Commentary

Strengthening COP Meetings through Cross-Sectoral Thematic Convergence and Highlighting Health in COPs

Fatemeh Rezaei[1,2], Abbas Ostadtaghizadeh[3], Edmond Fernandes[4,5]

1. Department of Health in Emergencies and Disasters, University of Isfahan, Isfahan, Iran; 2. Health Management and Economic Research Center, University of Isfahan, Isfahan, Iran; 3. Department of Health in Emergencies and Disasters, School of Public Health, University of Tehran, Iran, Islamic Republic of; 4. Department of Public Health, BLDE University, Bijapur, India; 5. Director – Edward & Cynthia Institute of Public Health, Edward & Cynthia Institute of Public Health, India

Purpose: The spread of extreme climate events, due to being on track for a 2.8°C increase, has worsened health outcomes, a subject that has gained the attention of the Intergovernmental Panel on Climate Change (IPCC) in the recent decade. In this commentary, the authors highlight the significant aspects of COPs (Conferences of the Parties) and what should be pursued by the health community.

Methods: Based on a critical review of published reports, policy documents, gray literature, and an examination of pivotal events and outcomes from recent COPs, the emerging trends in COP negotiations and potential areas for prioritized action in future iterations have been demonstrated.

Results: The initiatives, platforms, health sector measurements, climate academic education and research at COP meetings need to place greater emphasis on investment in climate-health projects to encourage further contributions from the health community.

Conclusion: Countries' contributions and commitments to mitigating climate change's health impacts can be assessed by evaluating their investments in evidence-based climate actions within health systems and demonstrating the resulting outcomes at upcoming COP meetings. Furthermore, COP meetings should prioritize fostering intersectoral collaboration to mobilize funding for scientific research and the scaling of applicable and accessible platforms.

Corresponding author: Fatemeh Rezaei, f.rezaei.pro@gmail.com

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Introduction

The Intergovernmental Panel on Climate Change (IPCC) has warned that climate change is already contributing to dramatic and rising humanitarian impacts[1]. In the last five years, 83% of all disasters triggered by natural hazards were caused by extreme weather and climate-related events such as floods, storms, cyclones, droughts, landslides, wildfires, cold and heatwaves[2][3][4]. These events have caused more than 12,000 deaths[5] in 2023 and an average of 21.5 million new displacements each year over the past decade[6]. Based on the study of Vicedo-Cabrera et al.[7], warm-season heat-related deaths attributed to climate change were 37% of total mortality among 43 countries from 1991 to 2018, which even exceed more 50% for countries in southern and western Asia (Iran and Kuwait), southeast Asia (Philippines and Thailand) and several countries in Central and South America. People who are most vulnerable and marginalized, such as elderly, women, children, and those with disabilities, suffer the most from the impacts of the climate change induced extreme weather events[8]. In the past decade, people living in regions with high exposure to climate-related hazards were 15 times more likely to die from floods, droughts, and storms than those in regions with minimal exposure [9]. For example, around four in ten people are affected globally by water scarcity, and water security for 80% of the world's population is under threat. Climate change would increase risk of vector-borne, infectious, respiratory, and even chronic diseases[10].The IPCC has made it clear that reducing greenhouse gas emissions is critical to reduce the impacts on people and the planet. Yet, under current policies, the world is on track for 2.8°C global warming. This presents a renewed opportunity for the UNFCCC, as the custodian of COP meetings, to involve the health community more deeply in exploring effective ways to build climate-health policies through trans-boundary cooperation in climate research and education. In this review, the main health currents and issues discussed at recent COPs are examined and insights for future perspective are provided.

