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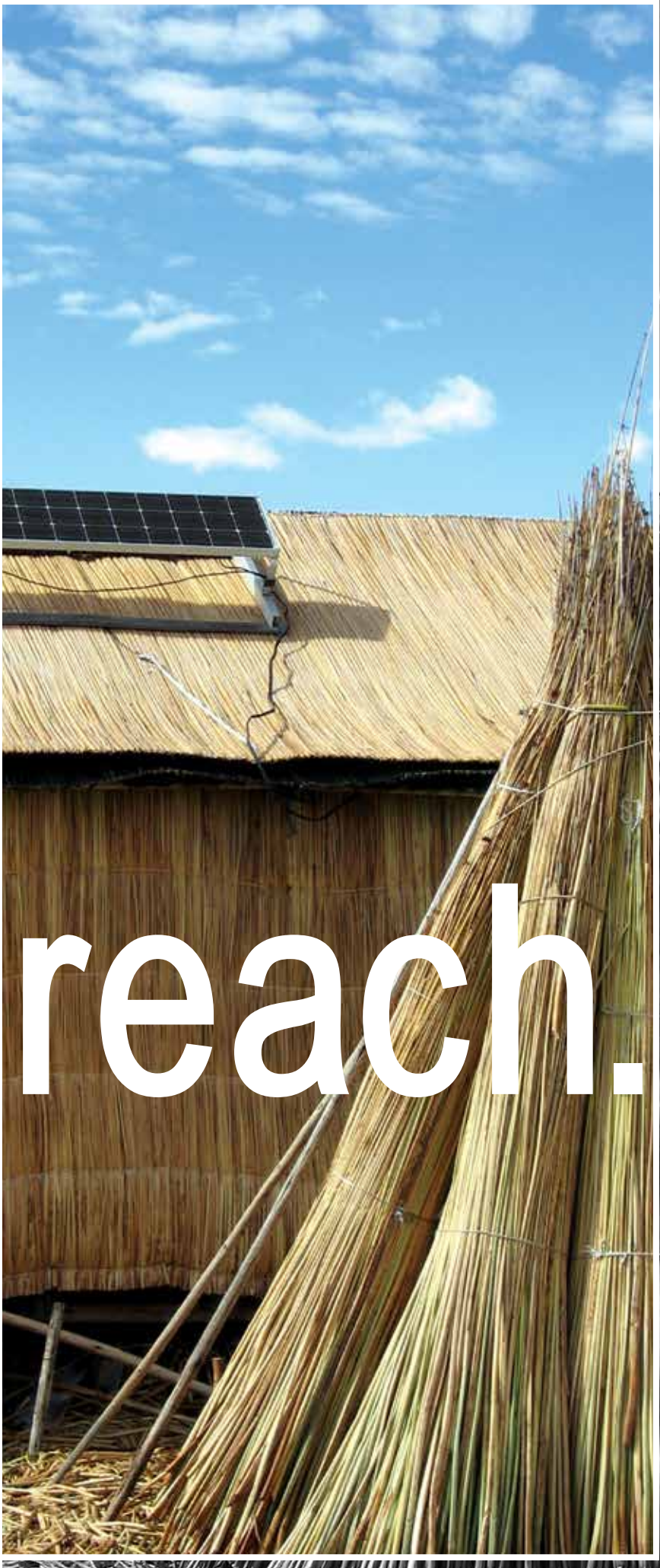
UN CLIMATE CHANGE CONFERENCE 2014

inside:

a daily multi-stakeholder magazine on climate change and sustainable development

outreach.

2 December 2014



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contents.

pic: Kanaka Menehune

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Stakeholder Forum is an international organisation working to advance sustainable development and promote democracy at a global level. Our work aims to enhance open, accountable and participatory international decision-making on sustainable development through enhancing the involvement of stakeholders in intergovernmental processes. For more information, visit: www.stakeholderforum.org

Outreach is a multi-stakeholder publication on climate change and sustainable development. It is the longest continually produced stakeholder magazine in the sustainable development arena, published at various international meetings on the environment; including the UNCSD meetings (since 1997), UNEP Governing Council, UNFCCC Conference of the Parties (COP) and World Water Week. Published as a daily edition, in both print and web form, Outreach provides a vehicle for critical analysis on key thematic topics in the sustainability arena, as well as a voice of regional and local governments, women, indigenous peoples, trade unions, industry, youth and NGOs. To fully ensure a multi-stakeholder perspective, we aim to engage a wide range of stakeholders for article contributions and project funding.

If you are interested in contributing to Outreach, please contact the team (acutter@stakeholderforum.org or jromano@stakeholderforum.org)

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REN 21	

Fuelling the debate

Avi Silverman
FIA Foundation

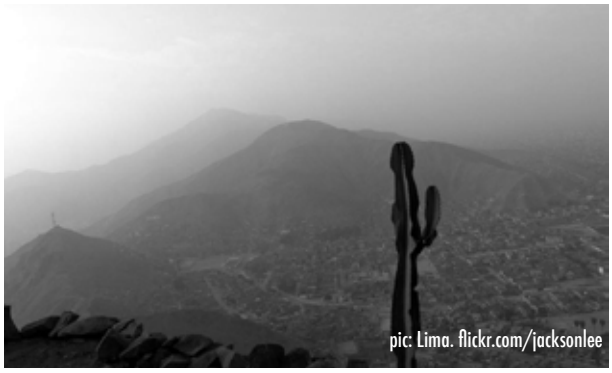
As the world moves towards a critical stage in the climate change negotiations – as well as the sustainable development agenda – in 2015, fuel efficiency will be a vital component of the policy debate.

