

2022
氣候變遷與人權
Climate Change and Human Rights

會議手冊
Handbook



2022 "Climate Change and Human Rights" Webinar 20 Oct Taipei, Taiwan

Organizers: Environmental Quality Protection Foundation (EQPF)

Adviser: Environmental Protection Administration, Executive Yuan (EPA)

Time	Topic	Speaker
15:00-15:10	Opening Remarks	<p>Welcome by moderator Prof. Tsung-Sheng Liao, Professor, Department of Law, National Chung Cheng University</p> <p>Ms. Lin-Yi Tsai, Director, Environmental Sanitation & Toxic Substance Management/ Office of the Climate Change, Environmental Protection Administration, Executive Yuan</p>
15:10-15:30	Climate Change and Human Rights Issues in Agriculture and Fisheries	Dr. Alexandra Harrington, Lecturer, Law School, University of Lancaster
15:30-15:50	Climate Law and Governance Innovation for Human Rights and the UN Sustainable Development Goals	Prof Marie-Claire Cordonier Segger, Leverhulme Trust Visiting Professor, University of Cambridge
15:50-16:10	Climate Change and Human Rights: Energy Sector Perspectives	Prof. Ho-Ching Lee, Professor, Center for General Education, National Central University
16:10-16:35	Panel Discussion 1 (25 mins)	
16:35-16:50	Coffee Break (15 mins)	
16:50-17:10	Climate Change and Human Rights: Transportation Sector Perspectives	Dr. Ker-Tsung Lee, Chair, Traffic Committee Convener, Consumers' Foundation Chinese Taipei
17:10-17:30	Climate Change and Human Rights: Environmental Sector Perspectives	Mr. Tao-Sheng Lee, Former Director General, Forestry Bureau, Council of Agriculture, Executive Yuan
17:30-17:50	Climate Change and Human Rights: Residential and Commercial Sector Perspectives	Mr. David Lee, Dean of International Affairs, JJP Architects & Planners
17:50-18:15	Panel Discussion 2 (25 mins)	
18:15	Closing	

Climate Change and Human Rights: Issues in Agriculture and Fisheries

Dr. Alexandra R. Harrington

Lecturer in Law (Environment), Lancaster University Law School

a.harrington1@lancaster.ac.uk

I. Introduction

Climate change has emerged from an issue considered to be within the realm of international environmental law to a more nuanced understanding of a cross-cutting issue that impacts on nearly every aspect of life – and law – within developing and developed States alike. Indeed, with greater awareness of these intersections has come a more thorough awareness of the real and potential impacts of climate change and associated impacts on human rights laws and norms.¹ At the same time, the Covid-19 pandemic has generated an increased awareness of precarious nature of human rights in times of crisis.

The growth in recognized intersections between climate change and human rights, as well as the potential for future issues caused by crises, has been critical in the agriculture and fisheries sectors.² Unlike other areas of focus, the agriculture and fisheries sectors are of particular note because threats to these sectors implicate multiple layers of human rights laws, norms, and the violation thereof. Climate change impacts threaten global human rights to food, life, and related rights for the entirety of humanity, as discussed below. At the same time, the impacts of climate change have been and continue to be felt by those in agricultural and fisheries communities where effects have caused changes to capacity for production, especially those rights relating to labour and work. Where transitions have begun to take place in terms of crops or fishing goals used, there are critical links between general, individual human rights for those dependent on the industry and the rights of workers and communities of workers, as well as the larger global rights relating to the environment. Further, in instances relating to the agricultural and fisheries communities, there is the additional question of just transitions necessary to address the realities of changing capacities while ensuring that workers and their families have the ability to enjoy their basic human rights during and after these transitions.

This abstract shed light on the impacts of climate change in the agriculture and fisheries sectors as well as the ways in which these impacts implicate a number of core international human rights norms. Although the nature of climate change makes predictions of all possible human rights implications an impossibility, the hope of this abstract is to focus attention on the known and immediately foreseeable relationships between climate change impacts and human rights in the agriculture and fisheries sectors.

¹ For example, in 2022 the United Nations General Assembly adopted a resolution to formally recognize the right to a clean, healthy and sustainable environment. See United Nations General Assembly, Res. A/76/L.75 (28 July 2022).

² See Sonia J. Verneulen, Brice M. Campbell & John S.I. Ingram, 'Climate Change and Food Systems' (2012) Annual Review of Environmental Sources 37: 195 – 122; Food and Agriculture Organization, Impacts of climate change on fisheries and aquaculture (2018).

II. Climate Change Impacts in Agriculture and in Fisheries

It is perhaps axiomatic that the agricultural and fisheries industries are essential for the survival of humanity at the global, regional, national and local levels. In light of current settlement and production patterns, the necessity of industries that specifically feed the world, and do so with proper focus on the nutritional balances needed to sustain the human population from infants to elderly, in a way that is viable throughout time and crisis is apparent.

The food industry *per se* is responsible for approximately a significant amount annual carbon emissions on the global scale, with agricultural production accounting for the vast majority of these emissions.³ Thus, under the Paris Agreement on Climate Change and the requirements for national implementation, including significant carbon reductions and net zero emissions by 2050, changes will be necessary in the agricultural sector as a whole.⁴ Within this context, it must be remembered that ‘agriculture’ is a convenient term for a wide variety of sub-sectors and industrial practices. These range from the practice of animal husbandry, with associated needs for food and water for the animals as well as methods of handling resultant waste, to crops requiring water and irrigation, fertilizer, appropriate soils, mechanisms for harvesting and processing, packaging and preservation, and transportation to market.⁵

Concomitantly, while agriculture is among the largest carbon emission sectors at the global level, it is also one of the industries that is being and will continue to be impacted by climate change and related impacts. Indeed, increased incidences of drought and higher temperatures across the world, global warming, wildfires, rising sea levels, severe storms and higher rainfall, to name only some impacts, has resulted in significant damage to and changes in the climate and biodiversity of agriculturally important regions as well as the introduction of new threats to crops and livestock from disease and predators.⁶ This has caused stress to farmers and agricultural communities as well as the consumers they serve.⁷ In turn, this implicated the human rights of the farmers and agricultural workers as well as communities and consumers ranging from those in the local community to the national level and, given the scope of the global economy, the international level.

Similar issues exist across the fisheries and aquaculture sector, in which there is necessarily a direct link between the impacts of climate change and global temperature rise and damage to fish stocks, the ability of ecosystems to support fishing activities and communities, and the health of fish fished or harvested for human consumption.⁸ Given the significant interconnections between each layer of

³ See Verneulen, Campbell & Ingram, *supra* note 2; World Bank Group, Addressing Food Loss and Waste: A Global Problem with Local Solutions (2020).

⁴ See Paris Agreement on Climate Change (2015).

⁵ Verneulen, Campbell & Ingram, *supra* note 2; World Bank Group, *supra* note 3; CGIAR, Policy Brief 6, Recalibrating Food Production in the Developing World: Global Warming Will Change More Than Just the Climate (2012).

⁶ See Verneulen, Campbell & Ingram, *supra* note 2; World Bank Group, *supra* note 3; CGIAR, *supra* note 5.

⁷ *Ibid.*

⁸ FAO, *supra* note 2.

marine ecosystems, the impacts of climate change on even a few species of aquatic life can have a devastating effect on the entirety of the biodiversity within an area.⁹ This means that species traditionally fished and used as a dietary staple within an area may no longer be as plentiful if they continue to exist as a viable source of fishing revenue.¹⁰ At the same time, the need for aquatic species to find certain temperatures or ecosystems in which to survive means that there have been and will continue to be changes in the fish stocks available in any given area or region.¹¹ As in the agriculture sector, fisheries and fishing operations exist at very large corporate levels as well as small scale systems which are often subsistence level for communities or families involved.¹²

Climate change impacts can be felt even in the aquaculture and aquatic farming contexts, as the majority of these operations are in some way connected to marine resources that have and continue to experience disruptions.¹³ In instances where aquatic farming might be a more viable economic and resource-based alternative than traditional fishing industries, issues of ability to participate in often expensive and technically oriented practices raise access questions and potential barriers.¹⁴ Additionally, there is a consistent debate within scientific circles regarding the health and nutritional benefits of farmed seafood for human consumption.¹⁵

Further, it should be noted that issues of climate change impacts and human rights concerns in the agriculture and fisheries sector are inextricably linked to underlying rights violations stemming from existing poverty and hunger. While the potential for drastic increases in poverty, hunger and food insecurity from climate change is enormous, these rates must be considered in conjunction with existing rates since the reality is that, when more people are facing hunger and food insecurity, those who were already facing it will likely not have the chance to escape these realities.

