

Policy paths for Adaptation regarding Buildings and Transportation

NEGOTIATORS MUST ENDORSE SUSTAINABLE INFRASTRUCTURE IN LINE WITH SDG 11

- **More needs to be done** to create sustainable transportation networks for freight and shipping.
- **Create concrete financial targets** to invest in green building developments in the global south and north.
- **Investment in widespread** public transportation for long distance and short distance travel within and between nations around the world.
- **Initiate a worldwide** transition from gasoline-based automobiles to electric vehicles by 2030.
- **Negotiators must address** global financial challenges regarding climate adaptation to ensure developing countries have strong transportation networks and adequate, sustainable housing.

What's the issue?

At an ever-increasing pace, our globe is experiencing dramatic changes in average temperatures, loss in biodiversity, and an increased frequency of extreme weather events due to climate change. The faster this happens, the more costly it will be to address the consequences of these changes in the future.

Since COP2 in 1996, parties to the UNFCCC have agreed that mitigation alone may not be sufficient for humanity, and a complimentary plan of adaptation must be developed (Adaptation Committee, 2019). Parties began to observe possible long-term impacts and assess the risks and vulnerabilities we might face.

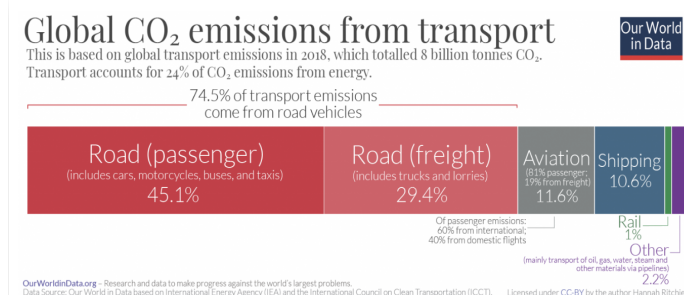
One important part of adaptation for every nation is building and transportation infrastructure. Evidence shows that the overwhelming status-quo with buildings/transport is not sustainable. In the US, about 39% of total energy consumption can be attributed to buildings (EIA, 2022). Globally, over 1 billion people live in slums or informal settlements (SDG-11). Developed nations, especially the US and Canada, heavily rely on automobile infrastructure. Because of this, transportation is the largest contributor of the US's total GHG emissions at 27% (EPA, 2022). Buildings and transport are an often-overlooked aspect of climate adaptation and require more attention.

Why is this important?

As stated earlier, the global biosphere is changing at a rapid pace. Although mitigation may alleviate the consequences of these changes, we are beyond the point of avoiding change altogether. Roads, bridges, and railways must be constructed to withstand extreme weather and minimize congestion. Buildings must be made resilient, efficient and low emitting in construction, use, and demolition. According to the UN Environment Program, cities globally account for 60-80% of energy consumption despite occupying only 3% of the Earth's land surface. SDG 11 calls for cities and human settlements to be inclusive, safe, resilient, and sustainable. Targets 11.2 and 11.3 each target transportation and urbanization respectfully. More sustainable buildings and transport systems will not only reduce emissions intensity on their own, but they will lessen the burden on other sectors. For example, higher energy efficiency in buildings/transport will lower the expectations of production from the energy sector. Thereby, making emissions reduction an easier goal more broadly. Resource efficient cities combine greater productivity with lower costs and reduced environmental impact. Higher resource efficiency in buildings will see natural cooling/heating with less energy input, locally sourced construction materials, and easy access to transport networks. With transport, it means moving to an EV auto environment, investing in public rail and bus networks, and decarbonizing freight transport.

What happened at COP 27 on this issue?

There was a surprising amount of discussion regarding buildings and transport at the COP this year. One program I learned about thanks to India's pavilion, is the Electric Vehicle Initiative (EVI), a multi-government policy forum to accelerate EV integration. India plans to reduce their railway system's emissions to net zero by 2030 (India Pavilion). In addition, they wish to expand rail's share of



The extent which automobiles are responsible for global emissions - Source: Our World in Data, October 6th 2020.