Health and Climate: Insights from COP28 and COP29

The first-ever dedicated Health Day was held on 2 December 2023, during the COP28 climate negotiations at UAE[11]. Also, COP29, held in Baku, Azerbaijan, from 22 November 2024, built upon the momentum of COP28 by continuing to highlight health in climate discussions[12]. The events brought together about health ministers, and other stakeholders to call for prioritizing health in climate policies and actions[13][14][15]. The Health Day of the COP28 resulted in several key outcomes, including the endorsement

Declaration on Climate and Health by 120 countries[16], and the announcement of new initiatives and partnerships to support health and climate action. The health Day was a historic moment for raising awareness and mobilizing action on the links between health and climate change, and for ensuring that health is at the heart of the global response to the climate crisis besides launching the healthy scorecard and shifting the spotlight on human health as a critical lever for climate actions. Similar to COP28, COP29 featured a dedicated **Health Day** on November 18. This day was marked by a high-level event, "Investing in Human Development for Climate Resilience," co-led by Azerbaijan and UN agencies[17][18]

It has been estimated that 1,908 out of 81,039 delegates (2.4%) who attended the high-level COP28 meetings were health professionals from around the world. While the search results do not explicitly state the number of health ministers or stakeholders in attendance, COP29 did bring together key global actors for climate change and health. The COP29 Health Pavilion hosted events showcasing evidence, initiatives, and solutions to maximize the health benefits of tackling climate change. The Alliance for Transformative Action on Climate and Health (ATACH) also had a dedicated day at the Health Pavilion on November 19, convening global leaders, policymakers, and experts to advance climate-resilient, sustainable, and equitable health systems. Furthermore, the Baku COP Presidencies Continuity Coalition for Climate and Health was launched, uniting Azerbaijan, Brazil, Egypt, the UAE, and the UK under a framework co-led with the WHO[15]. This coalition aims to bridge efforts across COP presidencies to drive global climate-health initiatives and ensure that health remains central in climate discussions[19]. Instead of the "COP28 Declaration on Climate and Health", the "Baku Principles of Human Development for Climate Resilience" were adopted, with one principle emphasizing the importance of climate-resilient, low-carbon health systems[18]. COP28 saw around 80,000 participants overall[20]. COP29 had over 56,000 participants. While the exact number of health delegates is not specified, COP29 continued to emphasize health. The "Baku COP Presidencies Continuity Coalition for Climate and Health" also aimed to mobilize efforts and finance to scale up climate and health action[18].

Research and Education Progress

This highlights the need to increase the involvement of health professionals in future COP meetings to help them understand their responsibility in enriching research and education on the health effects of climate change. For example, Columbia University is strengthening the curriculum in public health schools regarding education on climate and health in cooperation with WHO and ASPPH within Global Consortium on Climate and Health Education[21]. At COP29, several key actors emphasized the role of

research and education in addressing climate change. The InterAcademy Partnership (IAP) contributed expertise on climate, education, and health, advocating for the integration of education systems and health policy into climate action frameworks[22]. Furthermore, a more rapid and growing scientific recognition of the links between health and climate change is required to demonstrate the need for urgent action by medical faculties and health ministries to protect and promote health in the face of the climate crisis. Health care providers and physicians practicing within health systems are inadequately prepared to address the nexus of climate change, disasters, and public health consequences. It is necessary to fundraise and direct the dissertations and theses of medical and paramedical students toward more cohort studies and epidemiological perspectives, especially in underdeveloped and developing countries.