III. Human Rights Impacts of Climate Change in Agriculture and Fisheries

As the above discussion indicates, there are many economic and environmental issues associated with the impacts of climate change in the agricultural and fisheries sectors. Beyond this, however, the impacts of climate change in these sectors pose a significant threat to the implementation and continued achievement of many international human rights norms. Taken together, the issues of climate change causality and impacts in the agricultural sector challenge multiple aspects of human rights laws and norms. Perhaps most profoundly, the ties between climate change and human rights in this context coalesce around the idea of food security at the most basic and most international levels. This must be considered against the backdrop of planetary growth in population that is estimated to be several billion

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid.

¹⁵ Ibid.

people by 2050.¹⁶

Fundamentally, and perhaps most importantly, these impacts implicate the right to life as enshrined in the bulk of the core international human rights treaties.¹⁷ From the perspectives of consumers and the producers, especially subsistence farmers, food is essential to life and to enjoying the right to life in its most essential form. Indeed, food has been highlighted by the CCPR as essential to the right to life in General Comment 36.¹⁸ Given the stresses of food insecurity and economic instability across all States and communities, the impacts of climate change on the agriculture and fisheries sectors pose an impediment to the achievement and maintenance of rights to gender equality and equality of rights regardless of ‘race, colour, sex, language, religion or social origin.’¹⁹

Another critical area of human rights law implicated by the effects of climate change in agriculture and fisheries is labour and, concomitantly, workers’ rights, including rights to safe conditions and wages that support labourers and their families.²⁰ Relatedly, the right to an adequate standard of living for individuals and families includes the right to be free from hunger as well as State Party obligations to “improve methods of production, conservation and distribution of food by making full use of technical and scientific knowledge, by disseminating knowledge of the principles of nutrition and by developing or reforming agrarian systems in such a way as to achieve the most efficient development and utilization of natural resources.”²¹ These rights are directly applied to children in the Convention on the Rights of the Child, which emphasises the rights of children to enjoy a standard of living that allows them to grow and develop physically and mentally.²² It also explicitly applies to those with disabilities

The interconnected nature of food and the right to health is arguably obvious and is implicated in the agriculture and fisheries sector in terms of the ability of all consumers to access food and also that this food be sufficiently nutritious to support the healthy living of everyone from children to adults to the elderly.²³ In terms of accessibility and nutritional sufficiency, there is also an issue of climate change impacts resulting in the contamination of food sources, especially in the fisheries sector, and in spoilage of crops due to new forms disease.²⁴

¹⁶ Verneulen, Campbell & Ingram, *supra* note 2.

¹⁷ International Covenant on Civil and Political Rights (1966) at art 6; Convention on the Rights of the Child (1989) art 6; Convention on the Rights of Persons with Disabilities (2007) art 10.

¹⁸ Human Rights Committee, General Comment 36 (2018) on article 6 of the International Covenant on Civil and Political Rights on the right to life, CCPR/C/GC/36 (30 October 2018).

¹⁹ ICCPR, *supra* note 17 at art 4; International Covenant on Economic, Social and Cultural Rights (1976) at art 3; generally, Convention on the Elimination of all forms of Discrimination Against Women (1979).

²⁰ See ICESCR, *supra* note 19 at arts 6, 7; CEDAW, *supra* note 19 at art 11.

²¹ ICESCR, *supra* note 19 at art 11 (2)(a).

²² CRC, *supra* note 17 at art 27.

²³ See ICESCR, *supra* note 19 at art 12; CEDAW, *supra* note 19 art 11; CRPD, *supra* note 17 at art 25.

²⁴ ICESCR, *supra* note 19 at art 12.; CEDAW, *supra* note 19 at art 11.

Additionally, it must be remembered that the agriculture sector has a strong connection with migrant labour regardless the crops grown or the location.²⁵ In this context, the basic rights afforded to migrants labours and their families under international human rights laws become problematic to enforce in that changes to crops grown, growing and harvesting cycles, and rapid-onset disasters will require alteration in migration needs that impact the ability of labourers to find work and to ensure that they and their families benefit from these protections under national legal systems.²⁶

IV. Conclusion

Climate change has had and will continue to have an indelible impact on all aspects of life and rights across every corner and community in the globe. The impacts of climate change on human rights in connection with the agriculture and fisheries sectors have become and will continue to be highly complex issues that involve the rights of farmers, fisherfolk, their families and communities, national food security, and consumers at the local, national, regional and international levels.

²⁵ See generally International Convention on the Protection of the Rights of all Migrant Workers and Members of Their Families (1990).

²⁶ Ibid.

Climate Law and Governance Innovation for Human Rights and the UN Sustainable Development Goals

Prof Marie-Claire Cordonier Segger

Leverhulme Trust Visiting Professor, University of Cambridge²⁷

mccs2@cam.ac.uk

I. Climate change: Shattered planetary boundaries and rising global risks

Our century faces critical global risks and challenges, including rising poverty, global pandemics and the shattering of planetary boundaries, especially in relation to global climate change. The science is clear. Human activities, particularly rising emissions levels due to fossil fuel combustion and other embedded high carbon intensity economic systems, are causing dangerous consequences. Annual global emissions now exceed 40 GtCO₂/year. Climate change impacts are already occurring, affecting the realisation of human rights and reversing progress to achieve the UN Sustainable Development Goals worldwide. Many effects of climate change, including increased frequency and intensity of natural disasters, sea level rise, irreversible ecological damage, the spread of vector-borne disease, conflict over natural resources, and climate-induced displacement, have terrible impacts on respect for human rights. Further, these impacts disproportionately harm climate vulnerable nations, causing loss and damage especially among communities lacking resilience, and the capacity to adapt or respond. While the costs of global action on climate are significant, the costs of inaction are incomparably larger, and ever-rising, with disaster-related losses estimated to have exceeded US\$280 billion in 2021.²⁸ Building on the completion of the Paris Rulebook to support UN Framework Convention on Climate Change 26th Conference of the Parties (CoP26), all stakeholders must now accelerate efforts towards the rapid and drastic course correction that is urgently needed at scale.

II. International policy and legal responses: Global Sustainable Development Goals, the 1992 UN Framework Convention on Climate Change and its 2015 Paris Agreement

The UN's major human rights instruments and the 17 Sustainable Development Goals (SDGs) and their 169 associated targets for implementation address many legal challenges implicated and impacted by climate change. Many human rights obligations are *jus cogens* norms, and while the SDGs may be 'soft law', a growing circle of international treaty commitments –including to the rights enshrined in the Universal Declaration on Human Rights and the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the newly recognised human right to a clean, healthy and sustainable environment, as well as the provisions of the United Nations Framework Convention on Climate Change (UNFCCC) and its Paris Agreement– provide tailored regimes to meet each target,²⁹ across

²⁷ Also Executive Secretary of the Climate Law and Governance Initiative (CLGI) and Senior Director of the Centre for International Sustainable Development Law (CISDL); Full Professor of Law, Faculty of Environment, University of Waterloo and former senior legal advisor to the UNFCCC Presidency.

²⁸ FAO. (2021). The Impact of Disasters and Crises on Agriculture and Food Security. Rome. [Online](#).

²⁹ Cordonier Segger, M.C. (2020). Towards an Honourable Future? Bridging the Capacity Chasm to Address Critical

all spheres of human activity.

Indeed, while the UNFCCC establishes a common framework for climate action, the Paris Agreement, which includes a preambular commitment to human rights in the global response to climate change, is predominantly a procedural ‘pledge and review’ accord with a core triangle of obligations: (1) nationally determined contributions to the global response to climate change, backed by (2) significant new and additional climate finance, secured by (3) transparent monitoring and reporting, which permits collective stock-taking and public awareness leading to pressure for higher ambition.³⁰ Under the Paris Agreement, Parties are obliged to submit and maintain an up-to-date Nationally Determined Contribution (NDC) in accordance with Article 4; to provide reports related to emissions reductions and technology transfer as per Article 13.7 and 13.9 and on financial contributions as per Article 9.5 and 9.7; and to participate (in good faith) in the facilitative dialogue. Such obligations, which can lead to referral to the Paris Agreement Implementation and Compliance Committee (PAICC) if Parties to the treaty are unable to achieve them,³¹ are supported by a series of cooperative arrangements, mechanisms and other provisions, in a complex and engaging regime to keep human contributions to global climate change below dangerous levels.³²

Despite the intricate international accord and many firm pledges by Parties, however, implementation of the Paris Agreement across all Parties remains a critical challenge. Each facet of the regime requires embedded regional and domestic regulatory, institutional and public policy capacity, and this capacity remains extremely limited in nearly all jurisdictions.³³

III. Domestic law and public policy progress: Mitigation, adaptation and resilience, loss and damage and finance from a rights-based perspective

Ambition is not yet high enough, and aggregations of all current Nationally Determined Contributions (NDCs) to the global response to climate change under the Paris Agreement – even if entirely achieved - would still place global warming on pace to overshoot 2°C by the end of the century, according to the United Nations Environment Programme (UNEP) and others.³⁴ At COP26 in Glasgow in 2021,

Global Challenges and Advance our Sustainable Development Goals. Lauterpacht Centre for International Law Blog. [Online](#).

