

Climate Change and Global Warming

April 24-25, 2019 | Vancouver, Canada

SCIENTIFIC TRACK | DAY 1

JOURNAL OF EARTH SCIENCE & CLIMATIC CHANGE, 2019 VOLUME 10 | DOI: 10.4172/2157-7617-C1-056

United State billion dollar weather and climate disasters: The increasing cost of extreme events in context

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Since 1980, the United States has been affected over 230 separate weather and climate disasters, in which damage costs exceeded \$1billion each. The cumulative cost for these events exceeds \$1.5trillion (U.S. dollars). There have been an increasing number of these events causing significant damage in recent years. From 1980–2017, the annual average number of billion-dollar events is 5.9 (inflation-adjusted) while the most recent 5year (2013–2017) annual average is 11.6 events (inflation-adjusted). The increase in population and material wealth over the last several decades are an important factor for the increased damage

potential. These trends are further complicated by the fact that many population centers and infrastructure exist in vulnerable areas like coasts and river floodplains, while building codes are often insufficient in reducing damage from extreme events. Climate change is also playing an increasing role in the increasing frequency of some types of extreme weather that lead to billion-dollar disasters. Most notably the rise in vulnerability to drought, lengthening wildfire seasons and the potential for extremely heavy rainfall and inland flooding events are most acutely related to the influence of climate change. During 2017, the U.S. experienced a historic year of weather and climate disasters. In total, the U.S. was impacted by 16 separate billion-dollar disaster events including three tropical cyclones, eight severe storms, two inland floods, a crop freeze, drought and wildfire. More notably than the high frequency of these events is the

cumulative cost, which exceeded \$300billion in 2017: A new U.S. annual record. This shattered the previous U.S. annual record cost of \$214.8billion (inflation-adjusted). The damage from Hurricanes Harvey, Irma and Maria were responsible for approximately \$265.0billion of the \$306.2billion while the California wildfire damage of 2017 (\$18.0billion) tripled the previous U.S. wildfire cost annual record.

Biography

Adam Smith is NOAA's leading expert on disaster costs for the United States. Smith has expertise to homogenize and transition disparate disaster data sources into better quality-controlled disaster cost frameworks, as research tools and has expertise in developing methods to quantify natural disaster costs and uncertainty: <https://www.ncdc.noaa.gov/billions>. He sits on the U.S. Subcommittee on Disaster Reduction, is a NOAA expert on U.S. disaster loss data in support of the international Sendai Framework for Disaster Risk Reduction (2016-Present) and is part of the Integrated Research on Disaster Risk interdisciplinary working group on Natural Disaster Risk/Loss Data integration (2012–2015) and the American Meteorological Society Committee on Financial Weather/Climate Risk Management (2015–2017).

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Econometric evaluation of extreme weather and climate events in Atlantic Canada

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In recent years Atlantic Canada has seen many examples of extreme weather and climate events such as floods, hurricanes, thunderstorms, severe rainfalls and snowstorms, storm surges, heat waves and others. These extreme weather events resulted in significant economic damage which has affected the lives of people in the region as well as public finances. The existing literature on extreme weather and climate events claims that the frequency and magnitude of these events are going to increase in the future due to changing the climate. In this regard, this study addresses two issues-

establishing the link between climate change and extreme weather events on the one hand and evaluating economic damage from those events on the other – by means of rigorous statistical analysis. The relationship between frequencies of floods, hurricanes, heavy rainfalls and snowstorms and climate variables such as temperature, precipitation and sea level is established on the basis of the log-log complimentary model and Poisson regressions. Other specific factors associated with each extreme weather event are used as control variables. Our estimation based on these statistical methods has shown a strong and statistically significant positive correlation between frequencies of the above mentioned extreme weather events and climate variables which proves the link between frequencies of these events and climate change in Atlantic Canada. These results are the basis for estimation of

the so-called damage functions associated with extreme weather events in Atlantic Canada that will provide economic justification for the investments into preventive and mitigation measures in the region.

