



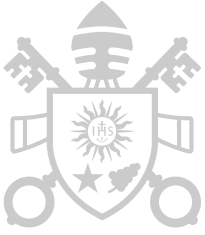
THE PONTIFICAL ACADEMY OF SCIENCES

*Conference on*

# **RESILIENCE OF PEOPLE AND ECOSYSTEMS UNDER CLIMATE STRESS**



**13-14 July 2022 | Casina Pio IV | Vatican City**



*Beginning in the middle of the last century and overcoming many difficulties, there has been a growing conviction that our planet is a homeland and that humanity is one people living in a common home. An interdependent world not only makes us more conscious of the negative effects of certain lifestyles and models of production and consumption which affect us all; more importantly, it motivates us to ensure that solutions are proposed from a global perspective, and not simply to defend the interests of a few countries. Interdependence obliges us to think of one world with a common plan. Yet the same ingenuity which has brought about enormous technological progress has so far proved incapable of finding effective ways of dealing with grave environmental and social problems worldwide. A global consensus is essential for confronting the deeper problems, which cannot be resolved by unilateral actions on the part of individual countries. Such a consensus could lead, for example, to planning a sustainable and diversified agriculture, developing renewable and less polluting forms of energy, encouraging a more efficient use of energy, promoting a better management of marine and forest resources, and ensuring universal access to drinking water.*

Pope Francis, Encyclical Letter *Laudato si'*, 164.

# Overview

*A new initiative by the Pontifical Academy of Sciences to bring researchers, policy makers and faith leaders together to understand the scientific and societal challenges of climate change and develop solutions for enabling resilient people and resilient ecosystems.*

We can no longer take comfort in just relying on climate mitigation. Adaptation to current weather extremes and related climate risks are upon us and should be considered as a central theme in climate policy actions. While we note that the field of climate resilience<sup>1</sup>, brings mitigation and adaptation under one common framework, this workshop has a focus on adaptation challenges, which are confronting the entire world population, but particularly the poorer segments of countries and societies. Our goal for this new PAS initiative is to bring resilience to center stage of climate summits and protect people and ecosystem from unavoidable climate extremes in the coming decades and to foster justice and the crucial good that is peace. One of our central concerns is the welfare of vulnerable populations, almost three billion, in the world.

Our approach is to acknowledge the multiple intersecting crises facing humanity: Climate Crisis, Biodiversity and Equity. While the primary focus is on the climate crisis, we will look for opportunities where addressing one benefits the other two crises. Following this guideline, our discussion of solutions will broaden the current focus on technology and include nature-based climate solutions that bring in oceans, mangroves, working lands and forests, which by de facto will address the diversity and equity crises, as well as solutions with institutional innovations. In short, the primary focus will be on the two-way coupling between natural systems and social systems. Any approach to resilience building, must recognize the fact that it could take three to five decades to bend the global warming curve, and that climate will be changing from one decade to the next during this period without any norms.

## Scope

We are organizing a workshop for scientists in natural sciences, social sciences and humanities. The workshop will be organized around two major themes of resilience,

with the first being more briefly covered, while the main focus is on the second theme:

I. The likely climate change risks and trajectories: Under this theme we will consider: Tradeoffs between social, economic and environment goals; unavoidable climate changes, disruptions, risks and threats. Distinguish between risks that are tolerable and acceptable from those which are intolerable

II. Adaptation to Climate Risks and Threats. The topics that will be highlighted are: Public Health including mental health; food and nutrition security; water and energy security; Climate refugees and mass migration; Urban and Rural resilience, including land use plans and protection of critical public assets and services; Coastal populations with emphasis on small island nations. Climate proofing critical infrastructure; financial and fiscal risks including climate financing for the vulnerable populations.

## Workshop Logistics

2-day in-person workshop at the Vatican from 13 July to 14 July.

14 July evening: Planning committee meets for dinner to discuss next steps.

## Outcome

A conference declaration and a conference proceeding published by the Pontifical Academy of Sciences. The proceedings will contain the declaration and written summaries of the papers presented at the workshop.

Workshop speakers should submit their written summaries of the paper by 2 July. The summaries should be 2500 words or less with maximum of 5 figures and maximum of 25 supporting references or citations.

*Planning Committee: Joachim von Braun (President, PAS), Mohamed H.A. Hassan, Jane Lubchenco, Veerabhadran Ramanathan (Chair), Hans Joachim Schellnhuber, Susan Solomon, Marcelo Sánchez Sorondo (past Chancellor, PAS), Stefano Zamagni (President, PASS)*

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<sup>1</sup> We adopt the IPCC definition for resilience as "the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity of self-organization, and the capacity to adapt to stress and change".