³⁰ Cordonier Segger, M.C. (2016). Advancing the Paris Agreement on Climate Change for Sustainable Development. Cambridge International Law Journal. Also see Brunnee, J., Bodansky, D., and Rajamani, L. (2017), International Climate Change Law. Oxford University Press.

³¹ Voigt, C (2016). The Compliance and Implementation Mechanism of the Paris Agreement. Review of European, Comparative & International Environmental Law. Maljean-Dubois, S, Ibrahim, I. and Owley, J. (2021). The Paris Agreement Compliance Committee. Wake Forest Law Review.

³² Sun, R., Gao, X. et al. (2022) Is the Paris Rulebook Sufficient for Effective Implementation of the Paris Agreement. Advances in Climate Change Research. [Online](#). See also, Tobin, P. and Barritt, J. (2021). Glasgow’s COP26: The Need for Urgency at ‘The Next Paris’. Political Insight. [Online](#).

³³ UNFCCC (2022). Paris Committee on Capacity-Building. [Online](#).

³⁴ Birol, F. (2021). CoP26 Climate Pledges Could Help Limit Global Warming to 1.8 °C but Implementing Them will be the Key. International Energy Agency Commentary. [Online](#). But see United Nations Environment Programme. (2021). Emissions Gap Report 2021. The Heat is On – A World of Climate Promises Not Yet Delivered. Nairobi. [Online](#).

key national net zero commitments accompanied 151 new NDCs announced for 2030, noting also India's goal by 2070 and the US by 2050. If fully implemented, these pledges would lead to 1.8°C to 2.4°C of global warming by 2100.³⁵ However, realising these commitments together with new NDCs, in order to keep a pathway to 1.5°C viable, will require a broad range of law and public policy innovations and the scale up of legal capacity. Of the 186 NDCs in the first-round of submissions, 169 Parties explicitly prioritised the need for legal or institutional reform to achieve their global contribution to climate change, with 99 Parties calling for increasing capacity-building for action, according 2021 analysis.³⁶

IV. Towards more ambitious GHG emissions mitigation, rule of law, supported by enabling legal frameworks and human rights protection can achieve more sustainable GHG emission reductions.³⁷

Legal and public policy reform can contribute to many aspects of implementing the Paris Rulebook. For each reform, the realisation of human rights is crucial, as is progress towards achievement of the UN SDGs.

Many laws and institutions are relevant to GHG emissions reductions as part of the 'Race to Zero' mitigation agenda, and each is relevant to the realisation of human rights. With reliable legal frameworks, for instance, communities can share benefits and burdens more equitably as part of international mitigation schemes for low-carbon development. Such frameworks may be particularly important to implement the 'Paris Rulebook' operational guidelines and modalities for the SDM under Article 6.4, as well as REDD+ under Article 5, for instance. These include the rules governing energy technology development and promotion of renewable energy infrastructure, such as Feed-in Tariffs, as well as codes which can foster or frustrate energy efficiency in buildings or in transmission lines, for instance. They also include, particularly with regards emission reductions through nature-based solutions, the rules governing land use planning systems, property rights and land tenure reform, as well as related access and benefit distribution systems for carbon credit schemes. Further, transportation laws, regulations and standards can have a significant impact on emission reductions, where some countries are phasing out non-electric private cars. As another example, pollution pricing, control and waste management, including for instance the rules governing management of 'black carbon' and extremely high-intensity hydrochlorofluorocarbons (HCFCs), can affect successful mitigation efforts. Environmental Impact Assessment (EIA) laws can be reformed to integrate climate

³⁵ Birol, F. (2021). Cop26 Climate Pledges Could Help Limit Global Warming to 1.8 °C but Implementing Them will be the Key. International Energy Agency Commentary. [Online](#).

³⁶ McDermott, M., Zambianchi V., Cordonier Segger M.C. et al (2021). Report on the Importance of Legal and Institutional Reforms in the Nationally Determined Contributions (NDCs) of the Paris Agreement. Centre for International Sustainable Development Law. [Online](#).

³⁷ Cordonier Segger, M.C. (2016). Advancing the Paris Agreement on Climate Change for Sustainable Development. Cambridge International Law Journal. See also, Cordonier Segger, M.C. (2021). Leverhulme Lecture: Accelerating Paris Agreement Compliance for Sustainable Development. [Online](#). Cordonier Segger, M.C. and Reynaud, P. (eds.) (2015). Green Economy for Sustainable Development: Compendium of Legal Best Practices. [Online](#).

change considerations, and new rules are often required to establish registries for monitoring, verification and reporting of GHG emissions, backed by institutional mandates for scientific review and codes to ensure access to scientific data. As one further example, in some countries there is ongoing effort to clarify the fiduciary duties of corporate boards in relation to GHG emissions and also climate risks, with climate risk disclosure requirements being adopted, and private contracting systems being set in place to ensure implementation of net zero commitments. Each of these domestic climate law reforms can and must increase respect for human rights, especially the right to a clean, healthy and sustainable environment.

Adaptation and resilience involve public policy and legal adjustments to reduce vulnerability and risk, to respond to disasters and recover from unavoidable impacts of climate change.³⁸ An enabling legal framework supported by the rule of law can strengthen capacity and financing to adapt and promote resilience to climate change, and legal empowerment can promote more equitable, accountable, rights-based adaptation and resilience. Such regulatory and institutional changes may be important to implement Articles 7-8 of the Paris Agreement, and also the renewed Warsaw International Mechanism on Loss and Damage (WIM), including for effective participation in the Global Dialogue on Loss and Damage that was agreed in Glasgow, and beyond. Regulatory systems and tribunals or other mechanisms could also be crucial, for instance, to guide efforts document and respond to domestic or international compensation claims in relation to loss and damage. Many law and institutions are highly relevant to adaptation, including legal and institutional frameworks for disaster risk reduction and management law; land planning, zoning, floods and coastal planning; construction and infrastructure regulations (urban plans, housing, energy); laws on public health, disease prevention and control; natural resource management laws, forestry law (including wildfire response) and water resource management; rules and regulations for climate-smart agriculture and food safety; as well as good governance and anti-corruption codes. Each of these domestic climate law reforms can and must increase respect for human rights, especially the right to a clean, healthy and sustainable environment.

Public policy innovation and legal reform is also crucial to support accountable, effective mobilisation and investment of climate finance. Rule of law, supported by enabling legal frameworks and safeguards, can ensure more effective access to and use of climate finance.³⁹ For instance, such frameworks are important for implementation of ‘Paris Rulebook’ provisions on emissions trading under Paris Agreement Article 6.2, and the SDM under Paris Agreement Article 6.4, as well as for accountable spending of funds granted through the Green Climate Fund and other international financial mechanisms, and for the CoP26 GFANZ \$130 Trillion Pledge. Transparent and accountable legal reforms can help countries and projects attract and absorb climate finance, and communities can share benefits and burdens more equitably under clear regimes with recourse to

³⁸ Ibid.

³⁹ Ibid.

dispute settlement where required. Many laws and institutions are highly relevant to climate finance, including the laws and policies governing foreign ownership/investment; the rules governing access to climate finance for small and medium enterprises; legislation and codes governing financing, subsidies and taxes for renewable energy resources and technologies versus fossil fuels; laws and guidelines on financial services and intellectual property rights for climate-smart technologies; rules and registries governing monitoring, verification, scientific review; also access to courts and alternative dispute resolution in the event of disagreements. Each of these domestic climate law reforms can and must increase respect for human rights, especially the right to a clean, healthy and sustainable environment.

