

PLATO Society

Taking Stock: the Paris Climate Agreement Conference of the Parties in Dubai, December, 2023

January 19-February 16, 2024

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Fifth Meeting: February 16, 2024

Two Local News Reports

- Wis. State Journal reports this week, reflecting the influence of the Paris climate system:
 - UW-Madison goals: all of its electricity from renewable energy sources by 2030 and net zero emissions by 2048
 - Madison School District plan: to transition to 100% renewable energy by 2040 or 2050 (major component: electrification of heating systems in buildings)

Last Week's Question: Loss and Damage Fund Pledges

- **As of 1/24/2024 (millions of U.S. dollars):**
France (108.9); Italy (108.9); UAE (100);
Germany (100); U.K. (50.6); Ireland (27.3); EU
(27.1); Denmark (25.5); Norway (25); Spain
(21.7); U.S. (17.5); Netherlands (16.3); Canada
(11.6); Japan (10); Portugal (5.5); Finland
(3.3); Slovenia (1.6); Iceland (0.6); Estonia
(0.5). **Total: 661.9 (COP28 welcomed 792)**
- **Source: NRDC “COP28 Climate Funds Pledge
Tracker” (1/24/2024)**

Today's Meeting

- **Part One: summaries of Week Four and the course as whole;**
- **Part Two: my thoughts on the prospects for realization of the Paris System's purposes; and**
- **Part Three: discussion, with your thoughts on any aspects of the course including prospects for realization of the Paris System's goals**

Week Four Summary (Means of Support for Climate Action):

- **Means of support in the Paris Climate System:**
 - The third pillar of the Paris System
 - Components: climate finance; technology development and transfer; capacity-building
 - The “enablers of effective climate action”
 - Primarily viewed through the lens of support for developing countries

COP28 Decision: Climate Finance

- The term “climate finance” is widely understood as:
 - Money from public or private sector sources anywhere in the world;
 - Used in actions that are intended to advance mitigation and adaptation
 - Often used to refer to finance for developing countries

COP28 Decision Finding Regarding Climate Finance

- A growing gap between the needs of developing country Parties and the support provided and mobilized for their efforts to implement their climate plans
 - Such needs are currently estimated at USD 5.8–5.9 trillion for the pre-2030 period

The Distinction Between Support “Provided” and “Mobilized”

- “Provided” means direct payments from national governments’ budgets and other resources
- “Mobilized”: the marshaling of funding from a wide variety of sources (e.g., development banks, the private sector)
 - E.g., shareholder policy directives to the World Bank regarding priorities for funding

“Mobilization” in the USD 100 Billion Pledge

- **First declared at COP15 (Copenhagen, 2009):**
- **“[D]eveloped countries commit to a goal of mobilizing jointly USD 100 billion dollars a year by 2020 to address the needs of developing countries. This funding will come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance...”**

COP28 finding on the USD 100 Billion pledge:

- The goal “was not met in 2021, including owing to challenges in mobilizing finance from private sources...”

Needs of Developing Countries: COP28 Implementation Measures

- Collective duties of developed countries and other Parties:
 1. Developed countries “shall provide financial resources to assist developing country Parties with respect to both mitigation and adaptation”
 2. Other Parties are “encouraged to provide or continue to provide such support voluntarily”

Climate Finance Duties of Developed Countries(continuing)

2. “continue to take the lead in mobilizing climate finance from a wide variety of sources... such mobilization of climate finance should represent a progression beyond previous efforts”
3. “to fully deliver, with urgency, on the USD 100 billion per year goal through to 2025”

Climate Finance: A Target for COP29 (November, 2024)

- Upgrade the annual USD 100B commitment (mobilization by developed countries) to support developing countries' climate actions with a “New Collective Quantified Goal on Climate Finance”

Another COP28 Finding Regarding Climate Finance

- Adaptation finance needs of developing countries:
 - Estimated at USD 215–387 billion annually up until 2030
 - The “adaptation finance gap” is widening

Adaptation Finance for Developing Countries: Implementation Measure

- **Developed countries to increase significantly adaptation's share of the USD 100B commitment to “beyond” 50%**

Another COP28 Finding Regarding Climate Finance

- **Global “finance flows” (movement of funding from public donors and private investors to recipient countries’ public and private sectors):**
 - **“the importance of making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”**
 - **Progress toward this requirement has been limited**

Finance flows: Implementation Measure in the COP28 Decision

- Phase out “inefficient fossil fuel subsidies that do not address energy poverty or just transitions, as soon as possible”