At recent COPs, climate education emerged as a critical component of the global response to the climate crisis. Following COP28 and COP29, a surge in climate education platforms has aimed to broaden access to sustainability knowledge, although their efficacy and effectiveness vary. Examples include the climate and health curriculum in graduate public health education[23], Care climate and resilience academy[24], ClimateFresk[25], The Climate Centre[26], edX[27]. Besides, UNESCO, through the Greening Education Partnership (GEP), promoted the integration of environmental education across school subjects, providing guidance on greening schools and curricula and emphasizing the empowerment of young people[28][29]. Moreover, ClimateScience, localized in Uzbekistan, offers free, science-based resources and interactive courses, potentially fostering critical thinking skills and climate literacy among young people[30]. In contrast, hub101.earth targets stakeholders in the Global South, providing capacity-building modules and curated resources focused on climate, nature, and people-centered solutions[31]. Platforms such as Coursera, Skillshare, and Udemy offer a range of courses on sustainability and climate change, but their variable pricing and focus on diverse subjects may dilute their impact on specialized climate education. The establishment of a Climate Residence at the Central Asian University of Environmental and Climate Change Studies (Green University) in Tashkent signifies a commitment to research and academic potential, with collaborations from institutions like the Leibniz Institute for Regional Geography[32]. While these platforms provide valuable resources, their effectiveness hinges on factors such as accessibility, target audience, and the integration of research-based content to drive meaningful engagement and action. These training platforms have various objectives, such as providing education, training, knowledge and experience sharing, and networking to encourage collective action, capacity building, and collaboration for climate change. These educational platforms and initiatives aim to achieve

their mission by offering climate guidance, tools, training kits, games, events, partner publications, annual reports, case studies, country climate fact sheets, and more. They provide valuable and accessible resources for global community awareness and partnership.

At COP29, several avenues emerged to potentially bolster climate and health research funding for universities, although concrete guarantees remain elusive. The WHO's COP29 Special Report advocated for amplified funding towards interdisciplinary research focused on climate change health monitoring, evaluation, and solutions[18]. This aligns with the broader push to integrate health considerations across climate initiatives, exemplified by the "Baku Initiative on Human Development for Climate Resilience" [19]. While global funding commitments, such as the pledged $300 billion annually by 2035, include support for developing countries[18], the extent of allocations to university-led research remains unspecified. The presence of university delegations, such as those from the University of Leicester and Northwestern University, ensures research expertise is present at the negotiations[33][34], yet the extent to which this translates into direct funding is uncertain. Capacity-building academies, like those led by UNU-EHS and UNU-VIE3[35], offer training opportunities for researchers, but dedicated financial support for university-based research programs requires further development. Although initiatives at COP29 signal a move toward recognizing the importance of research in climate and health, securing guaranteed funding streams for universities necessitates more explicit and targeted mechanisms. To facilitate this, Azerbaijan announced the Climate Finance Action Fund (CFAF), capitalized through voluntary contributions from fossil fuel-producing nations and companies, aimed at catalyzing public-private partnerships and de-risking investments in mitigation, adaptation, and research and development[36]. These initiatives underscore a concerted effort to channel increased funding towards climate action, with specific attention to supporting vulnerable populations and promoting the adoption of clean energy technologies. However, there is a gap in securing funding for scientific research at higher education levels, even in developed countries, to conduct longitudinal studies. Fortunately, recent COPs highlighted recognition of a research-based platforms like ENBEL[37], which supports connecting health and climate change research, brings together leaders in these fields, and coordinates a network of international health and climate research projects. Since COP28, the “Climate x Health” initiative has emerged as a significant force in mobilizing action and resources at the intersection of climate change and public health. The initiative, convened by organizations such as the Wellcome Trust and the Rockefeller Foundation[38]. One concrete manifestation of this effort is the Climate x Health Challenge, led by PATH (a global nonprofit organization), which seeks product and process innovations, and solutions on

adaptation, mitigation, environmental governance, or local community participation for climate-resilient health systems and related health risks in low- and middle-income countries[39]. Furthermore, the Climate x Health initiative offered small grants between USD $5,000 and $10,000 to strengthen joint advocacy, action, and accountability for climate and health in early 2024, with a focus on civil society, non-governmental, and not-for-profit organizations in low- and middle-income countries56. Besides, Grand Challenges Canada (GCC- funder of innovative solutions), with support from the Government of Canada and in partnership with the South African Medical Research Council, has also invested in 42 innovations addressing the impact of climate change on a variety of areas — from infectious disease and mental health to nutrition, heat stress, food security and beyond, awarding a collective $6.3M CAD in seed funding[40]. Flankly, there are still fewer research-based platforms available for all countries and academics. Further integration of UNFCCC responses with educational institutions and medical establishments could help develop thematic knowledge products informed by the latest research, strengthening scientific approaches to climate-related health challenges.