At the centre of the discussions, and emerging as the world's leading fuel economy initiative, is the Global Fuel Economy Initiative (GFEI) – a partnership of major international organisations and experts collaborating on the issue of vehicle fuel economy, which is coordinated by independent charity the FIA Foundation. During the UN Climate Summit in September, GFEI made its contribution to the range of commitments aimed at reducing emissions. And the GFEI is taking commitments on fuel economy onwards to the UN Framework Convention on Climate Change (UNFCCC) COP20 meeting in Peru, and on to COP21 in Paris in 2015.

This work builds on progress made in all the major global policy fora. The recent G20 Summit in Brisbane prioritised action on vehicle fuel efficiency in its main Communiqué, and encouraged countries to work with the GFEI. It follows important work carried out through the UN's Sustainable Energy for All initiative where the GFEI is key part of the Global Energy Efficiency Accelerator Platform. As such, the GFEI contributes to the process to advocate for the inclusion of sustainable energy in the post-2015 Sustainable Development Goals.

The GFEI's agenda is clear. Global transport fuel demand is projected to double from now to 2050. This is a serious challenge for the global economy, for public health and the environment. The GFEI global target includes a 50 per cent reduction in the average fuel consumption of all light-vehicles on the road in 2050. To achieve this, all new cars and vans must reach a similar target sooner – by 2030, so that with stock turnover, the 2050 target can be met. The GFEI has also set an interim Organisation for Economic Co-operation and Development (OECD) target of 30 per cent improvement in fuel economy by 2020.

The path to achieving fuel economy gains is well known. It does not need agreement to follow one particular approach, as there are a range of potential options – measures such as standards, labelling or fiscal incentives to name but a few. Instead, it is a case of identifying measures which are appropriate, and then working together with local partners on national policies and fuel economy initiatives. Countries, NGOs and the private sector are being brought together by the GFEI and linked to the global processes on climate change and sustainable energy.


pic: Lima. flickr.com/jacksonlee

Speaking at the UN Climate Summit in September 2014, the FIA Foundation Director General Saul Billingsley addressed the UN General Assembly on behalf of the GFEI. He said: "There will be at least 1.5, perhaps even 2 billion additional cars by 2050, with 90 per cent of the growth in emerging economies, and a substantial proportion still using oil-based fuels. Whilst increased personal mobility can bring substantial gains, the impact of such massive increases in vehicle numbers and the resultant increased energy demand is wholly unsustainable. Unsustainable in terms of congestion, pollution and health; in terms of energy supply and energy security; in terms of the costs to individuals and countries as resources become increasingly scarce; and of course in terms of CO2 and the climate – increasing global CO2 emissions by 2 gigatonnes per year by 2050, and making global efforts to reach climate change targets unachievable."

Kandeh Yumkella, who has been appointed by UN Secretary-General Ban Ki-moon to lead the global agenda on sustainable energy as CEO of Sustainable Energy for All, is a supporter of the GFEI.

"Throughout 2015, and going forward to the major global summits such as the International Climate Conference in Paris at the end of the year, we are sending a clear message of the opportunity and the possibilities. We will be working with the leading initiatives such as the GFEI, to shine a light, pointing to the steps that need to be taken. At the UN Climate Summit of 2014, the GFEI and FIA Foundation issued a strong rallying cry, emphasising that in many cases we have the technologies at our fingertips, what we need is the resources to support countries as they develop fuel economy policies, and the global policy framework to support those efforts... This has to be our future and together we will do everything in our power to achieve it" ■

MORE INFO

www.fiafoundation.org/our-work/global-fuel-economy-initiative

People power

David Robinson
International Energy Consultant

Today, most of us consume electricity produced by large power stations burning fossil fuels. When we pay for electricity, the price often includes taxes to finance a range of public policies unrelated to the costs of supply. In short, consumers are on the bottom; we have little influence over how electricity is generated and are expected to pay for decisions taken by others, who are at the top. However, this is changing. Increasingly, consumers will participate actively in these decisions. I call this people power.

Below are some of the reasons why consumers are becoming more important, why governments and civil society should support people power, and how to do so through decisions at COP20.

Three trends driving people power

- De-carbonisation – consumers can help balance the system

Electricity is responsible for the heavy lifting in the effort to decarbonise energy, especially through renewable power. Electricity supply and demand must always be in balance and, traditionally, generation provided the flexibility for balancing. However, intermittent renewable generation (wind and solar PV) depend on weather conditions. As the generation mix becomes more inflexible, demand-side flexibility becomes more important for system stability.

- Decentralisation – "prosumers" now make decisions

Electricity generation has been centralised in three senses: investment usually followed central planning; it required very large power stations; and the system was subject to centralised system operation. Increasingly, consumers produce their own "distributed" electricity and sell it to the system, thereby becoming "prosumers". This reduces the generation required from the centralised system.

