



Final Statement of the Workshop on Resilience of People and Ecosystems Under Climate Stress



The Climate Challenge: A Grave Danger. The continued emissions of heat trapping gases at record levels have transformed climate change into climate disruption. Poor and vulnerable populations (about 4 billion) are at the receiving end of the devastation despite their low emissions (only 15%). World food and water security is seriously threatened, partly due to climate disruption. The northern hemisphere has witnessed a six-fold increase in large heatwaves since the 1980s, and such weather extremes have adversely impacted 4 billion people since the 1990s, posing grave threats to ecosystem health and public health, including mental health. In about ten years, the heating of the planet's surface is projected to amplify by about 50% to 1.5°C, followed by more heating beyond. The proportional intensification of climate extremes along with the crossing of natural and social tipping points will strike rich and poor. Mass displacements and migrations of people could pose political instabilities. Since such changes are irreversible for centuries, generations unborn will suffer. A full-blown climate crisis is likely by early 2030s.

Climate Resilience: A New Approach. The Pontifical Academy of Sciences, prompted by grave concerns about the climate crisis in the Anthropocene, convened a meeting during July 13-14, 2022 to recommend steps to forestall the crisis. The attendees viewed human-nature interactions through a triplet of interlinked crises: Climate, Biodiversity, and Inequality. The consensus was: *it is too late to rely just on mitigation. Adaptation to climate risks is overdue and must become a central theme of climate actions. A global effort to build climate resilience is needed, and the following recommendations placed on the agenda of COP27 and beyond.*

Recommendations:

Resilience building must rest on three pillars: Mitigation, Adaptation & Transformation.

Mitigation: *Reduce climate risks*

1) *Bending the warming curve down:* Bend and flatten the warming curve below 2°C before 2050 and bend it further below to 1.5°C before 2100, through deep cuts in emissions of CO₂ and other heat-trapping pollutants; and extraction of at least a third of the 1.2 trillion tons of CO₂ from the atmosphere. The wealthy billion must drastically reduce their emissions and provide financial/technological assistance to the vulnerable 4 billion people to enhance their adaptive capacity and to build their resilience.

2) *Nature-based solutions:* Include nature-based climate solutions for emission reductions, that bring in oceans, mangroves, agroforestry, working farmlands and forests. These solutions also provide adaptation benefits and offer powerful options for addressing biodiversity and inequality with huge co-benefits for health of people and ecosystem.

Adaptation: *Reduce exposure and vulnerability to unavoidable climate risks.*

Exposure & vulnerability reduction has three faces: Reductions in sensitivity to climate change; Reductions in risk exposure; & enhancement of adaptive capacity. There are limits to adaptation and hence adaptation has to be integrated with mitigation actions to avoid crossing the limits. Furthermore, isolated adaptation actions might inadvertently result in maladaptation, which can be avoided by an integrated resilience approach and choosing those actions with co-benefits to biodiversity.

3) *Inequality:* Initiate a major effort to help the poor and vulnerable four billion to adapt to climate risks now. Affordable access to clean energy, water, health care, sustainable farming and resilient infrastructures must be part of the milestones. It is, moreover, critical to develop novel legal instruments for the protection of people displaced by anthropogenic global warming. One important step forward would be the introduction of a “Climate Passport” to enable self-determined and dignified survival migration of individuals in response to severe climate impacts. This instrument could be modeled after the legendary “Nansen Passport”, which was eventually accepted by more than fifty states. It guaranteed legal residence for displaced persons in the aftermath of World War I and allowed them to work in their host countries.

4) *Governance:* Solutions should be locally and nationally determined actions. Coordinate the available resources at various levels of government with the local actions.

5) *Food & water security:* Worldwide scaling up of the following are required: sustainable land and

soil management, forest protection and agroforestry, advanced plant breeding, social protection with nutrition components, water use efficiency in farming, and access to clean drinking water and sanitation. Water security, already threatened perceptibly by global warming and related weather extremes, needs to become a visible element of climate change negotiations. A concerted effort is required to reduce food waste and excessive meat consumption.

6) *Construction and housing*: Transform settlements into carbon banks by prioritizing organic building materials in support of sustainable bio-economy and circularity through multiple material reuse, including such homes which transform today's slum areas.

7) *Regional hotspots*: Special attention must be given to regional hotspots for climate stress: Amazon, Small Island nations, Drylands of Africa, Southern Africa, Mediterranean, Middle East, South Asia, NE China and South-West USA.

Transformation: *Change of lifestyle, transformation of society and ecosystems, to mitigate, adapt and bounce back.* This transformation is akin to an ecological conversion (Pope Francis' statement) and must integrate actions on the triplet of crises: climate, biodiversity, and inequality.

8) Transformation of economic systems and societies by moving swiftly to renewable energy systems, applying incentives such as carbon pricing and regulations for reducing demand for emission-intensive goods, including policies that account for the values of nature and take us on a path of stewardship and restoration of Nature. We must also recognize the obligations of wealthy societies providing technological and financial assistance to the less wealthy, and of all societies to pursue scientifically and environmentally informed economic development.

9) Behavioral change of people, communities, and business is needed to achieve the transformation. A major new global initiative is required for mass education of everyone, from children to senior citizens, in ecological citizenship (*Laudato Si'*, para 211) and on sustainable living. Public, civil society and faith-based communities of all world religions can productively engage in this moral task.

10) The above recommendations require a major engagement of science. Science must assist in prioritization of evidence-based actions without losing focus on equity issues. The analyses of solutions must include the modeling of two-way natural/social systems interactions to achieve a transformational improvement in the predictive power of climate trajectories.

Faith and science can form trans-disciplinary alliances to deliver the requisite mobilization of public support for climate actions. Such alliances are feasible because protection of all of creation is the stated goal of all faiths. The Pontifical Academy of Sciences has been nurturing such alliances through series of meetings on climate change and sustainability for over two decades.

It is within our reach to become better stewards of the planet and make people and ecosystem bounce back from the multiple environmental crises to a safer, healthier, and sustainable world.

For an extended version of this Declaration, please download the [PDF](#).