Revising new algorithms to achieve an integrated future that addresses health risks remains essential in conversations and policies globally. In COP28, the commitment to the Alliance for Global Climate and Health (ATACH) program reached 82 countries and the ATACH has grown to include 85 countries at COP29[41]. The, ATACH, coalition of over 150 health and development organizations, has developed a tool called the Healthy Scorecard to assess how well countries include health in their Nationally Determined Contributions (NDCs) to the Paris Agreement. The scorecard analyzes six categories of health-related criteria, with a maximum of three points for each category. The scorecard aims to encourage countries to recognize the links between health and climate change, and to take action to protect and promote health in their climate policies. The Healthy Scorecard is renewed every five years, with the next deadline being in 2025[42]. However, current commitments from 2020 are insufficient to reach the Paris Agreement's goal of limiting global temperature rise to well below 2°C, and preferably to 1.5°C[43]. The highest healthy scorecard for COP28 is 17 out of 18 points, achieved by Burundi[44]. This score apparently indicates that Burundi has integrated health goals into its climate commitment (NDC) very well, addressing the health impacts of climate change, the actions in the health sector, the health co-benefits of climate action in other sectors, the economic and financial considerations, and the monitoring and implementation of its NDC. However, it is important to turn attention toward the fact that Burundi is not an industrialized country, according to the United Nations Industrial Development Organization (UNIDO). Burundi is classified as a least developed country (LDC) by the United Nations, and as a low-income economy by the

World Bank[45]. Burundi's economy is heavily dependent on agriculture, which accounts for 27.57% of its gross domestic product (GDP) and a low level of industrialization, with industry contributing only 10.64% of its GDP in 2022[46]. Therefore, the question that might come up is that how can scorecard differentiate between industrialized and unindustrialized countries. According to the Healthy Scorecard, low- and middle-income countries tend to score higher than developed countries in terms of integrating health goals into their climate commitments (NDCs). For instance, Côte d'Ivoire scored 15 points, while the EU scored only 8 points[42]. This indicates that Healthy Scorecard needs to include other confounding variables to get into account. For example, scorecard need to be leverage based on population, the main GDP sources, continent, fusel fuel reserves, etc. On the other hand, the "economic and finance" index is more closely aligned with the "health sector action" index than with the "monitoring and implementation" index, which pertains to evaluating the health impacts of climate actions and the progress of health-related initiatives. Therefore, it is evident that directing financial budgets towards assessments through academic research is necessary, as it has a long-term impact (albeit with higher costs) compared to increasing the overall score by focusing on short-term actions for annual reports, such as public health campaigns.

Applicable initiatives and platforms

The COPs initiatives and platforms were presented to promote climate action and technical assistance. For example, the Santiago Network[10] facilitates collaboration and knowledge sharing for vulnerable developing countries, enabling the exchange of best practices and innovative solutions. The Climate Action Accelerator equips companies with the knowledge and skills needed for emission reduction and provides funding for innovative technologies and practices to reduce health risks. The International Federation of Red Cross and Red Crescent Societies (IFRC) focuses on the Global Climate Resilience Platform[47], fostering knowledge sharing among stakeholders. All the above platforms are providing a stepping stone for contribution of health community in decreasing the climate change adverse effects. Additionally, the Carbon Map[48] visualizes the carbon footprint of different countries and regions. This tool can be enhanced by adding health indexes such as heat-related deaths, neurological disorders, respiratory diseases, and more. The EW4ALL[49], endorsed by all Parties at COP27, highlights the growing recognition of the need for climate education and awareness, but the contribution of healthcare indicators to enrich the dashboard is recommended. At COP29, the UN Climate Change Global Innovation Hub (UN GIH) Digital Platform was launched, highlighting the potential of digital technologies to