- Information technology – smart power replaces dumb consumption

Smart systems facilitate consumer participation: smart meters enable billing based on real-time consumption and real-time prices; sensors and smart devices help consumers make smart consumption decisions to lower costs; and communication networks enable consumers to participate in markets. Prosumers can lower their electricity bills and also earn money selling their services to electricity markets.

Three reasons for government to support people power

- Lower system costs of electricity

Consumer participation can lower system costs through "demand response". For instance, by shifting demand from the busy (peak) hours to the less busy ones, costs fall because the systems needs less peak capacity and because the price of energy during peak periods will be less. Furthermore, distributed generation and demand response compete with conventional generation, helping to reduce wholesale electricity prices. Consumer participation can also lower the cost of distribution networks by reducing the required network capacity at peak hours. For example, generation at night can be stored in electric vehicle batteries for use in the daytime.

- Enhanced energy security

Typically, the concept of energy security is confused with security of supply. In fact, energy security is about getting the right balance between supply and demand. Consumers can enhance energy security by providing flexibility on the demand side, as well as through distributed generation and conservation.

- De-carbonisation

First, as explained, demand flexibility facilitates the penetration of renewable energy. Second, distributed generation increasingly involves renewable sources of power, whose costs are falling rapidly. Third, demand response and self-generation reduce the need for fossil-fired generation.

How to encourage people power

There will be resistance to these changes, especially from some incumbents, special interest groups and even from some governments and consumers. And while we should recognise that people power opens up many important new commercial opportunities, we should not underestimate the difficulty of creating a commercially attractive offer for consumers.

Nevertheless, the benefits of people power are large and growing. The COP20 meeting should embrace this trend and encourage all countries to introduce measures that will enhance active consumer participation in the electricity sector. One important measure would be to establish an open dialogue between the electricity sector and civil society, so that the transition can be made in a transparent and effective way. The evidence, for instance from Germany, suggests that public engagement – e.g. in the form of community energy schemes – makes the transition much easier because it then becomes something "we" are doing rather than something "they" are doing to us. Even if this slows the process somewhat, in the end it will be worthwhile if it improves the prospects for a successful transition ■

Towards a gender-responsive mitigation framework: Learning from experiences in the energy sector

Ana Victoria Rojas
ENERGIA International Network on Gender and Sustainable Energy

The latest Intergovernmental Panel on Climate Change (IPCC) report recognises that mitigation and adaptation discussions raise issues of equity, justice and fairness – not only because lack of action on mitigation initiatives results in the erosion of the basics for sustainable development, grants adaptation responses insufficient and shifts the burden of mitigation to future generations. Climate change policies should therefore intersect sustainable development goals, generating social and environmental co-benefits, such as achieving goals related to food security, biodiversity, energy access, livelihoods, and equitable sustainable development. With 1.3 billion people worldwide without access to electricity, and about 3 billion depending on traditional solid fuels for cooking and heating (with severe adverse effects on health, ecosystems and development), ensuring access to modern renewable and efficient energy services is an important sustainable development objective.

In spite of the growing mandate of United Nations Framework Convention on Climate Change (UNFCCC) bodies to address gender considerations – including 32 UNFCCC Decisions referencing gender in their text as of mid-2014 – there are few existing energy access or climate mitigation projects that have been implemented with gender mainstreaming as a priority, or collected gender-specific data about outcomes. For example, only five from a sample of 3,864 Clean Development Mechanism (CDM) registered projects utilised the gender empowerment indicator of the UNFCCC in 2012.

One of the barriers towards achieving a higher number of gender responsive energy initiatives seems to be the lack of awareness on existing gender methodologies, and experiences from the energy sector that can inform mitigation initiatives. One example that can be learnt from is that of Rural Communities Development Agency (RCDA), a Georgian based non-governmental organisation and member of Women in Europe for a Common Future (WECF). RCDA has developed a gender responsive National Appropriate Mitigation Activity (NAMA) for the energy sector in Georgia, covering technologies such as improved stoves and solar water heaters.

Meanwhile, ENERGIA, the International Network on Gender and Sustainable Energy, produced a handbook which offers tools for energy project managers to address gender and social considerations in the planning, implementation and monitoring of their activities. Some important elements of plans for gender mainstreaming are: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- conducting gender audits of decision-making and management processes;
- engaging gender experts to assist with institutional and project-level gender mainstreaming plans;
- collecting gender-disaggregated data;
- incorporating gender-sensitive budgeting and accounting approaches; and
- using gender-based indicators and evaluation procedures.

In 2014, and through a joint publication with the International Union for Conservation of Nature (IUCN) and the Latin American Energy Organization (OLADE), this handbook was expanded into a guideline for policy makers and practitioners to further address gender mainstreaming in energy policies and institutions and projects. Moreover, the 2012 Guideline on Renewable Energy Technologies for Women in Rural and Informal Urban Areas, produced jointly by IUCN and ENERGIA, aims to increase women's awareness of household renewable energy technologies, to support women make informed decisions with regards to the most appropriate technology for their particular needs and context.