Another COP28 Finding Regarding Climate Finance

4. Multilateral development banks:

-- “the importance of reforming...multilateral development banks

-- “*acknowledges* the updated vision statement by the World Bank to create a world free of poverty on a livable planet

-- “*calls on* their shareholders to expeditiously implement that vision and continue to significantly scale up the provision of climate finance in particular through grants and concessional instruments”

Multinational Development Banks (MDB's): Background

- As a group (World Bank Group and regional development banks), the largest contributors to the annual USD 100B mobilization commitment
- National governments the majority shareholders; initial and periodic capital contributions
 - Other sources of capital (investments, interest on loans; low-cost borrowing)
- Do not seek profits for shareholders

MDB's: Background (continuing)

- Current purposes: to provide and facilitate financing for economic development in developing countries. --
A range of projects, including infrastructure, energy, environmental sustainability, and education

World Bank's Reform Agenda, 2022-present:

- October, 2023: World Bank shareholders:
 - Adoption of a new “Mission Statement”: “Eradicate poverty on a livable planet”
 - Expansion of concessional lending for clean energy and sustainability projects
 - Streamlining of application procedures
 - Shareholders called upon to make new capital contributions (so far, no significant announcements)

COP28: Support for Technology Development and Transfer

- Findings included:

1. The fundamental role of technology development and transfer...in facilitating urgent adaptation and mitigation action to achieve the goals of the Paris Agreement and sustainable development
2. Persistent gaps and challenges in technology development and transfer and the uneven pace of adoption of climate technologies around the world

Findings: Technology Development and Transfer (continuing)

3. The “importance of ensuring the availability of and access to enhanced financial and capacity-building support for developing countries...for implementing and scaling up prioritized technology measures...”

Technology Development and Transfer: Implementation Steps

- Parties urged to “address barriers and strengthen cooperative action, including with non-Party stakeholders, particularly with the private sector, to rapidly scale up the deployment of existing technologies, the fostering of innovation and the development and transfer of new technologies”
- “Rapid and scaled-up deployment and adoption of existing clean technologies and accelerated innovation...”

COP28: Support for Capacity-building

- **Capacity-building: enhancing the ability of individuals, organizations and institutions in developing countries to identify, plan, and implement ways to mitigate and adapt to climate change**

Some of the Decision's Capacity-building Findings:

- **The fundamental role of capacity- building in taking urgent climate action aligned with the Paris Agreement goals**
- **Progress has been made in capacity-building at individual, institutional, and systemic levels**
- **Developing countries continue to have persistent gaps between capacity and urgent needs...these gaps are constraining effective implementation of the Paris Agreement**

Capacity-building: Some of the Implementation Measures

- Enhance international cooperation in the provision of effective capacity-building support
- Indigenous Peoples and local communities:
 - Strengthen their capacity to engage effectively in the Paris system's intergovernmental process; and
 - On the national level: meaningfully engage them in climate policies and actions

Capacity-building: Implementation Measures (continuing)

- **[*the COP*] requests that the U.N. Climate Secretariat facilitate the sharing of knowledge and good practices for the preparation and implementation of Parties' climate action plans**

Summary of the Course:

- **Course goal: provide a foundation for examination of COP28 and future developments in the evolution of the Paris climate system.**
- **The system's purposes and structure**
- **The system's long-term roadmap (purposes)**

The Paris Climate System: Its Long-term “Roadmap” (purposes)

- **Slowing and eventually stopping global warming;**
- **Bolstering of societies’ adaptive capacity to cope with the impacts and reduce the long-term risks of climate change; and**
- **Finance for repair of irreversible damage from climate change impacts (loss and damage)**

Paris System Structure

- **A multilateral system: national governments the key players**
- **Two-tiers: the “international” (the Parties to the 1992 UNFCCC, adoption of collective rules (goals, targets, implementation measures) and “national” (the 190-plus sovereign states, acting individually)**

The National Tier

- Individual Parties have autonomy to choose their own actions to implement the collective rules, per the differentiation principle of “common but differentiated responsibilities and respective capabilities”
- Collective rule: the individual Parties must periodically update their implementation measures; each update must be progressively ambitious (e.g., raising targets for reduction of greenhouse gas emissions)

Paris System: Sources of Tier One Collective Rules

- The treaties (ratified by nearly all the world's roughly 200 countries):
 - U.N. Framework Convention of Climate Change (1992) (the “UNFCCC”)
 - Kyoto Protocol (1997)
 - Paris Climate Agreement (2015)
- Decisions of the annual COPs (Conferences of the Parties to the UNFCCC): updating implementation of the Treaties' rules