contribute to climate solutions, including those relevant to the health sector. Developed in partnership with the UNFCCC and Uni-partner, this platform connects cities, scientists, financial institutions, and digital solution providers through AI-driven capabilities, fostering collaboration across various domains. Designed as a dynamic marketplace15, the UN GIH Digital Platform seeks to facilitate resource and knowledge sharing, thereby enabling more effective responses to climate-related challenges[50]. While its applications are broad, the platform's capacity to connect stakeholders and facilitate access to expertise can be leveraged to strengthen health systems' resilience to climate change impacts, promote the use of digital tools for monitoring climate-sensitive diseases, and foster innovation in reducing the carbon footprint of healthcare facilities[51]. Furthermore, its AI-powered matchmaking capabilities could link public health challenges with private-sector innovations, accelerating the development and deployment of digital health solutions tailored to address climate-related health risks1. Ultimately, the UN GIH Digital Platform presents opportunities to strengthen the health sector's response to climate change through enhanced collaboration, knowledge sharing, and access to digital solutions. These initiatives demonstrate the increasing recognition of the need for collaboration, innovation, and action to address the health issues related to the climate crisis, and the role of networks, organizations, and businesses in achieving this goal.

Conclusion

Climate-driven impacts do not occur in isolation; they are driven by compounding risks and health-related outcomes such as cardiovascular diseases, chronic respiratory diseases (asthma, chronic obstructive pulmonary disease (COPD), respiratory allergies), and protein-energy malnutrition. Currently, climate impacts are also compounded by the economic fallout of the COVID-19 pandemic, protracted crises, conflict, and broader issues of debt. To conclude, it is imperative that countries increase investments in scientific research and environmental epidemiology to conduct effective climate action and enhance the motivation of health authorities and sponsors by presenting potential achievements at COP29. Moreover, the health system needs to secure adequate funding from both domestic and global sources, as it plays a vital role in enhancing resilience and reducing risks from the adverse impacts of climate change.

Statements and Declarations

Conflicts of interest

No potential conflict of interest was reported by the authors.

References

1. ^*Cross NRJONRC. Overlapping vulnerabilities: the impacts of climate change on humanitarian needs. 2019.*
2. ^*Field CB. Managing the risks of extreme events and disasters to advance climate change adaptation: speci al report of the intergovernmental panel on climate change: Cambridge University Press; 2012.*
3. ^*Ritchie HaR, P. Natural Disasters: Our World in Data; 2024 [Available from: https://ourworldindata.org/nat ural-disasters].*
4. ^*Stocker TF, Qin D, Plattner G-K, M T, Allen SK, Boschung J, et al. Come Heat or High Water: Tackling the Hu manitarian Impacts of the Climate Crisis Together. In: Societies IFoRCaRC, editor. 2023.*
5. ^*Save-the-Children. 2023 In Review: Climate disasters claimed 12,000 lives globally in 2023: reliefweb; 202 3 [Available from: https://reliefweb.int/report/world/2023-review-climate-disasters-claimed-12000-lives-g lobally-2023].*
6. ^*UNCHCR. Displaced on the frontlines of the climate emergency. 2023.*
7. ^*Vicedo-Cabrera AM, Scovronick N, Sera F, Royé D, Schneider R, Tobias A, et al. The burden of heat-related mortality attributable to recent human-induced climate change. 2021;11(6):492-500.*
8. ^*Thomas K, Hardy RD, Lazrus H, Mendez M, Orlove B, Rivera-Collazo I, et al. Explaining differential vulnera bility to climate change: A social science review. 2019;10(2):e565.*
9. ^*Shukla A, Skea J, Reisinger A, Slade R, Fradera R, Pathak M, et al. Summary for policymakers. 2022.*
10. a, b*UNFCCC. About the Santiago Network: United Nation Climate Change; 2024 [Available from: https://unf ccc.int/santiago-network/about].*
11. ^*Elmrayed S. Health topics for the COP28 agenda2023.*
12. ^*LSHTM. Climate change and planetary health: LSHTM at COP29: London School of Hygiene & Tropical M edicine; 2024 [Available from: https://www.lshtm.ac.uk/research/centres/centre-climate-change-and-plane tary-health/news/441796/lshtm-cop29-0].*
13. ^*WHO. Over 40 million health professionals demand bold health and climate action at COP28 2023 [Availa ble from: https://www.who.int/news/item/02-12-2023-over-40-million-health-professionals-demand-bold*