During CoP26 and beyond, over 200 committed law and governance partners came together through the Climate Law and Governance Initiative (CLGI) to share lessons among a growing community of practice and chart the future for this critical field – actively engaging professors, practitioners, judges and other leaders from international organizations, judiciaries, institutes, leading law firms and universities.⁴⁰ Together, they pledged to increase climate law and governance capacity worldwide tenfold - from 600 to 6,000 legal specialists by 2024, engaging qualified leaders in every legal system and converting ambition to obligation worldwide.

V. Enhancing climate compliance, capacity and action

The future landscape can therefore be viewed with concern, but also with respectful optimism. More focused domestic and international climate law is needed, and increased engagement in the design, and implementation of climate change responses across all sectors and at all levels, fully integrating respect for human rights. Much work remains to harness the full potential of law and policy communities of practice to foster, rather than frustrate, sustainable development.

⁴⁰ In 2021, CLGI partners co-hosted a series of global events as part of the UNFCCC CoP26, see www.climatelawgovernance.org

Climate Change and Human Rights: Energy Sector Perspectives

Prof Ho-Ching Lee
Professor, Center for General Education,
National Central University, Taiwan
hoching@g.ncu.edu.tw

The Policy inquires rely largely on credible and complete scientific input. The UN Intergovernmental Panel on Climate Change (IPCC) confirmed in its reports that climate change is real and is now happening. More specifically, global warming and extreme weather events are in fact due to man-made greenhouse gas emissions from extensive use of fossil fuels. Sudden and abrupt climate change and natural disasters such as floods, droughts, desertification, water shortages, food insecurities and health impacts have become more frequent and intense.

These negative impacts of climate change, however, are disproportionately borne by persons and communities already in vulnerable situations. The vulnerability is mainly owing to geography, poverty, gender, disability, cultural background, among others, that have historically contributed the least to global greenhouse emissions. Low-lying countries such as Pakistan recently experienced unprecedented floods affecting 33 million people and more than 1730 lost their lives. And, a Post-Disaster Needs Assessment jointly conducted by Asian Development Bank, the EU and United Nations Development Programme (UNDP) estimates a total economic loss and damage to exceed USD 15.2 billion. Estimated needs for rehabilitation and reconstruction in a resilient way are at least USD 16.3 billion.

Accounting for more than two-thirds of global greenhouse gas emissions, the energy sector is a key contributor to climate change. While moving toward the path of energy transition, the UN calls for a Sustainable Development Scenario — an integrated approach focused on tackling climate change, delivering energy for all and reducing the impacts of air pollution. In such a scenario, the increased deployment of solar PV and wind, a shift away from coal-fired power generation and a greater focus on energy efficiency are critical to the transition.

The overall goal is to help provide access to sustainable energy for all. But such an abrupt expansion of solar and wind power can present enormous dangers to both the communities around renewable energy projects and the communities and workers in their supply chains. The transition from carbon-intensive to low-carbon economy may imply losing jobs, rising energy costs and the lack of respect for indigenous peoples' rights by wind farm developers. These abuses risk not only harming the communities that should be benefiting from these projects, but may also slow down the global transition to renewable energy.

In the context of the UN framework, the major human rights instruments such as the 17 Sustainable Development Goals (SDGs) address many legal challenges implicated and impacted by climate change. At the same time, the Preamble of the Paris Agreement to the United Nations Framework Convention on Climate Change (FCCC) makes it clear that all States "should, when taking action to address climate change, respect, promote and consider their respective obligations on human rights". These instruments also suggest "the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity".

Here, we campaign for a human rights approach to energy transition. As we reflect on our pledges to reduce methane, phase down coal and set net zero targets at COP26, people are at the heart of the challenges ahead, and, human rights are at the center of the energy transition. In the end, we need a just transition to ensure that the process of moving away from fossil fuels is equitable, inclusive and respectful of human rights.

Climate Change and Human Rights: Transportation Sector Perspectives

Dr. K.T. Kurt Lee
Chair, Traffic Committee of Consumers Foundation
ktleekurt@gmail.com

I. Abstract

Human activities like deforestation & burning of fossil fuels are increasing the atmospheric concentration of greenhouse gases which leads to increase in the average temperature of the Earth. The average surface temperature of the Earth has increased by 1.1 °C since 2011. If the increase in these greenhouse gases over the coming years continues with the present rate, then there would be a considerable environmental, economic & social disruption, if adequate mitigation & adaptation measures are not implemented. The Carbon emission from various sectors constitute to about 70% of the total anthropogenic (human induced) greenhouse emissions.

Currently, the CO₂ emissions in the transport sector are about 30% in the case of developed countries and about 23% in the case of the total man-made CO₂ emissions worldwide. There is widespread agreement to reduce CO₂ emissions from transport by a minimum of 50% at the latest by 2050. Also, climate change is one of the greatest threats to human rights of our generation, posing a serious risk to the fundamental rights to life, health, food and an adequate standard of living of individuals and communities across the world. As climate change-related risks are increasing, with widespread negative impacts on people and their human rights of transportation. Therefore, the focus of this presentation will be on climate change and human rights impacts due to transportation sector.

II. Climate Change Impacts on Transportation

According to EPA (United States Environmental Protection Agency), transportation systems in the United States are designed to withstand local weather and climate. Transportation engineers typically refer to historical records of climate, especially extreme weather events, when designing transportation systems. For example, bridges are often designed to withstand storms that have a probability of occurring only once or twice every 100 years. However, due to climate change, historical climate is no longer a reliable predictor of future risk. Climate change is projected to increase the frequency and intensity of some extreme weather events. Specifically, heat waves will likely be more severe, sea level rise could amplify storm surges in coastal areas, and precipitation will likely be more intense. These changes could increase the risk of delays, disruptions, damage, and failure across our land-based, air, and marine transportation systems. Most transportation infrastructure being built now is expected to last for 50 years or longer. Therefore, it is important to understand how future climate might affect these investments in the coming decades.

Climate changes will likely impact roadways, vehicles, and railways. Higher temperatures can cause pavement to soften and expand. This can create rutting and potholes, particularly in high-traffic areas and can place stress on bridge joints. Heat waves can also limit construction activities, particularly in areas with high humidity. With these changes, it could become more costly to build and maintain roads and highways. Climate change is projected to concentrate rainfall into more intense storms. Heavy rains may result in flooding, which could disrupt traffic, delay construction activities, and weaken or wash out the soil and culverts that support roads, tunnels, and bridges. As temperatures increase, many types of vehicles can overheat, and tires will deteriorate more quickly. However, milder winters, reductions in the number of cold days, delays in winter freezing, and earlier spring thaws may reduce cold-weather damage to vehicles.

High temperatures cause rail tracks to expand and buckle. More frequent and severe heat waves may require track repairs or speed restrictions to avoid derailments. Heavy precipitation could also lead to delays and disruption, and tropical storms can also flood or leave debris on railways, disrupting rail travel and freight transport. Like roadways, coastal railways and subways are subject to inundation from sea level rise and storm surges. This is particularly true in underground pathways and tunnels, which are often already below sea level. Damages from flooding may require rail lines and subway infrastructure to be rebuilt or raised in future expansion projects.

III. Climate Change Impacts on Human Rights of Transportation

Climate change is likely to damage transportation infrastructure through higher temperatures, more severe storms and flooding, and higher storm surges, affecting the reliability and capacity of transportation systems. As climate change-related risks are increasing, with widespread negative impacts on people and their right of transportation in urban areas and rural areas, especially in rural areas such as mountain and riverside areas. Climate change will affect a variety of economic sectors and services, including transport and tourism. The manner in which governments and other actors respond to the challenges of climate change can also affect the enjoyment of human rights.

This is true for actions undertaken to mitigate the greenhouse gas (GHG) emissions that contribute to climate change, as well as projects undertaken to adapt to the impacts of climate change. (a) Mitigation: There are numerous examples of how certain kinds of mitigation projects undertaken to reduce or sequester GHG emissions can adversely affect the rights of certain groups. (b) Adaptation: Both the failure to adapt and the implementation of adaptation measures can interfere with human rights, particularly for the most vulnerable.

One concern is that some adaptation programs, may benefit one group to the detriment of another. There is also the risk that adaptation measures will be undertaken without the necessary public consultation and may result in outcomes that adversely affect the very persons they aim to protect.

There is a risk of human rights violations in the context of relocation and resettlement programs, and a corresponding need to ensure that such programs are undertaken with adequate input and consent from those who are relocated. Environmental degradation can influence the social, political and economic drivers of migration, altering people's ability to migrate. The impacts of climate change exacerbate and accelerate these drivers in complex ways. More people may be left without the resources to migrate, and rendered immobile or trapped in risky environments. Others may be compelled to migrate more frequently, to farther destinations, or more permanently, in search of natural resources and to find employment.