The COP20 side event T**owards a Gender-Responsive Mitigation Framework for transformative change in the energy sector** will showcase the abovementioned expriences as well as the instrumental role government institutions play in the implementation of effective gender interventions in the energy sector. The side event will take place on 10 December, at 3:00 pm in room Maranga ■

Blooming renewables in South Africa

Agathe Maupin
South African Institute of International Affairs (SAIIA)

Due to the increasing threat of climate change, the key role that energy plays in the interactions between societies and resources towards a sustainable development has gained broad attention. As renewable energy sources (RES) become more competitive in relation to other energy sources, they create another opportunity to attract additional investments in favour of a greener economy. In 2008, South Africa experienced a game-changing energy crisis due to severe capacity constraints in its energy infrastructure, thus forcing the country to tackle its energy challenges and initiate a transition to a low carbon economy. It is therefore no surprise that the potential of RES has gained increasing traction in South Africa.

On the eve of a global energy shift, South Africa has developed the Renewable Energy Independent Power Producer Procurement Programme (REI4P) to increase the share of renewables in its energy mix. Stemming from private sector participation in the electricity industry, the 2003 South African White Paper on Renewable Energy had set ambitious targets to facilitate future power generation capacity. Against this background, REI4P launched in 2011 with an initial target of 3,725 MW, divided into three bidding windows. The first and second bidding windows took place in 2013 through the Department of Energy, and the third one concluded this year.

Besides an increasing share of RES in the South Africa energy mix, further benefits have been derived from the REI4P, such as job creation in the renewable energy sector and the reduction of renewable energy prices. For example, between the first and second bidding windows, wind energy prices have fallen by 22 per cent, and solar prices by 40 per cent. In September 2013, South Africa incorporated its first solar power plant into its national grid under the REI4P. In three years, the REI4P has contracted 64 projects, and unprecedentedly managed to attract private investors in the South Africa energy infrastructure sector.


pic: flickr.com/lollie-pop

However, the REI4P has faced several setbacks. Among other issues, connection to the national grid backbone has encountered difficulties, due to insufficient investments in infrastructure, as well as national grid extension, with people in remote areas remaining off-grid. In addition, while the two first bidding windows were dominated by a wide range of developers, the third one witnessed a decrease in local and small companies, which found it harder to compete in a context of decreased prices.

In the process of an increasing RES share in the national production of energy, two main lessons can be learned from the South Africa REI4P experience: the need for comprehensive distribution and transmission planning on the one side, and the establishment of stronger links between the national bulk electricity provider and the Independent Power Producers (IPP) on the other side.

Fresh on the heels of the REI4P success, South Africa has also gained a stronger position on the international energy scene. The REI4P has propelled the country as a top three investment destination worldwide for renewables, and South Africa has therefore rapidly grown into a key energy partner. In 2010, US Secretary of State, Hillary Clinton and South Africa's Minister of International Relations and Co-operation, Maite Nkoana-Mashabane, launched the US–South Africa Strategic Dialogue to advance co-operation on energy issues, among others. It includes the pursuit of common interests regarding RES, energy efficiency, peaceful nuclear co-operation, carbon capture, and shale gas exploration technologies. In 2013, both countries agreed to work more closely on solar, wind and biogas as clean energy sources, in particular for the REI4P's extended fourth and fifth windows in 2015 ■

Emission challenges facing developing countries: The case of China

Chun Yu Jonathan Poon
Columbia University

The international community has been excited about the recent US-China Joint Announcement on climate change. Under this deal, China has committed to a carbon peak by 2030. According to the prediction by the International Energy Agency (IEA), the proposed emission peak is roughly associated with a 20 per cent increase in carbon emission from 2012 levels, to 12 gigatons in 2030. This corresponds to a 4˚C pathway, instead of the 2˚C agreed as the threshold to avoid dangerous climate change. Nevertheless, the commitment reveals the tremendous challenges facing China, and other developing countries in general, in abatement.

According to the Kaya Identity, which was originally proposed by the Japanese economist Yoichi Kaya, human-caused carbon emissions are the product of population, per-capita Gross Domestic Product (GDP), energy consumption per unit of GDP (energy intensity), and carbon emissions per unit of energy consumption (carbon intensity). As developing countries will experience significant population growth and soaring per-capita income, there is intense pressure for them to improve their energy efficiency in order to meet any emission targets. By 2030, population in China is expected to grow to 1.43 billion people. Per-capita GDP is expected to increase by five per cent to seven per cent per annum.. Such an increase in population and income level means that leaders in Beijing ought to find solutions to lower the existing intensity measures by 60 per cent.

Improving energy intensity and carbon intensity is easier said than done, and the Chinese government has been working hard towards gain in energy intensity. Under the 11th Five-year Plan from 2006 to 2010, Beijing aspired to reduce energy intensity by 20 per cent. Top-down approaches employed include the Top-1000 Energy-Consuming Enterprises programme, which required the largest companies in China to reduce energy consumption by 100 million tons of coal equivalent (toe) in total; and the Ten Key Projects programme, which focused on energy conservation. Despite the efficient implementation of these massive projects, China unusually missed its target by delivering only 19.1 per cent reduction. A key reason for their underperformance could be the diminishing impact from further effort on conserving energy. In the following 12th Five-year Plan, China has lowered the energy intensity reduction target to 16 per cent.


pic: flickr.com/fran001

Indeed, it might take China decades to gradually rearrange its economic structure such that it becomes less energy intensive, without creating shocks to the economy. As a result, China decides to work on carbon intensity and aspires to reduce the measure by 17 per cent under the current Five-year Plan. Compared to energy intensity, carbon intensity gears more towards the sources and production of energy. Currently, coal represents nearly 70 per cent of the total primary energy consumption in China. The huge dependence on the highly-polluting energy source is officially expected to continue. China cannot find an alternative source to meet its soaring energy demand at a comparable cost and scale. Achieving the carbon intensity target, thus, depends largely on the development and implementation of carbon capture and storage technology for its coal power plants. On the other hand, China could also accelerate its development on renewable energy and shale gas extraction. However, all these measures are extremely capital and technology demanding. Constraints from financial and technical resources are huge barriers facing China and other developing countries in combating climate change.