-health-and-climate-action-at-cop28].

14. ^coP28UAE. HEALTH, RELIEF, RECOVERY & PEACE DAY 2023 [Available from: https://www.cop28.com/en/health-relief-recovery-and-peace].
15. a, bWHO. Baku COP29 advances health-climate commitments with new coalition World Health Organizatio n2024 [Available from: https://www.who.int/news/item/18-11-2024-baku-cop29-advances-health-climate-commitments-with-new-coalition].
16. ^COP28. Over 120 countries back COP28 UAE Climate and Health Declaration delivering breakthrough mo ment for health in climate talks 2023 [Available from: https://www.cop28.com/en/news/2023/12/Health-De claration-delivering-breakthrough-moment-for-health-in-climate-talks].
17. ^WHO. Health at COP29: World Health Organization; 2024 [Available from: https://www.who.int/teams/env ironment-climate-change-and-health/climate-change-and-health/advocacy-partnerships/talks/health-at -cop29].
18. a, b, c, d, eWHO. COP29 SPECIAL REPORT ON CLIMATE CHANGE AND HEALTH: HEALTH IS THE ARGUMEN T FOR CLIMATE ACTION. 2024.
19. a, bAzerbaijan CB. Baku Initiative on Human Development for Climate Resilience 2024 [Available from: htt ps://cop29.az/en/pages/baku-initiative-on-human-development-for-climate-reslience-concept].
20. ^van Daalen KR, Wyma N, Schauer-Berg J, Blom IM, Mattijsen J, Othman R, et al. The global health commu nity at international climate change negotiations. BMJ Glob Health. 2024;9(4).
21. ^ColumbiaUniversity. Global Consortium on Climate and Health Education: Mailman School of Public Heal th; 2024 [Available from: https://www.publichealth.columbia.edu/research/programs/global-consortium-cli mate-health-education].
22. ^IAP. COP29: IAP Shares Expertise on Climate: InterAcademy Partnership; 2024 [Available from: https://ww w.interacademies.org/news/cop29-iap-shares-expertise-climate-education-and-health].
23. ^Arora M, Comrie AC, Ernst KEJFiPH. Assessing climate and health curriculum in graduate public health ed ucation in the United States. 2023;11:1124379.
24. ^CARE. Climate & Resilience Academy [Available from: https://careclimatechange.org/academy/].
25. ^ClimateFresk. 2024 [Available from: https://climatefresk.org/].
26. ^IFRC. Climate center Hague: Netherlands Red Cross [Available from: https://www.climatecentre.org/].
27. ^Gilbert MA. edX E-learning course development: Packt Publishing Ltd; 2015.
28. ^UNESCO. Climate change education at COP29. Baku, Azerbaijan2024.

29. ^UNESCO. Shaping a resilient future: GreeningEducation at the core of COP29. 2024.

30. ^CAREC. International climate education platform launched in Uzbekistan: Regional Environmental Centre for Central Asia; 2025 [Available from: https://centralasiaclimateportal.org/international-climate-education-platform-launched-in-uzbek/].