IV. Mitigation of Greenhouse Gas (GHG) Emissions

The top risk on climate change and human rights is **greenhouse gas (GHG)** emissions. According to the UN Environment Program, the transport sector contributes approximately one quarter of all energy related greenhouse gas emissions. **GHG** emissions from all kinds of transport are key contributor to global climate change. **Carbon dioxide (CO₂)** represents the largest proportion of GHG emissions. Over the past three decades, CO₂ emissions from transport have risen faster than those from all other sectors and are projected to rise more rapidly. At present industrialized countries such as Taiwan are the main sources of transport emissions. However, the proportion of emissions being produced in developing countries is increasing rapidly.

The majority of transport fuel emissions (76%) are from road transport, including four-wheeled vehicles and personal pickup trucks. Air travel produces around 12% of transport CO₂ emissions and its share is growing rapidly. According to the UN Environment Program, the transport sector contributes approximately one quarter of all energy related greenhouse gas emissions. However, the contributions from different transport types vary greatly, with road travel accounting for three-quarters of transport emissions, mostly from passenger vehicles, with around 30% coming from trucks carrying freight. Aviation, although high profile in any discussions on the topic, accounts for a similar proportion of emissions to global shipping, at around 10% each. Rail (including both passengers and freight) emits only 1% of all transport emissions.

V. Sustainable Transport Instruments

According to wiki platform of Energypedia, the proposing and implement of sustainable transport instruments are very important. In addressing the impacts of climate change through sustainable transport instruments, cities are also able to benefit from a range of advantages including improved air quality, reduced noise disturbance, or increased road safety. Moreover, social and economic benefits can be expected. Sustainable transport instruments include planning instruments, regulatory instruments, economic instruments, information instruments and technology instruments.

VI. Planning Instruments

Land use planning: Smart infrastructure design will influence both the demand for and the efficiency of transport. “Mixed land use” mixes the various forms of land use like housing, working, shopping, or public services within one city quarter. A smart mixture can significantly reduce the need to travel or distances travelled and thus decrease energy consumption and emissions. Good access to public transport can also be a major contributor to cutting emissions. Parking management can affect the relative price and convenience of driving.

Planning for public transport modes: Public transport includes buses, rail, light rail, metro, and underground systems. Attractive, accessible and reliable public transport systems can provide the basis for alternative mode use in cities. Expansion of the systems and services or improving the operation of systems helps to improve public transport. A sufficient ridership is required to avoid transit vehicles running at half occupancy.

Planning for non-motorized modes: Cycling and walking do not produce direct emissions. Creating continuous cycle networks, separating cycle lanes, or integrating with other transport modes encourage cycling and walking. Support instruments are awareness campaigns and information, which may also include cycling and walking routes and maps.

VII. Regulatory Instruments

Physical restraint measures: These measures include physical restriction to access certain motorized vehicles reducing traffic volumes and associated GHG emissions. One such measure is the restriction of vehicles on certain days depending on their registration plate number. To avoid second car purchases such schemes should be well-designed and limited to restrictions during peak periods.

Low emissions zones: Low emissions zones are areas into which access is allowed only to vehicles meeting a prescribed standard of emission. Such restrictions have benefits for local air quality improvements and for GHG emission reductions, if the area is big enough. However, this instrument requires a high level of administration and technology to set up and enforce the restrictions.

Traffic management measures: Traffic management measures smooth traffic flows and thus helps to ease congestion and improve fuel efficiency. Area traffic control systems, where signals are linked across a whole network, are most efficient. In developed countries, traffic management has been estimated to reduce emissions by 2% to 5%. There is potential for similar benefits in developing cities due to the poor initial traffic considerations.

Regulation of parking supply: Parking supply restrictions can make car use unattractive and thus contribute to mode shift. In addition, illegal parking must be avoided, e.g. by providing bollards on pavements. Transport authorities should also work in partnership with employers and other

commercial business, which have a role to play in reducing private parking allocations reserved for employees.

Speed restrictions: At higher speeds (generally above 55 km/h) fuel consumption is often an increasing function of speed for cars and trucks. In order to reduce emissions, the implementation of lower speed limits should be considered.

VIII. Economic Instruments

Road pricing: In general, road pricing increases the cost of running a vehicle thus encouraging the use of alternative modes. Key factors that affect the effectiveness of road pricing include: the level of fee charged, the current cost of driving per kilometer, responsiveness of travelers to the price of travel, and the nature and extent of pricing. The two main road pricing options are: national pricing schemes, where charges are applied to long-distance highway use, and local road pricing schemes, which typically cover city center areas.

Fuel taxation: fuel taxes are a way of charging the users of transport infrastructure relative to individual use. Fuel taxation raises the price of travel per kilometer and fuel taxation is directly proportional to fuel consumption. Both effects can contribute to reducing GHG emissions.

Vehicle taxation: The main principle behind vehicle taxation is to charge vehicle ownership. There are two key forms of vehicle taxation: Sales taxes are charged when the vehicle is purchased, sometimes contributing significantly to the overall cost of the vehicle. Annual vehicle taxes/registration fees are a continuous financial burden rather than a one-off tax. They also apply to all vehicles rather than just new ones. Vehicle taxes can be differentiated according to vehicle type, vehicle size or emissions, and noise levels.

Parking pricing: Parking pricing increases the cost of using a vehicle by raising the cost of parking. To increase the effectiveness of parking pricing, it should be coupled with limits to the physical availability of parking spaces, and it is recommended to introduce it on a region-wide basis.

IX. Information Instruments

Public awareness campaigns and mobility management. Public awareness campaigns can take many forms. Most often they are used to inform the public about the travel alternatives available to them or about the environmental, economic and social impacts of transport. Marketing of sustainable transport solutions is essential when attempting to secure public acceptance. Driver behavior training and education/eco-driving: Through the provision of Eco-Driving education and training, driver behavior may be altered to achieve greater fuel efficiencies. Key methods of improving fuel efficiency can relate to driving style/behavior (speed, braking and acceleration, engine idling, carrying capacity and cold starts) and vehicle condition (maintenance-engine, tires, oil and air filter, and vehicle age).

Driver training is particularly effective when commercial vehicles, such as bus, taxi or freight fleets, are included.

X. Technology Improvements and Instruments

The key aims in order to achieve reduced GHG emissions from transport are to change travel behavior and/or the technology used. Technology improvements often focus on fuels, propulsion technology, other vehicle attributes, and use of communication and information technologies. They may sometimes seem to be easier to implement than policies that may restrain vehicle demand and use, primarily as they require less behavioral and lifestyle change. However, technology improvements are most effective when implemented in conjunction with other instruments within a larger strategy. Transport ministers have addressed the need for CO₂ abatement and improved fuel efficiency in the transport sector, mainly through: innovative vehicle technologies, technological improvements such as cleaner fuels, the use of *low carbon* vehicle such as electric cars.

XI. Summary

1. The top risk on climate change and human rights is greenhouse gas (GHG) emissions, transport is one of the key sources of GHG emissions.
2. Climate change is one of the greatest threats to human rights of transportation.
3. Reducing of GHG emissions can mitigate the impact of climate change and human rights.
4. Sustainable transport instruments can substantially reduce GHG emissions.
5. To reduce GHG emissions, an improved transport infrastructure together with Intelligent Transport Systems (ITS) can avoid traffic congestion and foster the use of intermodal transport.
6. Government should work with every community and people to mitigate the impact of climate change and human rights by encouraging the use of low carbon transportation.
7. There is widespread agreement to reduce CO₂ emissions from transport by a minimum of 50% at the latest by 2050.

National Forest Management and Human Rights Protection under Climate Change

Mr. Tao-Sheng Lee
Former Director General of Forestry Bureau
natureforester@gmail.com

I. Four Major Forest Disasters Caused by Modern Climate Change in Taiwan

On July 31, 1996, the Typhoon Herb landed in Yilan County. On the same day, the rainfall in Alishan Township reached 1,094.5 mm, causing 51 deaths and 22 missing. The economic loss exceeded NT dollars 30 billion. The government launched the "Afforestation All of over the Country Campaign", hoping to combine private forces in afforestation work and arouse the public's awareness of forest love and environmental protection. It covers four major tasks: afforestation and tending, grow seedlings, education and publicity, and banning indiscriminate cultivation and construction.