overall land-based freight transport from 36% to 45% by 2030 and 100% electrification of all rail networks. The country also touts a Smart Cities Mission (SCM) to promote urban mobility and public transport, particularly emphasizing walkability and biking as alternative means of transport (India Pavilion). The Multilevel Action pavilion was of note since it hosted Cities & Regions at COP27. One side event saw global city leaders and financial representatives discuss the prospect of investing in Net Zero policies for our cities. The discussion was a debate largely centred on public versus private finance. One thing that is agreed on, is that local municipalities need better financial toolboxes, by sending the right signals to investors, and supporting government policies that reduce risks and enhance returns. Mayor of Freetown, Yvonne Aki-Sawyerr, correctly pointed out that people are already suffering, especially in the global south, so time is of the essence. There were many other events which also occurred. The Governor of Indiana spoke about his administration's support of EV infrastructure investments, putting \$100 million toward a state-wide EV charging network. The Denmark pavilion discussed at length the importance of financing green building construction in the global south, stressing that 80% of buildings needed in Africa have yet to be built (World Green Building Council, 2022). As far as landmark agreements, the COP came to a draft decision regarding Adaptation Plans, requesting action be taken to facilitate the mobilization and finance of National Adaptation Plans for developing countries. This could lead to significant strides in laying the foundations for green infrastructure plans in developing nations. There is also, of course, the creation of the Loss and Damage fund which, once finalized, will hopefully include dedicated financing toward building/transport infrastructure for developing nations.

Policy recommendations

1) Enhance building adaptation in the global south by working toward a consistent financial plan

With 80% of the African building stock yet to be under construction (World Green Building Council, 2022), there is a serious need for resources to ensure the necessary number of structures can be built in a sustainable fashion. As of 2018, over 1 billion people are living in slums, mostly in the global south (SDG-11). If these developing nations are to create equitable, sustainable societies they will require the means of constructing buildings that will house adequate amounts of people with an adequately low carbon footprint. Strides have been made with Loss and Damage at the COP this year, and further strides must be made to ensure adequate financing for this issue.

2) Invest in widespread public transport and EV infrastructure worldwide

The potential of public transportation in reducing emissions is immense. US public transportation saves 37 million metric tons of CO₂ annually. It saves the US 4.2 billion gallons of gasoline annually – more than 11 million gallons a day. It also is effective in reducing congestion by saving roughly 865 million hours in travel time (KCATA, 2022). Of course, there will still be a need for automobiles in certain scenarios, therefore EVs are important. Major investments from governments worldwide should push to create high-speed rails for long distance travel, light rail and bus systems for short-distance travel, and EV subsidies and charging stations for all remaining car infrastructure. Carbon emitting vehicles should likely be taxed and disincentivized from use to encourage a faster transition.

3) Create more walkable/bikeable urban environments worldwide to foster stronger communities

We must also put great care into the urban landscapes these buildings/transport systems will exist in. Development must be controlled, cooperative, and done with oversight. "Sustainable cities" are built with a plan in mind, to create a healthy built environment for citizens. Mixed-use, high-density zoning brings people close together, and goods and services within walking distance. Adequate green space and bike/ped paths will ensure that people won't be forced to drive a car to go anywhere. This creates healthier citizens, stronger communities, and reduced carbon emissions. Zoning laws should limit sprawled-out suburbs and encourage high-density, mixed-use developments. Municipalities should be required to draft bicycle/pedestrian transport plans to ensure action is taken from the bottom-up.

References

1. "Africa." World Green Building Council, World Green Building Council, 11 Nov. 2022, <https://worldgbc.org/africa/>.
2. "How much energy is consumed in U.S. buildings?" U.S. Energy Information Administration, EIA, 3 Dec. 2022, <https://www.eia.gov/tools/faqs/faq.php?id=86&t=1>.
3. "SDG-11" UN SDG Overview, United Nations, <https://unstats.un.org/sdgs/report/2019/goal-11/>.
4. "Carbon Pollution from Transportation." EPA, Environmental Protection Agency, 19 May 2022, <http://www.epa.gov/transportation-air-pollution-and-climate-change/carbon-pollution-transportation>.
5. "Manifesto Spells out Green Requirements for Africa's Urban Future." Environment Analyst Global, Environmental Analyst, 2022, <https://environment-analyst.com/global/108793/manifesto-spells-out-green-requirements-for-africas-urban-future>.
6. "Environmental Benefits of Public Transit." KCATA, Kansas City Area Transportation Authority, 2022, https://www.kcata.org/about_kcata/entries/environmental_benefits_of_public_transit.
7. Adaptation Plan Draft Decision, 19 Nov. 2022, COP27.
8. Loss and Damage Decision, 19 Nov. 2022, COP27.