Biography

Yuri Yevdokimov is a Professor at the University of New Brunswick (Fredericton, Canada). Having completed degrees in economics and engineering, he holds a joint appointment in the departments of Economics and Civil Engineering. Dr. Yevdokimov's research interests lie in the field of sustainable development and climate change impacts particularly sustainable transportation and climate change impacts on regional economy. His work has been published in academic journals and conference proceedings in USA, UK, Canada, France, Greece, Germany, India, China, Croatia and former USSR, particularly in Russia and Ukraine. To date Dr. Yevdokimov has more than 20 publications. One monograph, three textbooks, fifteen refereed journal articles and nine chapters in books are among these publications. Currently Dr. Yevdokimov teaches in undergraduate and graduate programs in economics and civil engineering at the University of New Brunswick and conducts research in the areas of climate change impacts on transportation, energy economics and political economy of emerging economies.

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Rural women innovative agro forestry management systems as a basis for sustainable agriculture in Cameroon

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This paper presents an analysis of various women locally led innovative agroforestry management systems in one forested community in Cameroon. It describes various locally generated sustainable agro-forestry conservations and tree management systems. It explains that a gap exists between locally led and external management forest agricultural systems. In the externally supported activities, the concept of participation is used to indicate that local women are participating in the implementation of innovative agro-forestry best practices that ensure and support sustainable agricultural best practices in the local communities. On the basis of these findings, the study identifies three actor categories,

important for consideration in sustainable livelihood support agriculture; i.e. local farmers, village extension agricultural workers and supervisors. The relations between these village agriculture extension actor categories constitute a firm foundation for community forest management and development for replicable sustainable agricultural best practices. The paper also focuses on forest indigenous people's limited understanding of climate change impacts on the environment and effects on agriculture and food security. It equally contributes to mainstreaming local women's adaptation to sustainable farming practices, sharing experiences of agro-forestry conservation efforts and activities that promote positive results, outcomes and impacts result in oriented experiences that can be replicated in other communities using local farmers as main actors in sustainable agriculture and livelihood food security adaptation. The paper further explains the importance of developing working relationships and networks with government institutions, forest

conservation and agricultural organizations in collaboration with forested people and communities. The paper concludes that local forested people and communities can educate their local populations on how to use their local ideas and initiatives for optimum adaptation to community agro-forestry management practices that can encourage and support sustainable agriculture and ensure long term food security.

Biography

Francis N. Njuakom is President/CEO of IAFCCC-CDVTA Network Alliance; a programme that supports disadvantaged forested communities, through biodiversity conservation and sustainable livelihoods, through fighting deforestation and climate change, to building economic opportunities and better working conditions for rural people. The Alliance provides urgent solutions to environmental and social challenges. With over 22 years in development, he coordinates Nouvelle Planete Swiss environment projects in Cameroon. He is a Director on the IFA Board in Toronto. He has coordinated major development projects by funding agencies including the Department for International Development (DfID). Mr. Njuakom was awarded the Sheila McKechnie International Award in 2008 by British Prime Minister, the Rt. Hon. Gordon Brown, at Number 10 Downing Street. He is a Knight of the Cameroon National Order of Valour. Widely travelled, Mr. Njuakom has delivered keynote addresses at major world conferences on climate, environment, agriculture and social care.

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Complete elimination of fossil fuel consumption by the vehicle and the use of gravity in its advance that the inexhaustible source of clean energy

Mahdi Majmoueh
GSM Co, Iran

Complete elimination of fossil fuel consumption by the vehicle and the use of gravity in its advance that the inexhaustible source of clean energy. The initial idea is very simple. The weight of the vehicle is applied to the gravity, perpendicular to the axis of the car's motion and with

the performance of the shock absorbers in the car is depleted and neutralized. It is possible to use this compressive force to move the car by changing the shock absorbers.