In the early morning of July 30, 2001, the Typhoon Toraji landed at Xiuguluan River in Hualien County. The typhoon rainfall was extremely heavy and concentrated. The rainfall in Hualien area reached 455 mm in 2 hours; Alishan Township was as high as 758 mm. Landslides occurred in many areas. A total of 111 people were killed and 103 missing in Taiwan. Agriculture, forestry, fishery and animal husbandry lost more than NT dollars 7.7 billion.

At that time, President of the Executive Yuan Chang Chun-hsiung speaks out: "We must firmly grasp the land of Taiwan with tree roots." After that, on January 15, 2002, the Executive Yuan approved the "Homeland Security Plan - Specific Implementation Plan for Solving Landslide Disasters", planning the hillside conservation, utilization and management of land, and on the premise of taking into account the needs of people's lives, strengthen the infrastructure of homeland security to ensure the safety of people's lives, property and the sustainable development of land and resources.

From June 30 to July 6, 2004, the Typhoon Mindulle introduced a strong southwesterly flow with heavy rainfall and serious floods (also called the July 2 floods). 33 people were killed, 12 people were missing and agricultural losses exceeded NT dollars 8.9 billion. Driftwood clusters in the floodway of the Te-Chi Reservoir Hydropower Plant are in danger of collapse. The tailwater outlet is also blocked by mud-rock flow to form a landslide dam and the upper and lower ends of the reservoir dam are blocked.

In the middle of the night on August 7, 2009, the Typhoon Morakot made landfall near Hualien City, killing 681 people and leaving 18 missing. 26,000 hectares of forest land collapsed, driftwood up to 1.56 million metric tons, and bridges and a lot of farmlands were lost. Agricultural losses exceeded NT dollars 20 billion. In the same year, the Executive Yuan established the Reconstruction Committee and formulated the "Special Regulations for Reconstruction After Typhoon Morakot" to promote various rehabilitation and reconstruction work.

Looking at the above-mentioned four natural disasters, it is clear that Taiwan's national forest have suffered from short-term and heavy rainfall under extreme climate change, causing serious disasters. Therefore, the management of national forest is closely related to the safety of people's lives and property. National forest is public goods shared by all citizens. In the era of climate change, management agencies must put the people at the center and attach importance to disaster prevention to safeguard the people's right to subsistence.

II. Legal Observation on Forest Management and Human Rights Protection

1. The norm of the Constitution

The protection of the right to subsistence in Article 15 of the Constitution, in addition to traditional theories, interprets the protection of the right to subsistence as the nature of the right to defense and freedom of "having life", and gradually evolved into a right based on "necessary for the maintenance of human existence". As the right to subsistence, which is expressly guaranteed in Article 15 of the Constitution, its nature should already have the connotation of social rights, giving the state the right to actively ensure the minimum living conditions of the people. (Refer to the collaborative opinion of Justice Ye Baixiu, Shi Zi No. 666 of the Judicial Yuan)

Although, Article 15 of the Constitution does not contain environmental rights, and Article 10 of the Constitution's supplementary provisions stipulates that "Environmental and ecological protection shall be given equal consideration with economic and technological development" is also only a negative and declarative provision, which has no effect on the environmental rights. The interpretation of power is extremely low.

In any case, the people's right to the environment is a basic right for the survival of life. In the future, it must be incorporated into the constitution with reference to the legislation of other countries. Until then, it seems to be covered by Article 15 of the Constitution. (Article 15: The right of existence, the right of work, and the right of property shall be guaranteed to the people)

According to the definition in Article 2 of the Basic Environment Act, the environment refers to the general term for various natural resources that affect the survival and development of human beings and natural factors that have been influenced by human beings, including forests. From the perspective of the nature of forests, Environmental Rights related to forests are substantive rights that ensure the value, safety, health and sustainable development of forest ecosystems and protect people's lives.

2. The theory of Protective Norms

The “theory of protective norms” aims at constructing the rights of the people in public law. The reason for the interpretation of the Judicial Yuan Interpretation No. 469 points out that "it should be determined on a case-by-case basis. If the law clearly stipulates that a specific person can Those who enjoy rights, or grant the right to request certain actions to administrative subjects or state agencies to those who meet statutory conditions and can obtain specific rights, the normative purpose of which is to protect individual rights and interests is beyond doubt; although the laws are enacted for the public welfare or the benefits to the general public, and judging from the overall structure of the law, the applicable party, the intended regulatory effects and factors of social developments, the laws also intend to protect the identified persons, then the individual claims that their rights and interests are due to civil servants who have been harmed by neglecting to perform their duties are permitted to request relief in accordance with the law.”

3. Provisions of the Forestry Act

Article 5 of the Forest Act clearly states that " the administrative management of the forestry industry shall be predicated on the primary goal of preserving the long-term integrity of national lands." Paragraph 1 of Article 24 further states that " the management of conservation forests shall be predicated, regardless of ownership, on serving the public interest." This shows that legislators have paid attention to the conservation relationship between forests and people.

4. Definition of Interested Parties

When the management agency fails to properly manage national forests, which affects the lives and property of the "surrounding" people, who can file for judicial relief "as a stakeholder"? What is the scope of "surroundings"?

Interests refer to legal interests, excluding de facto interests. According to the theory of protective norms disclosed above, when the legal provisions have the intention of protecting a specific person, and the specific person can be confirmed, the specific person should be a legally interested person.

In addition, according to Article 2 of the Act to Implement the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR), “human rights protection provisions in the two Covenants have domestic legal status”; Article 11, paragraph 1, of the ICESCR states that “the States parties to the Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate clothing, food, shelter and a continuously improving living environment”. Therefore, residents affected by the management of national forests are entitled to equivalent to the protection of the Convention, the right to “a standard of living” has a legal interest.

Internationally, the most well-known case is *Oposa v. Factoran* in the Philippines. In 1993, 45 children, represented by their guardians (of a minor), filed a lawsuit in court on behalf of their generation and their descendants, alleging that the Department of Environment and Natural Resources issued a timber permit contract that exceeded the allowable limits of the local forest, and demanded that it be stopped. They demand an end to the large-scale leasing of forests for logging, especially primary forests.

The Supreme Court of the Philippines has adjudicated that these children have the right to sue, recognize them as representatives of themselves and future generations; lawsuits brought against the government based on the position of environmental protection have the right to protect the environment of future generations.

The Supreme Court stated: Present and future generations have the right to an ecologically balanced and healthy environment. The court ruling granting the children the right to sue forced the Philippine government to issue an executive order cancelling 65 contracts to lease the forest. (In Georgetown International Law Review pp. 713-719, included in the 1993 Yearbook of International Environmental Law)

III. The Case of National Forest Management and Human Rights

1. The New Kucapungane Tribe in Pingtung County claims that the poor management of national forests has caused people's lives to suffer, and claim state compensation

The New Kucapungane Tribe is located beside the Ailiao South River in Pingtung County, with low terrain and close to the river. In 2007, the floods on August 9, the torrential rain on August 13, and the Typhoon Sepat occurred one after another. The torrential rain brought landslides, threatening the lives and properties of the tribesmen. On August 8, 2009, the Typhoon Morakot struck, bringing with it torrential rain. The collapsed soil and rocks washed into the river channel. The river channel of Ailiao South River was silted up, and there was no flood drainage capacity, causing the stream to swell, and the New Kucapungane Tribe was buried by overflowing water, soil and gravel, resulting in the loss of houses and property (cultural assets).

The catchment area of the upper reaches of the Ailiaonan River flows through 10 forests compartment including 28, 29, 30, 31, 32, 33, 34, 36, 37, and 38 in the Pingtung Working Circle under the jurisdiction of the Pingtung Forest District Office.

The Pingtung Forest District Office has the obligation of remediation or necessary soil and water conservation treatment for the water source area or the collapsed land on both sides of the river, so as to stabilize the forest catchment area and prevent the collapse of soil and rocks from scouring the river, which actually violates Article 21 of the Forest Act (On the following forestlands the government agency may order the forest owner or stakeholder to undertake and complete reforestation and necessary water and soil conservation measures within an assigned period: 1. Eroded gorge, steep exposed land, collapsed land, landslide area, fragmented belt, severely eroded land and scattered sand

dune; 2. Water source area, reservoir collection area, coastal area and riverbanks; 3. Old fire site, flood eroded land; 4. Logged site; 5. Other areas where conservation is essential.), and remediation should be neglected. The Rukai peoples request compensation in accordance with the Article 2, Paragraph 2 of the State Compensation Law.