The United Nations Framework Convention on Climate Change (UNFCCC) process has stated that the unique situations of developing states should be taken into account in any climate change agenda. With the rise of developing countries, financial resources might become less of a problem. Yet, the international community should consider establishment of an accessible and effective knowledge sharing platform, to ensure that technical issues are not be constraints in achieving emission reductions. Technology might not be capable of solving all challenges. But it is undoubtedly our last hope for containing the temperature increase to 2˚C from pre-industrial level ■

ABOUT THE AUTHOR

Chun Yu Jonathan Poon is a graduate student at the School of International and Public Affairs, Columbia University, New York.

Extractives industries: Dirty and thirsty technologies

Nathalie Seguin
Freshwater Action Network - Mexico


pic: Lake Titicaca. flickr.com/julia_manzerova

The extractive model of economic growth is a huge burden on the planet, and one which Latin America has been a victim of for many years. Capitalist consumption patterns demand huge quantities of energy, forcing governments to race for more energy sources at whatever cost. Planetary "peak oil" has already been reached, and the cheap oil extraction era is declining. Non-conventional methods of hydrocarbon extraction have become more feasible and widely used, due to the high cost of conventional extraction. This has made countries that historically have not been large producers of oil to aspire to become rich through oil. This makes these countries the next target for large exploitative transnational oil companies.

On a global scale there has been a rush to develop non-conventional hydrocarbons – including natural gas shale by hydraulic fracture, better known as "fracking". But this technique is a very water intensive and particularly dirty technology, which heavily impacts overall quality of life, including human health and the environment. Fracking violates many human rights, and the push for this unsustainable production model will lead us to a water and ecological collapse.

Countries are gathering at COP20 to agree on measures to reduce emissions, and reduce the impact that climate change will have on the planet. This is why these kinds of technologies and vision to further push hydrocarbon dependency is no longer acceptable. We need to diversify our energy sources, and also change our energy consumption patterns. Our vision needs to go beyond the notion of nation states, and understand that we are all living on the same planet.

Countries need to remember that the international community recognises basic human rights. We need to prioritise a real energy transition and put our best effort in sustainable energies that fully respect human rights.

Mexico for example is going the wrong direction, and its exceptional sun exposure, solar energy and any other cleaner energy sources are neglected. Despite its commitment of achieving 35 per cent sustainable energy by 2024, Mexico has opened its doors through its latest energy reform to this terrible dirty and thirsty technology of fracking, violating the universal human right to water that was recognised in the Constitution in 2012.

Fracking uses between 10 and 30 millions of litres of water for each fracture, potentially making availability of water in those regions very scarce, and violating the most fundamental human right of access to clean, safe water. Additionally, these technologies also pollute the water supply as well. As this huge amount of water is injected with highly toxic products and sands under huge pressure to frack the shale rock, the flow back fluid is full of chemicals, with many of them impossible to clean under any water treatment existing today. This mix is very toxic, and it has already been proven that this liquid has polluted whole aquifers and other water supplies.

"Fracking is an energy transition to renewable" says the Mexican government.

How can you say such a thing when you are still extracting gas and oil that produce huge amounts of greenhouse gas emissions, and when the newest energy reform approved didn't mention a single word on sustainable energy? ■

A failure of fiduciary duty?

Felix von Geyer
Sustainable Development Journalist

> Someone once told me that to talk of human duty in human rights parlance was not helpful.

The financial world has chiselled fiduciary duty into a near-sacred ritual to maximise profits for the shareholder and investor. Milton Friedman's dictum is nowhere enshrined by law, instead fiduciary duty should look to return 'reasonable profits' while obeying environmental and social governance issues – responsibilities increasingly incorporated by the Equator Principles, an environmental and social risk management framework adopted by financial institutions.

Success at Lima's COP20 will reflect how the world's governments act to uphold their proclaimed duty to climate security while pursuing economic growth. Neither climate security nor economic progress are assured without immediately addressing mitigation. Investors must now be told what levels of risk and exposure they face through stranded assets and stranded capital as half the world's current energy infrastructure needs to be jettisoned to stay below 2°C increase in average global temperatures.

Levels of ambition must be reflected in Intended Nationally Determined Contributions (INDCs) that have to juxtapose mitigation with adaptation, finance and technology while appropriating differing levels of commitments between developed and developing countries – including 2025 and 2030 timeframes reflecting contraction and convergence issues evident in the recent US-China climate agreement.

Mitigation is crucial. The Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report was surprising in that it gave fossil fuel phase-out until the end of the 21st Century. The International Energy Agency (IEA) was much clearer in November's World Energy Outlook. By 2040 the current energy infrastructure will burn up the projected 1000 gigatonnes of CO2 equivalent (GtCO2e) carbon budget that would almost unequivocally cross the 2°C threshold and deliver serious climate change.