Paris System: Significance of COP Decisions

- **Collective directives to the Parties;**
- **Signals of goals, targets, and anticipated governmental implementation actions to:**
 - **sub-national governments;**
 - **civil society (NGO's, non-profit philanthropic foundations); and**
 - **public and private investors**

COP28: Latest Edition of the System's Roadmap

- **Status of the multilateral effort: some progress, but upgraded action urgently necessary (“this critical decade”)**
- **Reaffirmation of mitigation and adaptation goals & many targets (*e.g.*, net zero 2050), as well as means of support for developing countries**
- **New targets and implementation measures (mitigation, adaptation, means of support)**

COP28 Decision: Mitigation

- **Many new targets and implementation measures, including:**
- **Transition away from fossil fuels;**
- **Tripling renewable capacity by 2030;**
- **Doubling energy efficiency by 2023;**
- **Accelerating zero- and low-emission technologies;**
- **Phasing out “inefficient” fossil fuels subsidies as soon as possible**

COP28 Decision: Adaptation

- **Increased emphasis on “resilience” (capacity to prevent or reduce the damage and long-term risks of climate change impacts)**
- **New targets and implementation measures, including: climate-resilient water supply and safe water for all; climate-resilient food and agricultural production; resilience against climate-related health impacts; reduction of climate impacts on ecosystems and biodiversity; and reduction of climate impacts on poverty eradication**

COP28 Decision: Support for Climate Actions

- **Climate finance**
- **Technology development and transfer**
- **Capacity-building**

Part Two: Prospects for Realization of the Paris System's Roadmap

- **The roadmap (purposes):**
 - **Slowing and eventually stopping global warming;**
 - **Bolstering of societies' adaptive capacity to cope with the impacts and reduce the long-term risks of climate change; and**
 - **Finance for repair of irreversible damage from climate change impacts (loss and damage)**

Long-term Conditions for Realization of the Roadmap:

- **A stable global economy**
- **Politics:**
 - **International relations**
 - **Supportive national governance, with high priority on Paris system goals**
- **Technology development and availability of natural resources:**
 - **Electrification of energy systems**
 - **Availability of critical minerals**

Conditions for Realization: the Global Economy

- **The transition toward the Paris system's goals will be very costly**
- **Underlying condition: a stable, growing global economy**

The Global Economy

- **Countries must have sufficient financial resources (public and private) for making domestic climate action a high priority, or adequate climate finance from outside to support a high priority on climate actions**
- **A news item on 2/13/24: a British military think tank report that global defense spending jumped 9% in 2023 to a record USD2.2 trillion and is set to rise again in 2024 amid a “a highly volatile security environment” (Gaza, Ukraine, Indo-Pacific)**

Conditions for Realization: International Relations

- **Reduced military conflicts and tensions**
- **Cooperation toward Paris system purposes**

International Relations: Military Conflicts and Tensions

- The world's current conflicts, tensions, and overall “highly volatile security environment”: ramifications for attention to the Paris system:
 - Ukraine
 - Gaza
 - China-Taiwan

International Relations: Climate Co-operation

- **A key component of the Paris system**
- **Example: importance of China-U.S. climate co-operation**
 - **Nov., 2023: “Sunnylands Statement on Enhancing Cooperation to Address the Climate Crisis”**
 - **Adopted during Biden-Xi summit: indicates leadership support**
 - **Reminiscent of the 2014 pre-Paris China-U.S. agreement**

China-U.S. Sunnylands Statement (continuing)

- **Two concrete aspects of the Statement:**
 1. **Creation of a working group to address areas of the climate crisis that can benefit from China-U.S. cooperation; and**
 2. **A series of commitments to furthering the international process, including enhancement of the two countries' commitments under the Paris Agreement**

China-U.S. Climate Co-operation (continuing)

- **Another possible sign: California-China climate relations**
 - **October, 2023: Governor Gavin Newsom's visit to China**
 - **Focus of the visit: transportation (electric vehicles (EVs), high-speed rail) and offshore wind power**
 - **A reportedly positive meeting with President Xi on the topic of climate co-operation**

China-U.S. Climate Co-operation (continuing)

- **Peter's question: will these indicators of climate co-operation continue to develop amid China-U.S. economic tensions, including accessibility to technologies potentially applicable to energy systems transition?**

Conditions for Realization: Supportive National Governance

- Domestic politics will need to support prioritization of Paris system purposes
- Some 40 countries: elections in 2024, with climate policies (and coal) often expected to be an important issue, including:
 - Just held in Indonesia (NY Times 2/15);
 - U.S.; EU Parliament (and members states Austria, Croatia, and Portugal); India; Mexico; South Africa; and U.K.

