The Lancet Countdown 2025



Indicator 1.1.5: Failure to curb the warming effects of climate change has seen the rate of heat-related deaths surge 23% since the 1990s, to 546,000 a year.

Indicator 4.3.4: Financial support for adaptation lags far behind disclosed needs, leaving populations under protected as the world remains on track for 2.7°C of warming by 2100.

Indicator 3.1.1: Modern renewables now account for a record-high 12.1% of global electricity, with clean energy driving 10% of global GDP growth in 2023.

Romanello M, Walawender M, Hsu S-C, et al. The 2025 report of the Lancet Countdown on health and climate change. Lancet 2025; published online Oct 29. https://doi.org/10.1016/S0140-6736(25)01919-1.

Urgent call to action: “All hands on deck”

The science is unequivocal. Concrete and meaningful actions are urgently needed to protect the world’s populations from the climatic changes that have now become unavoidable, and to prevent an increase of climate change threats that exceeds the possibilities of adaptation.

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Romanello M, Walawender M, Hsu S-C, et al. The 2025 report of the Lancet Countdown on health and climate change. Lancet 2025; published online Oct 29. https://doi.org/10.1016/S0140-6736(25)01919-1.

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Physics for Climate Change Action
and Sustainable Development

2024 • 2033
International Decade of
Sciences for Sustainable
Development

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COALITION

Background

➢**The purpose of the WG**

is to promote and grow the unique role that physics is,
and should be,
playing in climate change action and sustainable development.



Marcelo Barreiro
Uruguay



Nithaya Chetty
South Africa



Igle Gledhill
South Africa



HyunJung Lee
Korea



Morgan O'Neill
Canada



Ram Prasad Regmi
Nepal



Jon Samseth
Norway/SCOPE



Jean-Louis Scartezzini
Switzerland



Tomás Sintes,
Spain



Gry Merete Tveten, Norway



Awnesh Singh
Fiji

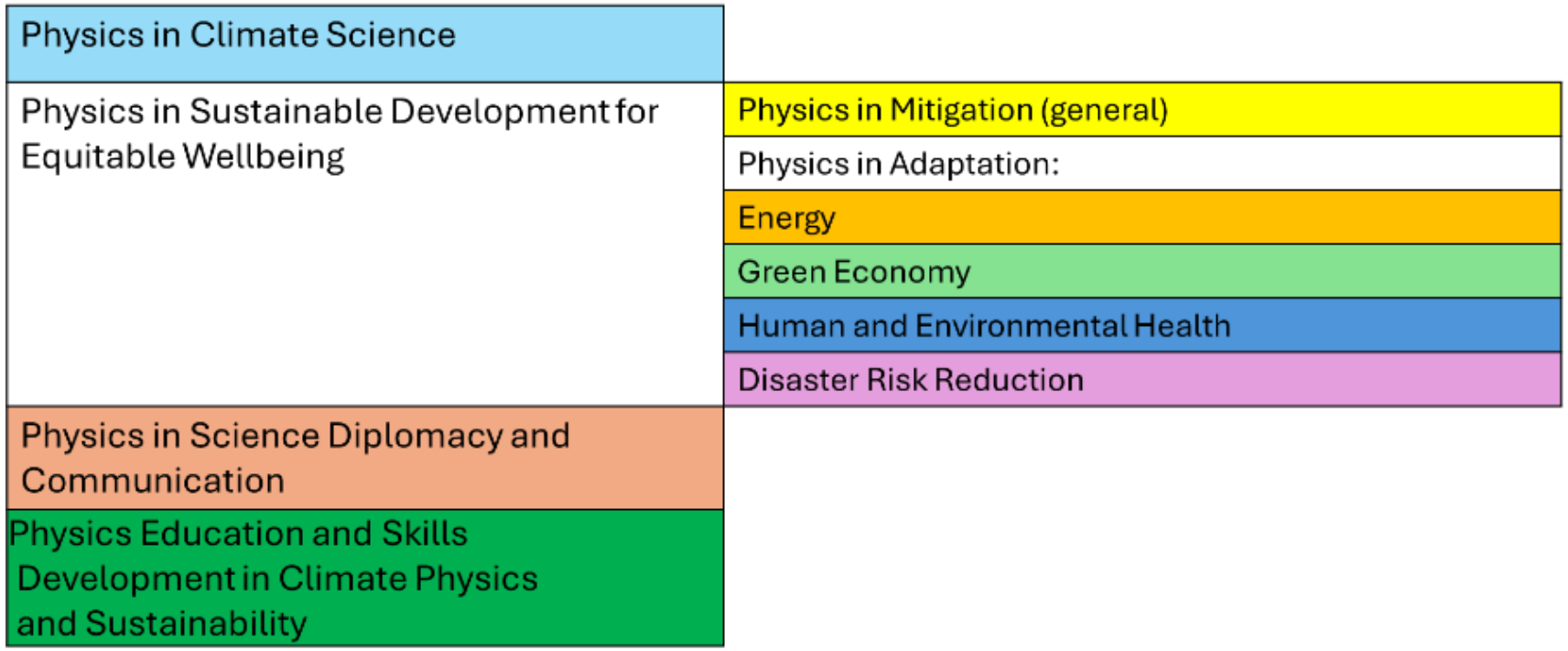
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WG21: disentangling a complex field