According to IEA chief, Maria Van Der Hoeven, mitigation fundamentals must 'bend the global emissions curve' downward by 2020. Changing the shape of the energy sector requires decarbonising electricity and accelerating low-carbon technology innovation.

The importance of the responsible investor has never been stronger than now.

Christiana Figueres praised September's Principles for Responsible Investment (PRI) Montreal Carbon Pledge that committed to track the carbon exposure of 15 per cent of its funds. However, she asked the PRI to track their entire funds' carbon exposure.

The reason is simple. The IEA predicts current and projected energy infrastructure greenhouse gas emissions to 2035 will lead to around 4°C temperature increase. Logically half the world's existing energy infrastructure must be discarded or its phase-out planned.

Now responsibility lies with the financial community to warn investors that future investment in fossil fuels carries a warning sign: "We cannot guarantee the level of exposure to stranded assets and stranded capital."

Carbon Tracker's 2013 research with the Grantham Research Institute at the London School of Economics (LSE) estimated an available 900 GtCO2e carbon budget for an 80 per cent probability to stay below 2°C while 1075 GtCO2e provided a 50 per cent probability.

Even Carbon Capture and Sequestration (CCS) technology that potentially extends carbon budgets by a mere 125 GtCO2e by 2050 are equivalent to under three years of our current global emissions profile.

From a fiduciary duty perspective, investors must be told that already 60-80 per cent of coal, oil and gas reserves of publically-listed firms are unburnable. Carbon Tracker concluded that these companies have financial interests in undeveloped fossil fuel resources with an embedded carbon content equivalent to 1541 GtCO2e.

This is why the Australian Conservation Foundation (ACF) is pressuring four Australian banks, ANZ, NAB, Commonwealth Bank and Westpac – all who are Equator Principles signatories – not to invest in Queensland's Galilee Coal Basin, which ACF calculates would increase Australia's cumulative greenhouse gas emissions by at least 700 million tonnes per annum (mtpa), compared to Australia's current domestic emissions of 542 mtpa.

Furthermore, the IPCC's latest Mitigation Report is clear that 2020 emissions levels based on the Cancún Pledges are inconsistent with cos- effective long-term mitigation trajectories, and are instead broadly consistent with cost-effective scenarios likely to limit temperature change to below 3°C.

Therefore, delaying mitigation through 2030 will make any transition to a low carbon economy and the prevention of serious climate change almost impossible.

If the financial community wants to deliver any fiduciary duty; rethinking future fossil fuel investments is critical ■

ABOUT THE AUTHOR

Felix von Geyer is a sustainable development journalist and has lectured Energy Policy and Sustainable Development

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Role of renewables in the climate debate

REN21

The rapid growth of renewable energy markets throughout the world over the past decade has resulted in significant investment volumes, in the creation of jobs, as well as in a large reduction of renewable energy cost due to economies of scale. As a result, new markets for renewable energy technologies in developing countries, where there is strong need for new generation capacities and where energy demand is increasing, have opened. Moreover, the use of renewables for power and heat generation has led to significant decrease in greenhouse gas (GHG) emissions.

Germany was one of the "first mover countries" that developed and implemented renewable power generation, especially in onshore wind and solar photovoltaic. Between 2000 and 2013, the German Ministry for Environment undertook a detailed and unique effort to document the effects of the implementation of renewable energy sources. Their efforts serve as a valuable reference for other countries on how renewables can contribute to GHG emission mitigation efforts, while increasing energy access for all.

There are five notable key benefits of the German "Energiewende", the German word for Energy Transition.

Reduction in greenhouse gas emissions

The increased market for renewable energy deployment has reduced GHG emissions, as well as dust emissions throughout Germany. Renewables have replaced 710 g/KWh of CO2 equivalent in power generation. In the heating sector, 271 g/kWh of CO2 equivalent was displaced, as was 154 g/kWh of CO2 equivalent in the fuels sector.

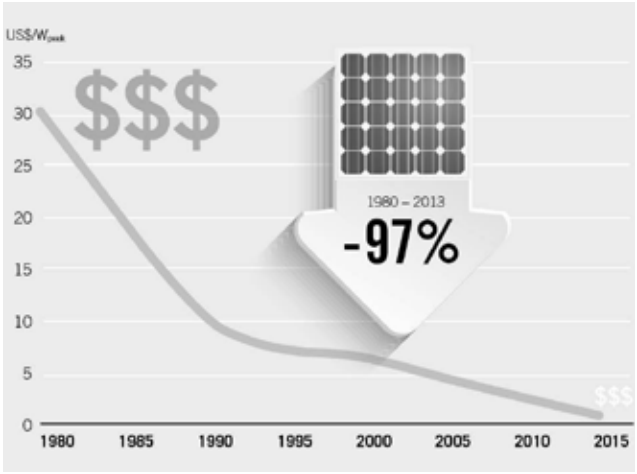
Overall, the GHG emission reductions in Germany by the end of 2012 added up to 148 million tons. The biomass sector offered the largest percentage share of CO2 off-set, reducing 40 per cent of 148 million tons CO2 equivalent. The wind and solar PV sectors each saved an equivalent of 28 per cent and 16 per cent of GHG emissions respectively. Hydropower, biofuels, solar thermal and geothermal heating collectively saved 17 per cent.

