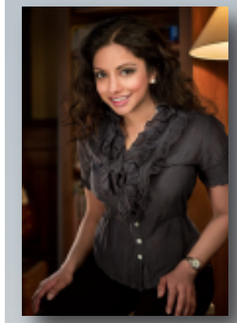
carbon dioxide equivalent, where that of the United States is 19.6 tonnes and China 7.69 tonnes in 2011. India, like other emerging economies, has borne much of the burden in terms of pollution while experiencing the often inequitably distributed benefits of globalization. Here the Global North countries have a responsibility to provide adequate technology transfer, capacity building, and finance to create the transition to a green economy for countries such as India.

The big win for India in the Paris Agreement was the inclusion of the phrase "common but differentiated responsibilities" recognizing the different national circumstances of developed and developing countries. India's former Environment Minister Prakash Javadekar termed the deal an "important achievement" for India, noting that India's push for "sustainable lifestyles and climate justice" was included in the 31-page final draft of the agreement.

Yet India must become the world's clean technology leader in terms of innovation and deployment. India has already been working on the target of producing 175GW of electricity by 2022 from clean energy solutions like solar (100GW), wind (60GW), biomass (10GW) and small hydro (5GW). Furthermore, the country plans to add more renewable energy to its grid, which is 40% of its energy generation as against 30% in the US. The renewable energy sector within India will need to be scaled up. Both rural development and the transportation sector have to be modernized and made more sustainable as well.

For more information on WATER and to receive this newsletter as an email, please visit: www.clean-futures.com/resources/water

WATER Contributors



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WATER Newsletter

Nov. 7, 2016

Our focus with Women Advocates for Transforming Energy & Resources (WATER) is to bring together young women leaders who care deeply about climate change and clean energy across several disciplines: law and policy, science and technology, and business and strategy. WATER is focused on aggregating and analyzing information on climate change and energy across the globe, providing policy recommendations to world leaders, advocating for greater participation and empowerment of women and girls, and training the next generation of climate leaders. We are attending UNFCCC COP-22 in Marrakech, Morocco where we are launching our first official WATER newsletter. Thank you for reading and please contact us if you have follow up questions or comments.

OVERVIEW OF COP-22

United Nations Framework Convention on Climate Change (UNFCCC) 22nd Conference of the Parties (COP-22) is taking place in Marrakech, Morocco from Nov. 7-18, 2016. COP-22 has been dubbed "the COP of implementation" and the "COP of Africa."

177 countries have ratified the Paris Agreement as of June 21, 2016, including the United States and India. This is also significant in the context of the UN Sustainable Development Goals (SDGs), which have replaced the Millennium Development Goals (MDGs) as of 2015. Of the 17 goals, Goal 13 is "Climate Action."

This is the first time there will be a Low Emissions Technical Solutions Conference by the Sustainable Development Solutions Network at a COP, integrating the SDGs with the climate negotiations. This provides incredible opportunities for harmonization and increased commitments across all sectors with respect to combatting climate change, the ultimate indicator of unsustainable development.

Since climate change is a global calamity, the world must take mitigation actions which use technology and innovation as effective tools for the global public good. Climate justice is the concept of securing the future of the poor from the effects of natural disasters exacerbated by climate change, and climate change itself is largely the fault of industrialized nations. Thus people in developed countries must not only modify their behavior and lifestyles, but those in developing countries must adopt clean technology products and services to leapfrog over carbon unfriendly systems. We believe that the greatest share of funding and technological capacity building for the benefit of the bottom 2 billion people around the world living in poverty and without access to electricity and other resources, such as food and water, must be contributed by developed countries. Thus we will all be able to build true intergenerational equity, which is at the heart of sustainable development, and live within our planetary boundaries.