Mechanism: Replacing shock absorbers with an energy converter capable of converting compressive force into electrical energy. Installing an electric motor and replacing it with an existing combustion engine. Utilizing the energy from the converter in the electric motor and moving.

Project Strengths

- Reducing climate pollutants by completely removing fossil fuels in cars.

- Reduce noise pollution by existing combustion engines.
- Use Free and Clean Fuel.
- Fully self-charger vehicles.
- Annual savings of over \$200billion {Annual fuel cost of vehicles in the transportation industry.

Biography

Mahdi Majmoueh is a 47years old civil engineer, he received a bachelor's degree in civil engineering, his current field placement is with the project management. He has a strong belief system in " the quality of his life depended to the quality of questions that he asks himself and one of the best question that he can ask himself is how can he serve? Life is not a noun, it is really living not life. It is not loving, it loves. It is not a relationship, it is relating. It is not a song, it is singing. It is not a dance, it is dancing

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Are all nations addicted to CO₂ emission: Evidence from association of Southeast Asian Nations countries

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Canada

Southeast Asia is one of the most vulnerable regions to climate change. Energy-related emissions from association of Southeast Asian Nations (ASEAN) countries represent four percent

of global greenhouse gas (GHG emissions). Historically, there was a one to one relationship between carbon dioxide (CO₂) emission and GDP growth. This research aimed at studying the extent of the ASEAN region's dependency on CO₂ emission and to examine if this dependence has decreased over time. Data are from the World Bank for nine countries on CO₂ emissions, population, energy use and Gross Domestic Product (GDP) from 1971 to 2014. The results of the study show that all the countries in the ASEAN

region were dependent on CO₂ emission but the dependency varied across the countries. However, after the year 1999, dependence has decreased from 39% to 33%.

Biography

Meera Munusamy is a recent graduate in Master of Business Administration (MBA) from Thompson Rivers University. She had been a Senior Researcher with National Hydraulics Research Institute of Malaysia, Ministry of Environment Malaysia. She had carried out various environmental projects from Bioremediation, Water & Wastewater Analysis and Development of Hydrodynamic Model.

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Behaviour matters: Psychological explanations for recurring forest and land fires in Indonesia

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Recurring forest and land fires in Indonesia are of particular global concern and have become an environmental and humanitarian crisis. They have caused multi-level (local to global) and multi-sector (e.g. Economics, Politics, Environment, Livelihood and Public Health) damage. Particularly, they have generated significant carbon emissions and are linked to a tangible loss of forest cover, undermining climate change mitigation efforts and sustainable forest management initiatives. Anthropogenic sources, such as

clearing land through burning (burning behaviour), is one key underlying cause. While it has been the remit of small-scale subsistence agriculture for millennia, burning behaviour is now practiced by increasingly diverse stakeholders (from small-scale farmers to large agribusiness companies) as a means of land management, often in already fragmented and degraded landscapes. In response, the Indonesian government has pursued political measures aimed at modifying (in actuality, forbidding) burning behaviour. Yet, policy outcomes are underperforming and Indonesia continues to grapple with recurring fire events. Lack of knowledge on the psychological mechanisms behind burning behaviour might underlie such outcomes. Building upon theory of planned behaviour (TPB), norm activation model (NAM)

and past burning behaviour (PBB), we examined possible mechanisms through surveying 151 Indonesian small-scale farmers. We identified attitudes, norms, efficacy, awareness and PBB as important psychological drivers behind burning behaviour. This finding offers important psychological insight for designing more effective, nuanced and targeted policies/interventions to mitigate and prevent forest and land fires in Indonesia.

Biography

Bambang Trihadmojo is a current Arryman fellow at Buffett Institute, Northwestern University, US. He also has a demonstrated history of working in think tank industry. His works span from human dimensions of transboundary haze to human migration. Beyond that, he has longstanding interests in environmental behaviour and environmental justice. His work currently focuses on adaptative and resilient mode of productions among rural households in Brazil and Indonesia.