Increase in fossil fuel savings

Using renewable energy sources for power generation, heat supply or as a transport fuel reduces fossil fuel demand and — in an energy resource-poor country like Germany — decreases imports of fossil fuels. In 2012 alone, over 40 million tons of coal, 12 billion cubic metres of gas and 8 million litres of oil, diesel and gasoline were saved.

Decrease fossil fuel import costs

Germany imports most of its oil, gas and coal. With the increased penetration of renewable energy the overall cost for imported fossil fuels decreased steadily over the past decade. In 2011, avoided fossil fuel imports totalled EUR 6.6 billion, with the greatest savings in the power sector. By 2012, the fossil fuel cost savings were just over EUR 10 billion, with the heating sector surpassing the power sector by EUR 1 billon.



Development of Solar Photovoltaic Module Prices, 1980 - 2013

Cost of renewable energy

Germany's pioneering role in the development and deployment of renewable energy technologies led to a global drop in costs. Cost for renewable energy technologies – onshore wind, solar collectors, bioenergy – decreased significantly. Solar photovoltaic module prices decreased by one order of magnitude; prices in 1980 were an average of US$30/Wpeak dropping 97 per cent to US$0.90/Wpeak in 2013.

Increase in investments in new technologies

Increased investment in new renewables translates into new jobs in the renewable energy industry. According to the German government, the overall investment in renewable energy technologies in 2012 was 19.5 billion Euros. REN21's The First Decade: 2004-2014 notes that globally renewable energy jobs doubled over the last decade, growing from about 3 million in 2004 to approximately 6.5 million at the start of 2014.

While the current energy mix varies from country to country, Germany's efforts – as summarised above – clearly demonstrate that renewables should play a central role in any climate change mitigation strategy. Renewables also contribute directly to adaptation efforts. The decentralised nature of renewables allows for energy resource diversification and flexibility in planning. Renewable energy technologies also provide an excellent opportunity as a way of complementing existing energy systems so that the overall energy system is adaptive to unanticipated climate impacts ■

MORE INFO

REN21 is an international, multi-stakeholder network that works to promote the rapid uptake of renewables. Its annually produced flagship report, Renewables Global Status Report is the most frequently referenced report on renewable energy market, industry, and policy trends.

www.ren21.net

Side events calendar

DATE	TIME	VENUE	TITLE	ORGANISERS
TUESDAY 2nd DECEMBER	11:30 - 13:00	Sipan	Gestión comunitaria del bosque:respuesta en Mesoamérica para adaptarse y mitigar el Cambio Climático	Consejo Civil Mexicano para la Silvicultura Sostinible, A. C. (CCMSS), Finnish NGO Platform KEPA (KEPA)
	11:30 - 13:00	Caral	How lessons learned from the CDM can inform the design of climate finance mechanisms	Nature Code - Centre of Development & Environment (NC)
	13:15 - 14:45	Paracas	Equity and Differentiation in the Context of iNDCs – The State of the Debate	Climate Action Network Canada (CAN-Rac), Climate Action Network International (CAN International)
	13:15 - 14:45	Caral	Progress and support in Amazonian Indigenous REDD+ in 5'194, 500 hectares	Ejecutor de Contrato de Administración de la Reserva Comunal Amarakaeri * (ECA - RCA), Federación Nativa del Rio Madre de Dios y Afluentes * (FENAMAD)
	13:15 - 14:45	Wari	Future carbon markets: The JISC hosts a panel discussion on growing joint implementation into a new market architecture	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)
	13:15 - 14:45	Maranga	Technology Mechanism: Enhancing technology cooperation for action on climate change	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)
	15:00 - 16:30	Machu-Picchu	Pathway to an effective, ambitious and fair 2015 climate agreement: Insights from the ACT 2015	World Resources Institute (WRI), Ateneo de Manila University (ADMU)
	15:00 - 16:30	Caral	Innovations in social participation in REDD+ policies and practices in Latin America	Rainforest Alliance (RA), The Nature Conservancy (TNC)
	16:45 - 18:15	Sipan	Implementing and replicating innovative energy transition programs and clean technology funds	ClimateNet, Swiss Association for Environmentally Conscious Management (ÖBU)
	16:45 - 18:15	Maranga	Clean Development Mechanism (CDM) and Sustainable Development – Insights from India	LAYA, Academy for Mountain Environics (AME), South Central India Network for Development Alternatives (SCINDeA)
	16:45 - 18:15	Caral	Mainstreaming Health Risks in Climate Change Disasters, Forest Preservation & REDD+	Nurses Across the Borders (NAB), Global Alert for Defence of Youth and the Less Privileged (GADYLP), United Nations of Youth Network (UNOY)
	18:30 - 20:00	Maranga	South Asia - Vulnerable Region and Adaptation Strategies	Development Alternatives (DA), Indian Youth Climate Network (IYCN), Sustainable Development Policy Institute (SDPI)
	18:30 - 20:00	Caral	Capacity building to assist land-based measurement, reporting and verification (MRV) systems	Australia, European Space Agency (ESA), William J. Clinton Foundation
	18:30 - 20:00	Paracas	The LEG side event	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)
WEDNESDAY 3rd DECEMBER	11:30 - 13:00	Caral	Climate change science update: the challenges for robust decision making	Met Office Hadley Center, Pennsylvania State University (PSU), University of Reading
	11:30 - 13:00	Maranga	Landscapes, ecosystem services, and smallholders: Putting cross-cutting concepts into practice	Fairtrade Labelling Organizations International e.V. (FLO e.V.), Forest Stewardship Council (FSC), Nexus Carbon for Development Limited (Nexus-C4D)
	11:30 - 13:00	Machu-Picchu	GCF Open Forum – Engaging with the Green Climate Fund, Preparing Projects	Green Climate Fund secretariat (GCF)
	13:15 - 14:45	Caral	Climate Change Scientific Cooperation in the Pacific Alliance: Monitoring Biodiversity	Peru, University of Oxford, Environmental Change Institute (ECI)
	13:15 - 14:45	Machu-Picchu	A fair and accountable climate finance regime: Confronting the contentious issues	OXFAM International (OI), Asociación Interamericana para la Defensa del Ambiente (AIDA)
	13:15 - 14:45	Sipan	The IPCC Fifth Assessment Report: A User's Perspective	WMO/UNEP Intergovernmental Panel on Climate Change (IPCC)
	13:15 - 14:45	Paracas	SCF: 1st Bienniel Assessment and Overview of Climate Finance Flows	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)
	15:00 - 16:30	Maranga	Indigenous peoples, health, and community-based monitoring systems	Tebtebba Foundation, McGill University
	15:00 - 16:30	Machu-Picchu	Approaches to equity in forest governance: Lessons for safeguard development	Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC), International Institute for Environment and Development (IIED)
	15:00 - 16:30	Sipan	Building Resilience to Climate Change and Managing Disaster Risks through Sustainable Agriculture	World Farmers' Organisation (WFO), Caritas Internationalis (CI)
	16:45 - 18:15	Sipan	Increasing Resilience to Climate Change through Adoption of CSA Practices with a Focus on Gender	International Food Policy Research Institute (IFPRI), Asociacion para la Naturaleza y Desarrollo Sostenible (ANDES)
	16:45 - 18:15	Caral	Why Forests, Why Now? Forests as a feasible and urgent solution for climate stability	Center for Global Development (CGD), The Woods Hole Research Center (WHRC)
	18:30 - 20:00	Caral	NAMAs and their role for INDCs in Tunisia and the Maghreb region	Tunisia, University of Zurich (UZH)
	18:30 - 20:00	Paracas	What do the 1st biennial reports and 6th national communications of Annex I Parties reveal?	Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC)

