energy transition is also associated with high costs. As a result it is viewed with scepticism and considered untransferable. Particularly in the USA, high energy prices in Germany breed doubts about German competitiveness.

Implications for Germany

Exploit its reputation and monitor the effects of the energy transition: In terms of knowledge and technology transfer, consulting on energy and resource efficiency, and administrative processes Germany can build upon its strong reputation and encourage emissions reductions through increased engagement. The energy transition can act as a role model if it also represents a successful economic model, including the costs that are involved in the short-to-medium term. On the other hand, the energy transition could, in the worst case, act as a deterrent and even be counter-productive to emissions levels in other countries. German stakeholders should, therefore, give international partners a realistic picture of the current situation with regard to the energy transition; not in the sense of questioning its underlying goals, but in terms of sharing their experience based on examples of good and bad practice. This would allow other countries to learn useful lessons from Germany's experience in order to expand and modernise their own energy systems in an effective and cost-efficient way that is supported by the public.

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