# Agenda\*

## DAY 1 WEDNESDAY 13 JULY 2022

### Opening Session

**8:30** *Opening Remarks*  
President **Joachim von Braun** & Chancellor **H.Em. Card. Peter K.A. Turkson**

### I. Setting the Scene (Chair: Joachim von Braun)

**8:45** *Climate Resilience: Why, When and How?*  
**Veerabhadran Ramanathan** (PAS; University of California, San Diego & Cornell University, USA)  by Zoom

**9:10** *The Limits to Regional & Global Resilience*  
**Hans Joachim Schellnhuber** (PAS; PIK- Potsdam, Germany)

**9:35** Open Discussion

**10:00** Coffee Break

### II. Global Context and Priorities for Resilience (Chair: Chancellor, Cardinal Peter Turkson)

**10:30** *Practical Options for Mitigation*  
**Susan Solomon** (PAS; MIT, USA)

**10:55** *Economic Options for Transformation & Resilience*  
**Stefano Zamagni** (PASS; University of Bologna, Italy)

**11:20** *Harmony Between Economy, Environment & Society*  
**Mohan Munasinghe** (Munasinghe Institute for Development, Sri Lanka)  by Zoom


**11:45** *Resilience as Development of the Real Potential of Nature and Scientific Discovery*  
**H.E. Msgr. Marcelo Sánchez Sorondo** (Vatican)

**12:10** Open Discussion

**12:50** Lunch

### III. Cry of the Poor and the Youth (Chair: Stefano Zamagni)

**14:05** *Ethical Moral Dimensions of Resilience*  
**Jostrom I. Kureethadam** (Salesian Pontifical University, Rome, Italy)

**14:30** *Youth Perspectives*  
**Gabriela May Lagunes** (Graduate Student, Master of Information and Data Science, School of Information, University of California, Berkeley, USA)  by Zoom

**14:55** *Adaptation Science for Least Developed Countries*  
**Joyce Kimutai** (IPCC & African climate Development Initiative, South Africa)

**15:20** Open Discussion


**15:50** Coffee Break

\* Talks should be limited to 18 minutes, in order to leave 7 minutes for Q&A.

IV. Regional to Local Resilience Building (Chair: Susan Solomon)	
16:10	<i>Climate Change Adaptation Policies and Strategies in Africa</i> <b>Mohamed H.A. Hassan</b> (PAS; Sudanese National Academy of Sciences, Sudan)
16:35	<i>Ecological Environment Management in China</i> <b>Weijian Zhou</b> (Chinese Academy of Sciences, China)  by Zoom
17:00	<i>Ending Energy Poverty</i> <b>Robert Stoner</b> (MIT, USA)
17:25	<i>People-based solutions for resilience to climate change in the Amazon</i> <b>Virgilio M. Viana</b> (PASS; Amazonas Sustainability Foundation, Brazil)
17:50	<i>Climate Action to Protect and Promote Health: Sharing Knowledge Among Regions for Adaptation Solutions</i> <b>Robin Fears</b> (Inter Academy Partnership, UK)
18:15	Open Discussion
18:45	Dinner

DAY 2 THURSDAY 14 JULY 2022	
V. Building Adaptive Capacity for Humanity (Chair: Joyce Kimutai)	
8:30	<i>Nature-Based Solutions for the Built Environment</i> <b>Barbara Widera</b> (Wroclaw University of Science and Technology, Poland)
8:55	<i>Resilient Food Systems</i> <b>Joachim von Braun</b> (PAS; Bonn University, Germany) and <b>Alisher Mirzabaev</b> (Bonn University, Germany)
9:20	<i>Resilient Water Access</i> <b>Aditi Mukherji</b> (Intl Water Management Inst; India; IPCC AR6)
9:45	<i>Agroforestry for Resilience of People and Ecosystems</i> <b>Aster Gebrekirstos Afwork</b> (World Agroforestry, Kenya)
10:10	Open Discussion
10:40	Coffee Break
VI. Building Institutions (Chair: Jane Lubchenco)	
11:10	<i>Adaptation in Drylands Africa</i> <b>Cheikh Mbow</b> (Centre de Suivi Ecologique, Dakar, Senegal)
11:35	<i>Economic &amp; Financial Institutions for a Just Future: Stockholm-50</i> <b>Victor Galaz</b> (SRC, Stockholm University, Sweden)
12:00	<i>New Economic Lessons on Resilience Learned from COVID</i> <b>Clara Latini</b> (Sustainable Development Solutions Network Youth, Paris, France)
12:25	<i>Climate Migration in Dignity</i> <b>Kira Vinke</b> (GDAP, Germany)  by Zoom



12:50	Open Discussion
13:10	Lunch
<b>VII. Closing Session: Way Forward (Chair: Veerabhadran Ramanathan)</b>	
14:30	<i>Triple Challenges of Bio-diversity, Climate and Inequality</i> <b>Jane Lubchenco</b> (PAS; Oregon State University; and White House Office of Science and Technology Policy, USA)  by Zoom
14:55	Bringing it together on action agendas serving people and ecology. The science agenda for climate resilience; Key elements of a statement (with some focus on COP27 and beyond)
15:45-15:55	<i>Closing Remarks</i> <b>Joachim von Braun</b> (PAS President)