A CALL TO ACTION
BY SAVANNAH G. MILLER

This year presents our world with two historic milestones. The first is the ratification of the Paris Agreement, which offers an innovative framework towards limiting global temperature rise to no more than 2 degrees Celsius. And the speed at which the Paris Agreement was ratified was unprecedented, accentuating global concern over climate change. However, the second global milestone offers a symbolic but somber message: it is the concentration of atmospheric carbon dioxide, which has reached over 400 parts per million. In addition, our planet has experienced increasingly warmer temperatures, with August 2016 capping a 16-month streak of record hot months. Even if we cease to emit all fossil fuels tomorrow, our current atmospheric concentrations – and their repercussions- will linger for decades.

To readers at COP-22 in Marrakech, Morocco, I emphasize this: 2016 is and will forever remain an emblematic year towards climate diplomacy. Our world is struggling. TIME Magazine reports that Antarctica's melting ice from its largest glaciers could raise global sea levels by more than 2 meters (6.6 feet), per new research. We are witnessing developing countries struggling with lapping shores; severe weather events are increasing in severity and frequency; we have recorded the first ever climate refugees; and climate change is making us actively question our perceptions of identity, values, ethics, and economies. But this is not a global problem. It is a global opportunity. It is an opportunity that will require tenacious, innovative, and cross-disciplinary focus, in which women will need to take the lead in engaging in the solutions necessary to stabilize our planet and empowering each other along the way.

As a global community, our call to action is here. COP-22 is the conference to solidify commitments so that the globe will remain below the two-degree Celsius threshold. With a strong will and our loud voices united, we will be the first generation to end extreme poverty; to end inequality; to fight climate change; and to demand that proper healthcare is a lifelong right for us all. The solutions are here, with the Paris Agreement and SDGs as our guides. The data is growing. This challenge is ours, and we are ready.

CLIMATE CHANGE IN THE ARCTIC
BY FANNEY HRAFNSDÓTTIR

My thoughts on the current situation in the Arctic are that, although much has been done recently to help to preserve the unique habitats of endangered animal species and indigenous peoples, a lot more needs to be done in the future. There is no doubt that civil society worldwide needs to help take more action as soon as possible and push for changes. Governments are already doing a good and valuable job trying to lessen the damage from climate change, in the Arctic and all over the globe as well, through bargaining, regulation, and agenda setting.

I think that civil society needs to realize that it can have an impact on the fight against climate change by helping people choose a more environmental-friendly living standard, even though pollution from a regular household (especially in western societies) is not the biggest problem we are facing. Emissions from big industries and factories, along with emissions from transporting goods via shipping and inland modes, are what must be addressed. As fossil fuel consumption is bad for the environment and climate both because of the manufacturing process and emissions from vehicles, it is important to invest in building and transforming renewable resources for a cleaner future for all.

In recent times there has been recognition among people and governments around the world that climate change and changes in the environment in the Arctic affect not only the Arctic, but the world as a whole. The melting of ice caps in the Arctic and the Greenland Glacier, with big glaciers in Iceland causing sea levels to rise, and the thawing of the tundra in Siberia and North America, which releases toxic gasses into the atmosphere, are aspects that concern every human being on Earth.

INDONESIA AND THE CHALLENGES OF ITS BIODIESEL INDUSTRY
BY ANJA AUNE SELMER

Indonesia has a lot to gain by combating climate change and spearheading efforts in the renewable energy space. Recent developments in its palm oil industry, part of the biofuel industry, have challenged the country to rethink sustainable alternatives.

Indonesia is one of the countries that will be most severely affected by climate change, and climate impacts are already being felt. Changes such as increasing surface temperatures of water and decreasing amounts of rainfalls will inevitably hamper social welfare and economic growth, which counter the country`s stated aims to achieve societal progress. Before 1960, droughts occurred every 4th year, while now they are documented every 3rd year. In addition, the predicted rise in sea level poses a significant threat to populations located along Indonesia's 81,000 km coastline. Food security and water availability will be negatively affected, thus imposing a challenge for future Indonesian peoples.