Realization of the Roadmap: Energy, Technology, and Critical Minerals

- **The Paris system envisions a global energy environment with low-greenhouse gas (eventually net-zero) emissions**
- **Its cornerstone: transition from fossil fuels to electrification**

Electrification

- **The use of electricity for nearly all end uses (the final consumption of energy)**
 - **Power (many end uses throughout the economy, such as lighting, devices, and appliances)**
 - **Heating and cooling in buildings**
 - **Industry**
 - **Transport systems**

Demand for Electricity

- **The International Energy Agency (inter-governmental think-tank for analysis and recommendations on the global energy sector) (“IEA”):**
- **Globally, electricity is the fastest-growing source of end-use energy demand**
- **Global electricity demand is expected to double by 2050.**
- **Costs of energy generation have been declining rapidly, due in large part to technological innovation.**

Electrification: Three Essential Components

- 1. Low or zero emissions fuels (solar, wind, hydro, nuclear power) to generate electricity;**
- 2. Substitution for fossil fuels in end uses**
 - Example: for an electric vehicle (1) a battery produced using renewable sources; and (2) use of the battery to power the vehicle**
- 3. Power grids (distribution infrastructure): expansion and increased flexibility to handle growing demand for electricity**

Example of Pending Electrification: MMSD Transition Plan

- On Feb. 12th, the Madison School Board discussed its plan to transition the District to 100% renewable energy by 2040 or 2050
- A core component: electrification of school building heating systems, at an estimated cost of 1 billion dollars

An Essential Component of Global Electrification: “Critical Minerals”

- **At COP28, U.N. Secretary-General Antonio Guterres announced formation of a “Panel on Critical Energy Transition Minerals”**
- **Will bring together governments, international organizations, industry, and civil society to develop common principles for guiding extractive industries**

Critical Minerals (continuing): Background

- **IEA 2022 report: the shift to clean energy systems will drive a “huge increase” in demand for critical minerals**
- **Why? Because an energy system powered by clean energy technologies differs profoundly from one fueled by fossil fuels. Solar plants, wind farms, and electric vehicles generally require far more minerals than their fossil fuel-based counterparts**
- **A typical electric auto requires six times the mineral inputs of a conventional auto**

Critical Minerals (continuing)

- **Copper wire is used as an energy conductor in all electricity-related technologies**
- **Cobalt, lithium, and nickel are crucial to battery performance, longevity, and energy density**
- **Nickel also is necessary for development of hydrogen as an energy carrier**
- **Rare earth elements: essential for permanent magnets that are vital for wind turbines and electric vehicle motors**

Critical Minerals (continuing):

- **Countries pursuing electrification will continue to require that supplies of these and other critical minerals will be available so that their energy systems will remain reliable, resilient, and secure.**
- **Concerns about price volatility and security of supply will not disappear in electrified energy systems that are based on green energy sources.**

Critical Minerals (continuing):

- **The IEA forecasts a tripling of demand for critical minerals by 2040**
- **Development of new supplies to meet escalating demand will require substantial increases in public and private investments**
- **Clear signals and actions by policymakers will be important**
- **Delays (bottlenecks due to inadequate supply and volatile prices) will be incompatible with the urgency required for energy system transformations**

Critical Minerals (continuing): Potential Vulnerabilities

- High geographical concentrations of production and refining operations (more so than with fossil fuels)
- *E.g.*, for cobalt, some 70% of production in China and Democratic Republic of Congo
 - 50-70% of cobalt refining in China
- For nickel, close to 50% of production in Indonesia

Critical Minerals (potential vulnerabilities (continuing)):

- Long project development lead times
 - On average, over 16 years to move mining projects from discovery to first production
- Production and refining of minerals might give rise to environmental and social issues
 - Copper and lithium are particularly vulnerable to water stress
 - Human rights labor concerns
 - Such harms to communities can disrupt supplies

Critical Minerals: Summary

- **IEA (2022): “Risks to the reliability, affordability and sustainability of mineral supply are manageable, but they are real. How policy makers and companies respond will determine whether critical minerals are a vital enabler for clean energy transitions, or a bottleneck in the process.”**

Part Three (discussion):

- The course in general, including your thoughts on the prospects for realization of the Paris system's goals

Great Thanks!

- **To the PLATO Society**
- **To all of you**