## List of Participants

### Aster Gebrekirstos AFWORK

*World Agroforestry, Kenya*

### Joachim VON BRAUN

*PAS President; Bonn University, Germany*

### Robin FEARS

*Inter Academy Partnership; UK*

### Victor GALAZ

*SRC, Stockholm University, Sweden*

### Mohamed H.A. HASSAN

*PAS; SNAS, Sudanese National Academy of Sciences, Sudan*

### Joyce KIMUTAI

*IPCC  $\in$  African climate Development Initiative, South Africa*

### Joshtrom KUREETHADAM

*Salesian Pontifical University, Vatican*

### Clara LATINI

*Sustainable Development Solutions Network Youth, Paris, France*

### Jane LUBCHENCO by Zoom

*PAS; Oregon State University; and White House Office of Science and Technology Policy, USA*

### Gabriela MAY LAGUNES by Zoom

*Graduate Student, Master of Information and Data Science, School of Information, University of California, Berkeley, USA*

### Cheikh MBOW

*Centre de Suivi Ecologique, Dakar, Senegal*

### Alisher MIRZABAEV

*Bonn University, Germany*

### Aditi MUKHERJI

*Intl Water Management Inst; India; IPCC AR6*

### Mohan MUNASINGHE by Zoom

*Munasinghe Institute for Development, Sri Lanka*

### Veerabhadran RAMANATHAN by Zoom

*PAS; University of California at San Diego & Cornell Univ, USA*

### H.E. Msgr. Marcelo SÁNCHEZ SORONDO

*Vatican City*

### John SCHELLNHUBER

*PAS; PIK- Potsdam, Germany*

### Laurent SIMONS

*University of Antwerp, Belgium*

### Susan SOLOMON

*PAS; MIT, USA*

### Robert STONER

*Founding Director, Tata Center for Technology and Design, Deputy Director for Science and Technology, MIT Energy Initiative, USA*

### H.Em. Card. Peter K.A. TURKSON

*PAS Chancellor*

### Virgilio M. VIANA

*PASS; Amazonas Sustainability Foundation, Brazil*

### Kira VINKE by Zoom

*GDAP, Germany*

### Barbara WIDERA

*Wrocław University of Science and Technology, Poland*

### Stefano ZAMAGNI

*PASS President; University of Bologna, Italy*

### Weijian ZHOU by Zoom

*Chinese Academy of Sciences, China*

## Logistics

### IN-PERSON ATTENDANCE

**Dress Code** is formal business attire.

**Food:** We will provide coffee breaks, lunch and dinner on 13 July, and a coffee break and lunch on 14 July. If you have any food allergies or dietary requirements, please let us know in advance.

**Covid restrictions:** In-person participants will be required to follow all testing and travel protocols. Travel insurance that covers any extra accommodation expenses in the event of a mandatory quarantine is mandatory. Please continue to refer to government pages and <https://tinyurl.com/2p98p266> to understand evolving travel requirements.

The Vatican requires proof of full vaccination/Covid passport for entry.

During the workshop, participants are kindly requested to keep their FFP2/KN95 masks on indoors, except when giving their speech and during coffee breaks and meals.

Should you require tests for your return journey, there are a number of pharmacies just outside the Vatican walls where both PCR and rapid tests can be done without an appointment.

**Security:** invites are strictly personal. Please remember to bring a valid ID.

### VIRTUAL ATTENDANCE

A Zoom link will be sent to virtual participants before the event, with the request not to share it with external parties.

### FOR MORE INFORMATION

Please refer to [www.pas.va](http://www.pas.va) and [www.pass.va](http://www.pass.va) for further information on the Academies, the Academicians, and current and past events.

You can also view previous PAS workshops on the Casina Pio IV YouTube channel: [www.youtube.com/c/CasinaPioIV](http://www.youtube.com/c/CasinaPioIV)

## Memorandum

### 13 July 2022

A bus will leave the Domus Sanctae Marthae at 8.15 a.m. to accompany participants to the Casina Pio IV, where the meeting will start at 8.30 a.m.

After dinner, at 20.00 p.m. the same bus will take you back to your hotel.

### 14 July 2022

A bus will leave the Domus Sanctae Marthae at 8.15 a.m. to accompany participants to the Casina Pio IV, where the meeting will start at 8.30 a.m.

At 16.00 p.m. the bus will take you back to your hotel.

**Chiesa di Santo Stefano degli Abissini**  
*St Stephen of the Abyssinians Church*

**Ingresso del Perugino**  
*The 'Perugino' gate*

**Domus Sanctae Marthae**

**Altare Tomba S. Pietro**  
*Altar of St Peter's Tomb*

**Ingresso Sant'Uffizio**  
*The 'Sant'Uffizio' gate*

**Sede della Pontificia Accademia delle Scienze**  
*Seat of the Pontifical Academy of Sciences*  
**(Casina Pio IV)**



**Ingresso Musei Vaticani**  
*Entrance gate to the Vatican Museum*

**Ingresso Sant'Anna**  
*The 'Sant'Anna' gate*

**Wi-Fi Network:** Academy-Guest  
**Password:** G@rdens1936

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