

Interconnection of Climate Change, Agriculture and Climate Justice: Complexities for Feeding the World Under Changing Climate

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Abstract Agriculture, among the several sectors affected, is a crucial sector in terms of both cause for and consequence of climate change. Small-holder and peasant farmers who are only responsible for a minor contribution to climate change are facing the brunt of its multiplying impacts. Such inequality in terms of contributions and impacts has led to the need and movement for climate justice. With an increasing concern on the equitable sharing of burdens and benefits of climate change, climate justice movements are at the center of global agendas and negotiations. Ensuring climate justice is a must to safeguard the rights of the vulnerable farmers and communities and can be achieved through conscientious actions of developed countries.

Keywords Agriculture · Environmental degradation · Climate change · Climate justice

Global Climate Change Scenario

The Fifth Assessment Report of Intergovernmental Panel on Climate Change (IPCC) points out that anthropogenic greenhouse gas emissions (GHGs) have increased since the pre-industrial era, driven largely by economic and population growth, and are now higher than ever, which has led to atmospheric concentrations of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) that are unprecedented in at

least the last 800,000 years (IPCC 2015). Most of the climate scientists agree that their effects, together with those of other anthropogenic drivers, have been detected throughout the climate system and are extremely likely to have been the dominant cause of the observed warming since the mid-twentieth century (Lambin et al. 2003; Panday and Nkongolo 2016).

In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. The impacts are the result of observed climate change which clearly marks the threat of changing climate to the natural and human systems. Both natural and human systems are likely to face severe impacts with continued emissions of GHGs. Extensive and continual reduction in GHG emissions, coupled with adaptation, is the only possible way to limit the risks from climate change. Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development (Tschakert 2014).

Adaptation is fundamentally about risk management. Many adaptation and mitigation options can be helpful for reducing and managing the risks of climate change (Panday 2012). Substantial emissions reductions over the next few decades can reduce climate risks in the twenty-first century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term and contribute to climate-resilient pathways for sustainable development (IPCC 2014).

Agriculture is a Central Issue to Climate Change and Policy

The impacts of climate change are threatening agriculture. Over 70 percent of the rural poor people depend on farming as their main livelihoods are being trapped within the

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consequences directly or indirectly. Farmers are at the forefront of climate change's impacts – variations in weather patterns are affecting their crops and their livelihoods right now. As temperatures rise, extreme weather events are becoming more frequent and more severe. People who did the least to cause climate change, many world's poorest people, are finding it even harder to feed their families. The poorest of the farmers, who do not own a car, nor even a bicycle are paying higher prices for climate change. To the burden faced by families desperately trying to combat under-nutrition and food insecurity has been added the burden of climate change.

On the other hand, agriculture is also a major driver of climate change. According to IPCC 5th Assessment Report, Agriculture, Forestry and Other Land Use (AFLOU) contribute 20–24 percent of anthropogenic GHG emissions. IPCC estimates that agriculture accounts for 13.5 percent of GHG emissions. These measured emissions are largely the results of synthetic fertilizer use, methane from large scale animal operations, and methane release from rice paddies (IPCC 2015).

The challenges for agriculture within climate change are broad and diverse. The coupled challenges of mitigation and adaptation in agriculture call for a holistic response that addresses food security, farmers' rights, rural livelihoods, adapting to climate change and reducing GHG emissions. Advancing mitigation and adaptation measures in agriculture is major concern for farmers and climate campaigners. For these reason farmers are leaders in climate justice movements in calling for the safest temperature increase limits possible, deep emission reductions now and finance for adaptation to the effects of climate change (UN/HRC 2010).

General Overview of Asia

Asia, with the highest population of any region in the world, millions of small-holder and peasant farmers, and a history of some of the most volatile and powerful weather storms, is a flashpoint for climate impacts. Asia shares a significant amount of contribution towards the climate change. Out of total global CO₂ emission, 35 percent of worldwide energy-related CO₂ emission is from developing Asia. Asia's share in global energy-related emissions could reach about 45 percent in 2030 without greater use of renewable energy and improved energy efficiency (OCCUPYTHEORY 2014).

7 out of the 10 nations at greatest risk to climate change and natural disasters globally are in Asia and the Pacific, and 3 of these are small Pacific island states. 20 million Bangladeshis are at risk of displacement by a 1 meter rise in sea level in 2050. More than 60 percent of the region's population is working in agriculture, fisheries, and forestry, the sectors most at risk to climate change. In the low-lying

coastal areas of East and Southeast Asia, agricultural production is threatened by submergence, flooding and salinization (FAO 2015).

Numerous factors show that the Asia and Pacific region possesses a high degree of vulnerability to such climatic changes affecting millions of poor rural people. Most the rural poor in the Asia and Pacific region are subsistence farmers occupying mainly rain-fed land. Impacts of such disasters range from hunger and susceptibility to disease, to loss of income and human livelihoods. Additionally, more frequent and extreme events, such as droughts and floods, are expected to make local crop production even more difficult.