31. ^hub101.earth. hub101.earth is an online platform for capacity building and knowledge sharing in climate 2025 [Available from: https://hub101.earth/].

32. ^MEEPCC. Uzbekistan is implementing important initiatives in the field of climate change. 2024.

33. ^Leicester. Leicester delegation to bring environmental research insights to the heart of COP29. 2024.

34. ^Northwestern. Student Research Opportunity at COP29 in Baku, Azerbaijan. 2024.

35. ^UNU. UNU at COP29: United Nation University; 2024 [Available from: https://unu.edu/cop29].

36. ^PresidencyTeam C. Initiatives for COP29 Baku, Azarbaijan2024 [Available from: https://cop29.az/en/presidency/initiatives-for-cop29].

37. ^ENBEL. Connecting Health & climate change [Available from: https://www.enbel-project.eu/].

38. ^Climatexhealth. Act on Climate – Our Lives Depend on It A shared narrative for people and organizations urging joint action on climate and health 2024 [Available from: https://www.climatexhealth.org/narrative, https://www.climatexhealth.org/about, https://www.climatexhealth.org/small-grants].

39. ^Jain N. Climate X Health Challenge: A compendium of climate responsive solutions in public health. India: PATH; 2023. Available from: https://www.path.org/our-impact/media-center/join-the-climate-x-health-challenge/.

40. ^GCC. Climate x Health: Meet the innovators addressing the health impacts of climate change. 2024.

41. ^WHO. Country Commitments: Alliance for Transformative Action on Climate and Health (ATACH); 2024 [Available from: https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health/country-commitments, https://www.who.int/news-room/articles-detail/call-for-consultant--alliance-on-transformative-action-on-climate-and-health-(atach)].

42. a, bATACH. Healthy NDC Scorecard In: Organizaion (WHO) WH, editor.: THE GLOBAL CLIMATE & HEALTH ALLIANCE (ATACH); 2023

43. ^Xu Y, Ramanathan VJPotNAoS. Well below 2 C: Mitigation strategies for avoiding dangerous to catastrophic climate changes. 2017;114(39):10315-23.

44. ^ATACH. Healthy NDC Scorecard: As 'Health COP' Approaches, Analysis Shows Big Emitting Nations Doing Too Little to Protect Health from Climate Change: Alliance for Global Climate and Health (ATACH) 2023 [A

vailable from: https://climateandhealthalliance.org/press-releases/healthy-ndc-scorecard-as-health-cop-approaches-analysis-shows-big-emitting-nations-doing-too-little-to-protect-health-from-climate-change/].

45. ^*UNIDO. Burundi country and economy profiles: Competitive Industrial Performance Index 2023. In: (UNIDO) UNIDO, editor. 2023.*
46. ^*statista. Burundi: Share of economic sectors in the gross domestic product (GDP) from 2012 to 2022 2024 [Available from: https://www.statista.com/statistics/451426/share-of-economic-sectors-in-the-gdp-in-burundi/#:~:text=In%202022%2C%20the%20share%20of, sector%20contributed%20about%2045.37%20percent].*
47. ^*IFRC. Global Climate Resilience Platform [Available from: https://www.ifrc.org/our-work/disasters-climate-and-crises/climate-smart-disaster-risk-reduction/climate-platform].*
48. ^*Duncan Clark, Houston R. Carbon Map: World Bank's Apps for Climate competition; [Available from: https://www.carbonmap.org/].*
49. ^*Glantz MH, Pierce GJA. For the Record: Second Thoughts on Early Warning, Early Action (EWEA), EW4All, or EWEA4All? 2023;14(11):1631.*
50. ^*GeSI. GeSI at COP29: Transformative Solutions and Path Forward for Digital. In: Initiative GES, editor. 2025.*
51. ^*Mantri M, Sunder G, Kadam S, Abhyankar A. A perspective on digital health platform design and its implementation at national level. Front Digit Health. 2024;6:1260855.*

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