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The adverse effects of climate change impacts on rural people's livelihood

Dipti Basnet

Tongji University, China

Statement of the Problem:

The paper attempts to bring rural peoples lived experience on climate change and their meaning-making process on it. Principally, it explores the contextual determinants and dimensions of rural people's understanding of and response to climate change. This paper reviews effects, vulnerability and adaptation to climate change in Nepal, with the intention of providing a broad overview of the key issues related to climate change facing by rural people in particular country. The paper further reveals that amongst climate change impact, agriculture is one of the sectors most vulnerable. The impact is even stronger to those people who totally rely on agriculture for the daily subsistence and where adaptive capacity is low. Migration has emerged as

cross-cutting issues of climate change as they were compelled to diversify their livelihood due to the low production from their agricultural land. The result of several papers shows that the existing local and institutional strategies are not sufficient and sustainable to cope with climatic vagaries. Therefore, it is crucial to increase the understanding of the actual climate change dynamics on the societies at the lower levels.

Methodology & Theoretical

Orientation: We applied qualitative approaches in order to give an insight into how people construct discourses of understanding on climate change and their action against it. The study uses the semi-structured interview as a tool to garner data from the local level.

Findings: Most of the rural people were unable to comprehend the direct meaning of climate change. However, they were experiencing ongoing changes in the climatic pattern.

Conclusion & Significance: The impact of climate change was felt

in agriculture, livestock rearing, water resources, etc. Amongst the climate change impact, the agriculture sector was hardest hit.

Recommendations: As rural people are heavily dependent on agriculture, the government should effort to stimulate the structural transformation of the agriculture sector from subsistence to commercial farming. In doing so, emphasis should be given to organic farming so that there will be a win-win situation for both the agriculturalist and the environment.

Biography

Dipti Basnet as a NOMA scholar of the year 2010 studied Environmental Education and Sustainable development at Kathmandu University, Nepal. She worked in Women Environmental Preservation Committee NGOs in Nepal as a project coordinator for 3years. Currently she is final year CSC student of Environmental Science and Engineering at Tongji University Shanghai, China. She was born on 26th January 1987 in Dulegaunda VDC-9 of Tanahun District, Western part of Nepal. Her research of interests include Climate change; sustainable forest management; environmental liability and the relationship between human rights and the environment; and conservation of biodiversity.

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Effect of fire frequency and fire severity on number of trees during a 39year period in blue mountain area of New South Wales Australia

Simin Rahmani

University of Wollongong,
Australia

Simin Rahmani has her expertise in wildland fire risks. Her research about the effects of fire frequency and fire severity on tree density has a substantial impact on understanding in effects of wildfire due to global warming on changes in vegetation

structure. She has built this model after experiencing research in productive research and academic environment, University of Wollongong, Australia. The foundation is based on a GIS (geographic information system) investigation by using aerial photographic survey conducted by the NSW Government in 1975 and again in September 2013. Linear modeling was tested to study the association between change in tree count and number of high severe fires and fire frequency. We also considered environmental conditions other than fire such as annual rain record to investigate whether it

is responsible for changes in tree count.

Biography

Simin Rahmani has her expertise in wildland fire risks. Her research about effects of fire frequency and fire severity on tree density has a substantial impact on understanding in effects of wildfire due to global warming on changes in vegetation structure. She has built this model after experiencing research in a productive research and academic environment, University of Wollongong, Australia. The foundation is based on a GIS (geographic information system) investigation by using aerial photographic survey conducted by the NSW Government in 1975 and again in September 2013. Linear modelling was tested to study association between change in tree count and number of high severe fires and fire frequency. We also considered environmental conditions other than fire such as annual rain record to investigate whether it is responsible for changes in tree count.

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