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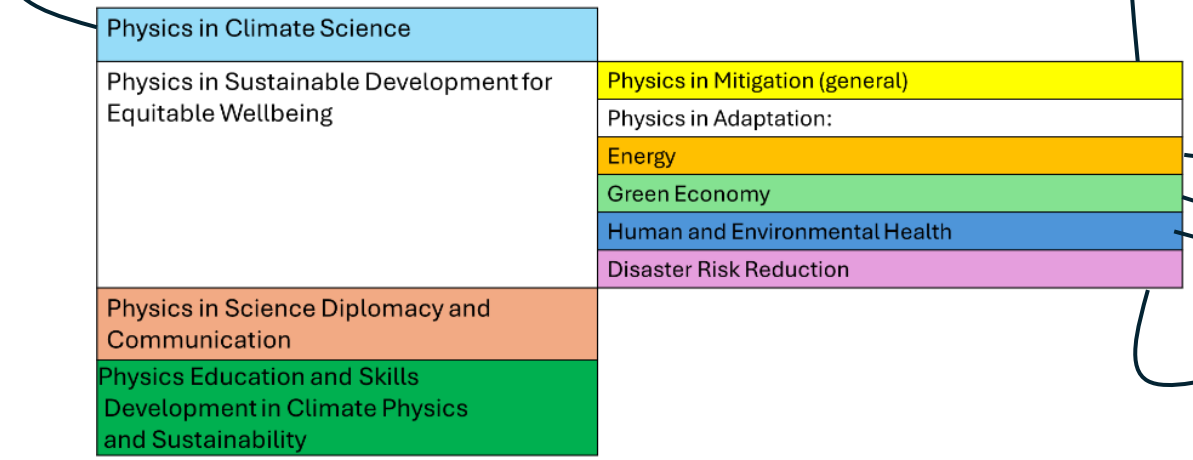
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WG21: examples are not always obvious

Nobel Prizes in Physics 2021: Ising networks, stochastic forcing in complex systems



integrated mobile sensor systems

transmission network stability
Superconductors

low-cost cold chains
financial sector stability

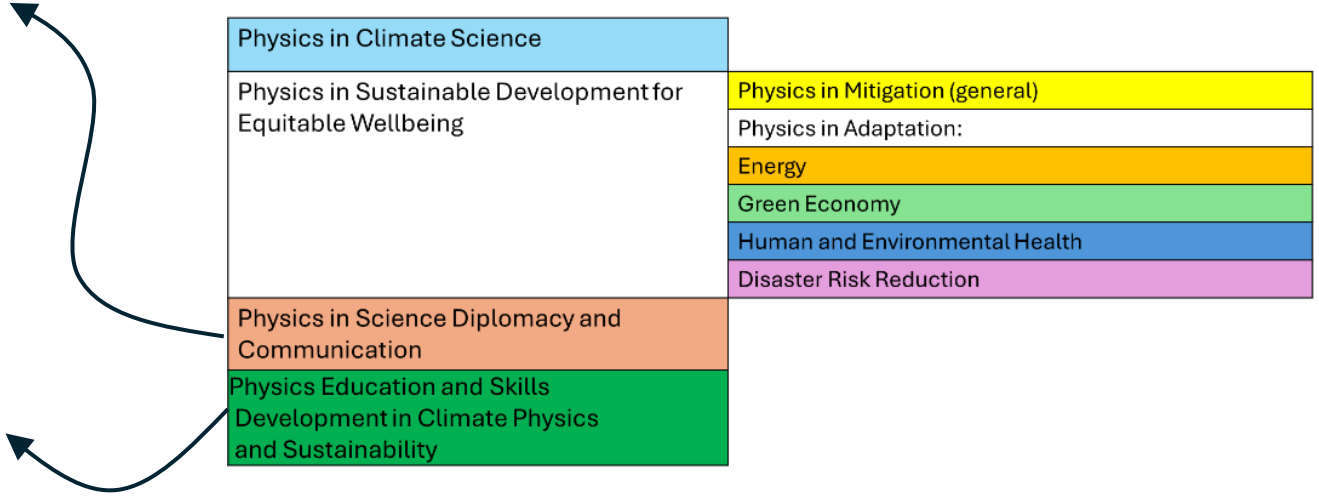
DFT, synchrotrons in vaccine design

Earth Observation, wildfire early warning, soil sensors

WG21: illustrative examples

Policy
Climate finance
Community interaction
Understanding and practice of communication
The future of humanity

Critical thinking
Climate change and women
Entrepreneurial thinking



Crisis-related events

- 2024 Inter-Commission Symposium
  - Prof Giorgio Parisi
- 2025 Pacific Island Nations Physics week
  - UNESCO-IUPAP Entrepreneurship
  - IUPAP-UNESCO Pasifika Physics Summit
- IDSSD themed IUPAP-UNESCO colloquia
- 2027 International Conference on Physics:
  - Physics for sustainable development of a healthy, lively planet



IUPAP-UNESCO Physics Summit



UNESCO-IUPAP Entrepreneurship



Artika Devi, UNESCO Pacific



Representative from Tonga formally welcomes Minister the Honourable Aseri Radrodro

Image credits Artika Devi

Historic times: IUPAP's new directions matter

- IUPAP has multidisciplinary relations
  - ISC; COSPAR, IUGS, IUGG, IUPAC, IMU, IUBS,....
  - IUPAP has transdisciplinary experience
    - Women in Physics, the Gender Gap in Science Project
- Evolve as an essential transdisciplinary partner

- AND:
- Deep impact comes from pure physics
- Foundational physics is essential!

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