The Pingtung Forestry District Office responded in court: The management principle of the aforementioned forest land under its jurisdiction is to maintain the original state of the forest and avoid human interference. The forest regeneration is mainly natural planting, and there is no need to level the original forest and then artificially afforestation or planting facilities. In view of the above, apart from a few old collapsed lands in the forests compartment, the forests are lush and well-covered, and there is no excessive use of hillside land, unauthorized cultivation, or deforestation.

The case was investigated by Pingtung University of Science and Technology, entrusted by the Kaohsiung Branch of the Taiwan High Court: "Due to the steep location and geology of the forest compartments, it is relatively easy to collapse. Whether planting forests or remediation by other construction methods, it is not a simple matter. Without long-term investment, it will not be successful. Requiring the Pingtung Forestry District Office to complete soil and rock consolidation in less than 2 years after the 2007 typhoon, it is even more difficult to remediate because the local mountainous area is rainy, and it is in a remote location with inconvenient traffic. Therefore, the forestry agency should consider the benefits and possibilities of remediation." To sum up, the judgment of state compensation is invalid. (Civil Judgment No. 2 of the original Chong-shang Guo-zi in 2015)

2. Disposal of Steep Slope Agricultural Land in Te-Chi Reservoir Catchment Area

The catchment area of Te-Chi Reservoir spans three counties and cities including Taichung City, Nantou County and Yilan County, with an area of 592 square kilometers and a water storage area of about 454 hectares. and irrigation functions.

In 1973, the Te-Chi Reservoir began to store water. Within a few years, there were 1,171 hectares of over-utilized agricultural land in the catchment area (including 303 hectares of national forest land, 772 hectares of Aboriginal Reserves, and 96 hectares of farmland of the Veterans Affairs Council; All of them are classified as protection forests for water conservation according to Article 22 of the Forest Act).

Farmers breached the contract and used forest land beyond the regulatory limit, first planting alpine pears, then apples, and then chilled vegetables. A large amount of pesticides, fertilizers, and mud and sand used by farmers were washed into the Te-Chi Reservoir and resulting eutrophication. The reservoir has become a pool of stagnant water, known as "Soy Sauce Lake", but it provides drinking water for nearly one million people in the greater Taichung area.

At this time, as far as national forests are concerned, the tenant's use have endangered the life safety of Taichung citizens. Has it violated the human rights of the people? What actions should the national forest management agency as the lessor take to ensure the right to subsistence of Taichung citizens? Is it negligence if I fail to fulfill my responsibilities?

In 1979, the government formulated the "Te-Chi Reservoir Watershed Management Plan", which stipulated that agricultural land with a slope of more than 28 degrees must be forced to be reforested. However, due to the lack of complete supporting, the forced recovery and afforestation work was abandoned when local farmers expressed that they could not accept it, and threatened to set fire to mountains, bomb reservoirs, and release poison.

In August 1993, the Taiwan Provincial Government drew up a compensation plan again and announced the "Treatment Plan for Steep Slope Agricultural Land (Exceed Utilization) in the Te-Chi Reservoir Catchment Area". It is stipulated that if the land is returned to the government in the first year, the farmers can be compensated NT dollars 900,000 per hectare, the second year's subsidy will be reduced to NT dollars 700,000, the third year will be reduced to NT dollars 400,000, and the fourth year will not be subsidized and forcibly take back all illegally used land. But most farmers are still on the sidelines, and public opinion representatives, including legislators from various parties are still involved in "coordination".

In 2003, the Forestry Bureau began to recover the exceeding utilization land through litigation procedures, and the legislators intervened even more deeply, repeatedly requesting "suspend the processing". In 2007, President Chen Shui-Bian met farmer and gave a commit to "suspend processing and re-propose" at the scene.

In July 2008, President Ma Ying-Jeou restarted the operation. However, Wu Den-Yih, then a legislator and secretary-general of the Kuomintang (KMT), was working as a farmer in the coordination meeting and phone called Hsueh Hsiang-Chuan, secretary-general of the Executive Yuan to reconsider. This delay was again. Until July 2016, when I stepped down as Forestry Director, finally completed 97% of the land was reclaimed.

From 1973 to 2016, during these long years, Taichung citizens drank water from the Te-Chi Reservoir without feeling that their right to subsistence had been violated. Colleagues in the Bureau of Forest already exhausted but legislators, senior leaders and even the head of state support the farmers who destroy the land. Where is the justice?

3. Post-disaster reconstruction of the Adiri Tribe in Pingtung

The Ali tribe is located in the upper reaches of the Ailiao North River in Pingtung County, northwest of Wutai Mountain. It is the tribe with the highest altitude on the 24th line of Taiwan and is also the entrance to the Big and Small Shuanggui Lake.

The surrounding areas are all national forest compartment managed by the Pingtung Forest District Office. In 2009, the Typhoon Morakot collapsed in many places, affecting life safety. Tribal people had to move to “permanent houses” on the ground.

After this, we discussed and pondered with tribesmen, how can the suffering brought by this disaster be transformed into an opportunity for a new life? If we have perseverance, we can surely find a new way out. To be safe, we must move to flat land, but will the traditional wisdom and ecological culture handed down from our ancestors be lost over time? If we can return to the tribe during the non-flood season, can we guarantee the living rights and cultural preservation of the tribe?

Therefore, we launched the " Adiri Tribe Participation in Protected Area Monitoring Action Plan", which uses community participation in ecological monitoring and eco-tourism as a strategy for the tribe to promote post-disaster reconstruction and environmental sustainability, so that the tribe can develop sustainably in their original homeland and protect the mountains and forests. And the surrounding environment, inherit the Rukai culture, and activate the economy of the mountain village. Through environmental restoration, monitoring and patrolling, green energy, and adaptive ecotourism with low environmental impact, the tribe activates the functions of balanced development and stability of society, culture, economy, and institutions.

The public-private cooperation not only showed the wisdom of the Adiri people, but also the colleagues of the Forestry Bureau saw the tolerance, honesty and sincerity of the people in the process.

Treasures must be discovered, and more importantly, they should be presented in society. The story of the rebirth of the Adiri Tribe is touching. The Bureau of Forest and the tribe promote the conservation and development of adaptive eco-tourism in the Adiri community, write the story of the harmonious coexistence of man and land, and find the essence of Ali. In the process of interaction, we find that what we get is far more than what we pay.

After three years of cooperation, the culture of "the Adiri Tribe on the Clouds" has survived, and the tribe has been more diligent in protecting Shuang-Guei Lake Major Wildlife Habitat. It is not only the practice of environmental human rights, but also a specific case of "the preservation, protection and development of indigenous peoples' cultural traditions and customs" in the 2007 United Nations Declaration on the Rights of Indigenous Peoples.

IV. Conclusion

It is often said that forests are the lifeblood of Taiwan. Since national forests are common by all citizens, if their bad management cause harm to the lives of people around or downstream, they should be covered by the right to life stipulated in Article 15 of the Constitution.

According to the theory of protective norms, if the law is a provision for the public interest or the general well-being of the people, it can be known that the overall structure of the law, the object of application, the normative effect to be produced, and social development factors are comprehensively judged. When there is an intention to protect a specific person, a specific individual who claims that his rights and interests have been damaged due to civil servants neglecting to perform their duties can be interpreted as a legally interested person, that is, they are allowed to request relief in accordance with the law.

A well-known international case (*Oposa v. Factoran*) is that in 1993, Filipino children, represented by their guardians (of a minor), filed a lawsuit in court on behalf of their generation and their descendants for logging in a state-owned forest exceeding allowable limits.

This article presents three cases: the New Kucapungane Tribe in Pingtung County claimed that the bad management of national forests resulted in harm to people's lives and requested compensation from the state; the case of the disposal of agricultural land on steep slopes in the catchment area of the Te-Chi Reservoir in Taichung City; and the post-disaster reconstruction case of the Adiri Tribe in Pingtung County.

The purpose is to clarify that under the severe climate change, the management of national forests is closely related to the environmental human rights of the surrounding and downstream people. The person in charge should act to tread on thin ice, and the safety of people's lives and property may be properly guaranteed.

Climate Change and Human Rights: Residential and Commercial Sector Perspectives

David Lee
Director of International Affairs of JJP Architects & Planners
DWLee@jjpan.com

I. Introduction

United Nations' Intergovernmental Panel on Climate Change, released in February 2022, is “a further code red warning for humanity,” according to UN Secretary-General António Guterres. The failures so far, either to meet greenhouse-gas-reduction targets or to adapt to predicted climate impacts, have left more than 3.3 billion people—that’s about half of the world’s population—“highly vulnerable” to floods, drought, heat, food shortages, wildfires, and associated economic and social strife. And because the climate crisis is a force multiplier that compounds pre-existing vulnerabilities, these impacts are not evenly distributed: as with Covid, the people who are already disadvantaged will continue to be the hardest hit.