It is projected that climate change will put around 49 million more people at risk of hunger by 2020 (IFAD 2016). It is expected that crop yields could be augmented by up to 20 percent in East and South-East Asia while they could diminish by up to 30 percent in Central and South Asia by mid-twenty-first century (IPCC 2014). Moreover, many areas currently experiencing a water crisis, such as northeast China and flood-prone river deltas of Bangladesh and Vietnam, are expected to experience significant land degradation and loss in a changing climate (Redfern et al. 2012). Furthermore, for the least developed nations, such agriculture impacts may threaten not only food security, but also national economic productivity.

Understanding Climate Justice

Climate justice is a term used for framing global warming as an ethical and political issue, by relating the effects of climate change to concepts of justice, particularly environmental justice and social justice and by examining issues such as equality, human rights, collective rights and the historical responsibilities for climate change (Global Humanitarian Forum 2009). Climate justice is also about sharing burdens as well as benefits in an equitable manner thus assisting in the creation of a harmonious society. Climate justice is inclined towards uplifting of marginalized human being who are blameless victims of changed climate and make people aware of collective right, historical responsibility and equality. Simply, climate justice is analogous to what you need to do when you are given punishment for the crimes you never committed or you are to pay fine for the wrong deeds of others.

Climate Justice in UN Climate Change Conferences

The United Nations Framework Convention on Climate Change (UNFCCC) in 1992 recognized the need for equitable treatment of people who did not contribute to



climate change but were at risk of bearing its brunt. The text of the UNFCCC is replete with the principles of climate justice although the word has not been used within the text. ‘Intergenerational equity and common but differentiated responsibilities and respective capabilities’ is listed in the text as one of the guiding principles for parties.

UNFCCC 1992, Article 3 paragraph 1 states, ‘the Parties should protect the climate system for the benefit of present and future generations of humankind, based on equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof’ (UNFCCC 1992). Common but differentiated responsibilities principle acknowledges all states have shared obligation to address environmental destruction but denies equal responsibility of all states regarding environmental protection (Jiménez 2016).

At COP 21 in Paris, climate justice was recognized as a unifying theme around which diverse Parties and constituencies rallied to pave the way for the historic Paris Agreement. In embracing climate justice, Parties recognized that to overcome the threat of climate change, the global community had to devise solutions that considered the social, as well as environmental and economic aspects of climate action. Further, the implementation of the Paris Agreement provides opportunities to tackle climate change while promoting rights of local communities and those most impacted.

For the first time at a COP there was an official Climate Justice Day on the UNFCCC Program at COP 22 in Marrakech, on 17 November 2016. The celebration of Climate Justice Day provided an opportunity for the social dimensions of climate action to be further explored while celebrating and enhancing the spirit of cooperation and solidarity that led to the Paris Agreement.

Moment of Injustice for the Climate Justice Movement

The recent decision of the United States to withdraw from the Paris Agreement has shaken the world’s movement on climate change issues. The climate leaders, campaigners and a large portion of population globally find it unjust that one of the world’s largest GHG emitters would simply walk away from its responsibility. The myopic action of the United States Administration will have severe repercussions on the rights of United States citizens and even more so on people in developing countries that are less resilient (The B Team 2017).

Need for Incorporating Climate Justice to Address the Problem

Developed countries, as the main cause of climate change, in assuming their historical responsibility, must recognize and honor their climate debt in all its dimensions as the basis for a just, effective, and scientific solution to climate change (IUCN 2010). The focus must not be only on financial compensation, but also on restorative justice, understood as the restitution of integrity to our mother Earth and all its beings (PWCCC 2011).

A fundamental proposition of climate justice is that those who are least responsible for climate change suffer its gravest consequences. The ability of populations to mitigate and adapt to the negative consequences of climate change are shaped by factors such as income, race, class, gender, capital and political representation. As low-income communities possess few adaptive resources, they are particularly vulnerable to climate change. On top of that, such populations often receive an unequal share of disaster relief and recovery assistance. The movement for climate justice demands solutions which are democratically controlled, socially just and framed within a context of human rights.

Commitments made under the Sustainable Development Goals, the UN Decade on Nutrition, and the Paris Agreement all call for moving beyond the narrow considerations of yield in agriculture. Producing more food alone will not end hunger in a changing climate; poverty, inequality, and environmental degradation are all drivers of food insecurity and vulnerability. Ensuring future food security requires agricultural strategies encapsulating environmental and socioeconomic dimensions - livelihoods, land rights, animal welfare, fair and equal access to resources, decision-making and climate information, culture, and biodiversity protection (Climate Action Network 2016). Climate justice links human rights and development to achieve a human-centered approach, safeguarding the rights of the most vulnerable and sharing the burdens and benefits of climate change and its resolution equitably and fairly.

To ensure climate justice, it is important that the impacts of climate change on the most vulnerable are minimized and at the same time the fossil fuel powered developed countries reduce their share of GHGs emissions and support developing countries and communities to adapt their livelihoods, protect their resources and embrace low carbon development. While the world leaders are busy debating and negotiating the official solutions, farmers, women, and the movement for climate justice worldwide are forging their own solutions on the ground.



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