Extraction of palm oil for use as a biofuel is a step in right direction. However, the industry that has emerged proves there are structural challenges that need be addressed for new, renewable energy to be entirely sustainable. Although crude palm oil is commonly known to be used for food and the alike worldwide, it also provides opportunities for rather different applications, as it can be processed into biodiesel. Oil palms render significantly higher yields than those of soybeans and grape seeds, making palm oil a favorable option in terms of efficiency and maximizing revenues. At present, palm oil comprises 5% of total biodiesel production globally, a number that is expected to increase proportionately with increasing demand in Indonesia and worldwide.

Social and economic progress must be taken into account when considering the expansion of biofuels production. Seemingly, biofuels facilitate energy security, rural economic development, poverty reduction, and export capabilities. Thus the government of Indonesia has involved itself greatly with palm oil development beginning in 2006, when it was still at a nascent stage. Today, state-provided incentives such as direct subsidies, support of production infrastructure, and investment loans perpetuate the close tie between government and industry.

Meanwhile, the production of palm oil persists as one of the world`s greatest contributors to climate change. In 2007, the World Bank estimated Indonesia is generally placed as the 4th largest GHG emitter globally. This is mainly due to the palm oil industry. In 2013, 18 million hectares of land had been cleared in order to plant palm trees. Yet, merely 6 million hectares were used for this purpose. Supposedly, these areas have instead been used for cheap extraction of timber.

Moreover, the industry has given rise to social inequality. Cultivation of palm trees is labor-intensive, which led the government, under the rule of President Suharto, to expand the current transmigration scheme. Under this scheme, citizens of populated cities were moved to smaller villages where they would be able to work on plantations. The Indonesian government has claimed that the structure and implications of the program violated human rights, and although its existence ceased after a period, new violations of laborers` rights have emerged.

There are nevertheless initiatives that aim to enhance the industry. For example, the World Wildlife Fund founded the Roundtable on Sustainable Palm Oil in 2003, which analyzes the atrocities in the industry. Furthermore, criticism regarding land conversions and carbon emissions led the Indonesian state to initiate a 4-year moratorium to inhibit land conversions. Despite that effort, deforestation doubled during the same period. According to Rijkswaterstaat, the government has claimed that the loss will be compensated by reforestation.

Clearly, the biofuel industry in Indonesia, which is currently based on heavy extraction and processing, poses significant challenges. Although palm oil plantations have existed in Indonesia for almost a century, their recent expansion has countered the government's goals for social and environmental improvement. The ingrained exploitation of the ecological system and forests are worrying, in addition to the social consequences. Significant efforts will need to be taken by the government and the private sector to improve the industry as it is – a task that is, considering what is at stake, of utmost importance.

INDIA AS THE VOICE FOR DEVELOPING COUNTRIES AND AS AN ENERGY & CLIMATE LEADER
BY SONALI P. CHITRE

India recently changed the name of its Ministry of Environment and Forests to instead call it the Ministry of Environment, Forest, and Climate Change. This clear signal demonstrates India's desire to combat the climate crisis. Minister of State for Environment, Forest and Climate Change Anil Madhav Dave has said India will "put across its views based on Indian, or Gandhian lifestyle in Morocco." He added: "Issues related to raising finance under Green Climate Fund (GCF) and technology transfer will also be raised at COP-22."

India is now the world's fastest-growing economy, according to the International Monetary Fund (IMF), and India is set to become the world's most populous country in just seven years, according to the UN. India's is the world's 3rd largest emitter of greenhouse gases (GHGs), behind #1 China and #2 United States. However, India is "energy poor," based on the percentage of the population without access to stable electricity, which amounts to roughly 300 million people.

Over the years, Indian climate politics has been shaped by the need to balance dual but contradictory objectives: India needs an effective climate agreement to protect its population against climate change impacts, but it also needs sufficient low-cost energy for development and growth. India is a large emitter and must curb emissions to solve the global crisis to avoid the game theoretic problem that would create a stalemate if the large emitters cannot agree to all curb emissions.

The problem with the climate regime is one of Common But Differentiated Responsibilities. India has historically emitted much less per capita than the western industrialized countries. According to the World Resources Institute (WRI), India was at the bottom for per capita emissions among the top 10 emitters, with average per capita emissions of around 1.92 tonnes of