While the environmental emergency is endangering the entire planet, its impacts are not equally shared but are far more threatening to poor nations globally and to marginalized communities worldwide.

This presentation explores these severe problems—and potential solutions—focusing on carbon reduction and the advancement of environmental justice.

II. The Built Environment & Climate Change

1. Significance

The built environment is the largest source of the world’s carbon emissions globally and account for nearly 50% of total emissions. Of those total emissions, building operations are responsible for 27% annually, while building materials and construction (typically referred to as embodied carbon) are responsible for an additional 20% annually.

2. Types of Carbon

Embodied carbon, which is the carbon that is released in the manufacturing, production, and transportation of our building materials.

Operational carbon, which is the carbon load created by the use of energy to heat and power a building

Most carbon reduction efforts in the building sector have focused on operational efficiency, but we can no longer ignore that building materials account for half of a building’s total lifetime carbon footprint. To become carbon neutral, we need to eliminate or offset the impact of both operating and embodied energy.

Annually, embodied carbon is responsible for 11% of global GHG emissions and 28% of global building sector emissions. It is anticipated that embodied carbon will be responsible for 72% of the carbon emissions associated with global new construction between now and 2030. It is therefore crucial to address embodied emissions now to disrupt the current emissions trend, and because the embodied emissions of a building are locked in once the building is constructed and cannot be taken back or reduced.

3. Major Aspects

Urbanization

This area of study is especially relevant since the world's cities occupy only 3% of its land but represent between 60% and 80% of energy consumption and 75% of carbon emissions.

New Construction

Global building floor area is expected to double by 2060 as the world needs to accommodate the largest wave of urban growth in human history. Roughly 2.4 trillion ft² (230 billion m²) of new floor area will be added to the global building stock, the equivalent of adding an entire New York City to the world, every month, for 40 years. Achieving zero emissions from new construction will require energy efficient buildings that use no on-site fossil fuels and are 100% powered by on- and/or off-site renewable energy.

Existing Buildings

Buildings, especially the aging and inefficient, account for nearly 40% of the United States' energy usage. More than half the nation's available rental units are more than half a century old, and the Department of Energy estimates that 75% of the 130 million buildings in the US will be standing in 2050. Retrofits and upgrades aren't happening fast enough; currently, the DOE believes, 2.3 million homes get upgraded each year. Roughly 3 to 6 million annually would need to be retrofitted to meet emissions targets.

Unlike operational carbon emissions, which can be reduced over time with building energy upgrades and the use of renewable energy, embodied carbon emissions are locked in place as soon as a building is built.

Achieving zero embodied emissions will require adopting the principles of:

Reuse, including renovating existing buildings, using recycled materials, and designing for deconstruction.

Reduce, including material optimization and the specification of low to zero carbon materials.

Sequester, including the design of carbon sequestering sites and the use of carbon sequestering materials.

Construction Materials

Just three materials – concrete, steel, and aluminum – are responsible for 23% of total global emissions (most of this used in the built environment).

There is incredible opportunity for embodied carbon reduction in these high-impact materials through policy, design, material selection, and specification.

III. The Built Environment & Human Rights

1. Significance

The link between climate impacts and social inequities is what climate justice is about, and it's a link that's especially strong in the built environment.

2. Cities

Health and wellness will continue to be a priority in the design of the urban environment. To attract talent, cities and urban developers must focus on affordability and racial and socioeconomic disparities. Concepts like the 20-minute neighborhood will continue to gain traction, as will new more-accessible modes of transportation.

The 20-minute neighborhood concept is a tool to create social cohesions and strengthen sense of community, so equity is a critical part of the conversation.

Equitable transportation, housing, employment, and technology infrastructure are key parts to well-rounded neighborhoods.

Finally, as the effects of climate change cause larger and more damaging weather events, investments in weather mitigation strategies and sustainable building practices will continue to reshape the urban experience for the better.

However, the specter of rising temperatures is not evenly distributed geographically and disproportionately affects the Global South—the very regions that were exploited to fuel the industrial economies of the West. It is now estimated that nearly 40 percent of deaths resulting from heat exposure over the last three decades derive from human-made global warming, with much of that suffering inflicted on Africa, South Asia, Central and South America, and the Mediterranean Rim.

Such issues are further compounded by the continued legacies of urban disinvestment, where certain communities, often poor and of color, are subject to higher sustained temperatures due to the urban heat-island effect—in short, an abundance of heat-retaining surfaces and a dearth of vegetation.

The data tell us that communities of color are on the front lines of the environmental emergency. In the United States, racial and ethnic minorities are more than two times as likely as white populations to live with air pollution levels above the 90th percentile. In almost all large U.S. cities, the average person of color lives in a census tract with a higher surface urban heat-island intensity than those that are predominantly white, and those neighborhoods are also 50 percent more vulnerable to wildfire than those of majority-white residents. And, while property loss due to flooding disproportionately impacts poor white communities, scientists predict that, by 2050, increased flood risk will disproportionately affect Black communities. This racial divide only threatens to widen as the climate crisis accelerates.

3. Residential

A home is the basis of stability and security, the center of most people’s social, emotional, and even economic lives - a place where residents can live in peace, security, and dignity. Yet over the past decade, climate-fueled catastrophes have forced some 20 million people a year from their homes, becoming the primary driver of in-country migration. Low-income households are especially vulnerable, with a disproportionate number poorly housed in areas prone to storms, flooding, pollution, heatwaves, and drought.

Fulfilling the human right to decent housing globally will take some innovation. The need for new housing around the world by the end of this century is predicted at 2 billion, but 2 billion times even modest carbon emissions from each home would amount to a giant step in the wrong direction. But solutions are emerging, combining materials innovation, off-site fabrication, and low-carbon design to advance equity in housing.

In the Global North, meeting the need for affordable, climate-resilient housing also requires innovation in new construction, but even more crucial is retrofitting. With 80 percent of 2050’s housing stock already standing, decarbonizing it will have a greater impact than low-carbon new builds. What’s more, much of the social housing that was built in the mid-to-late 20th century is starting to fail. Saving and upgrading it can be done for a much lower cost, both in terms of money and embodied carbon, than tearing it down and building new. In addition to improving the climate security and quality of life of low-income residents, retrofitting preserves the valuable social infrastructure that residents have built through their connections to their community.

An innovative, net zero–energy retrofitting strategy now being introduced in North America combines prefabrication and standardization to upgrade building envelopes and systems while allowing the homes to remain in use.

4. Commercial

Commercial real estate contributes to climate change through emissions related to construction, maintenance, and operations. In turn, climate change impacts the commercial real estate industry. Rising sea levels, natural disasters, and extreme weather events pose physical risks to commercial real estate.

The workplace will play a critical role in fostering equity and inclusion. Companies should extend equity beyond race, gender, and generations to create equitable work experiences for employees who are working in-person and remotely to create a culture of inclusivity and belonging.

The influence of Environmental, Social, and Governance (ESG) will further continue to drive innovation. As such, socially and environmentally responsible office buildings will become both easier to finance and easier to lease to tenants who are increasingly demanding workplaces that support the health and well-being of occupants and the planet. Adaptive reuse of older buildings is also a key resilient strategy and selling point.

IV. Conclusion

The real estate industry alone represents almost 60% of global assets. The construction industry employs 7% of the world’s workforce. And architecture has a defining influence over the character of the places where we live, work, and interact with others.

The irrefutable truth is that every building project, for better or worse, is a climate-impact project. And architects can take the opportunity—through the processes, as well as the projects they design—to support the people and places most at risk.

In order to address this emergency, Architecture 2030, a leader in the climate action movement in the building industry, has called for zero carbon emissions by 2050 for all new construction.

At the same time, it’s unrealistic to put that responsibility on architects alone. Regulatory, political, social, and market pressures are necessary so that the appropriate amount of research and development can go into figuring out the solutions.

Data Sources:

Architecture 2030

Gensler Design Forecast 2022

Institute for Human Rights and Business

As Rising Heat Bakes U.S. Cities, The Poor Often Feel It Most. Retrieved from <https://www.npr.org/2019/09/03/754044732/as-rising-heat-bakes-u-s-cities-the-poor-often-feel-it-most>

2022
Climate Change
and *Human Rights*

20 Oct Taipei • Taiwan