Reflections from the 10th Conference of Youth

Soscha de la Fuente
Dutch Youth Representative on Sustainable Development

After being elected as youth representative for the Netherlands just three weeks ago, this past Thursday I found myself on a plane to Lima, Peru to attend the 10th Conference of Youth (COY10) and the COP20 climate negotiations. The COY opening ceremony, with speeches from UNFCCC Executive-Secretary Christiana Figueres and the Peruvian Minister of the Environment, had one clear message: get together, work hard, and learn from each other. Make sure your voice is heard!

Not knowing what is ahead can be scary, and on my way to the first day at the COY10, I felt small and intimidated. On day two we started working on our Declaration of Youth in small groups, mine consisting of young people from France, Taiwan, Barbados, Peru and many other places. We were educators, activists, representatives and students; but mostly we were all concerned citizens. We got the chance to share our experiences, our worries, our success stories and our ideas. And because of all our differences, we were able to create a statement on education that is innovative and diverse; and can be used by our governments, as well as each other.

At the end of COY10 on Sunday I felt strong and empowered, and had connected with young people from all over the world. I was no longer just one person fighting against climate change, instead I now had an entire army next to me. In just those three days, we managed to prepare a Declaration of Youth that has inspired us all to work even harder. And we promised each other the following:

"We, as the youth present at COY10, will share our knowledge and information of sustainable development, climate change and climate policy, and the environment with our peers and communities both formally and informally. We will share our experiences and lessons learned, as well as our educational tools, as teachers and as students" ■

Reflections from COP20, Day 1

Christina dalla Torre and Luciano Frontelle
Youth Press Agency

"We must put adaptation at the same level as mitigation". Those were the words of Christiana Figueres at the opening session of COP20. This relates to the latest Intergovernmental Panel on Climate Change (IPCC) report which states that with the current rise in temperature, there have been visible effects on the health of the planet. The gap between the causes of the climate change and its effects is tightening, meaning that impacts are becoming more and more real. One of the impacts that is already being felt is that of food shortages, due to the impacts climatic changes are having on agriculture.

But today at COP20 we didn't just have speeches on this issue, we also had an action. Fast for the Climate, which aimed to raise awareness about the effects of climate change on food and the lack of ambition to cope with them. This action gathered people at the central court at lunch time, sitting around a table with empty dishes. The message that participants wanted to deliver was that they were voluntarily fasting to remember those that are forced to, due to food shortages.

Both speeches and real examples of action play a positive role in the COP, since in their own way they can both lead to decisions being taken at the Conference. By that we mean that public opinion demands to see governments reach an agreement that tackles the challenges of climate change in an ambitious way, and addresses the effects that are already being felt but that have so far been ignored.

This first day has much to teach us about the fact that even though the topics at the centre of the negotiations are very complex and positions are controversial, there are people that in many fronts are working to take us out of the comfort zone and lead to the future that we need ■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