

2023
ANNUAL REPORT

7

Enhancing climate research for climate policy

Enhancing climate research for climate policy

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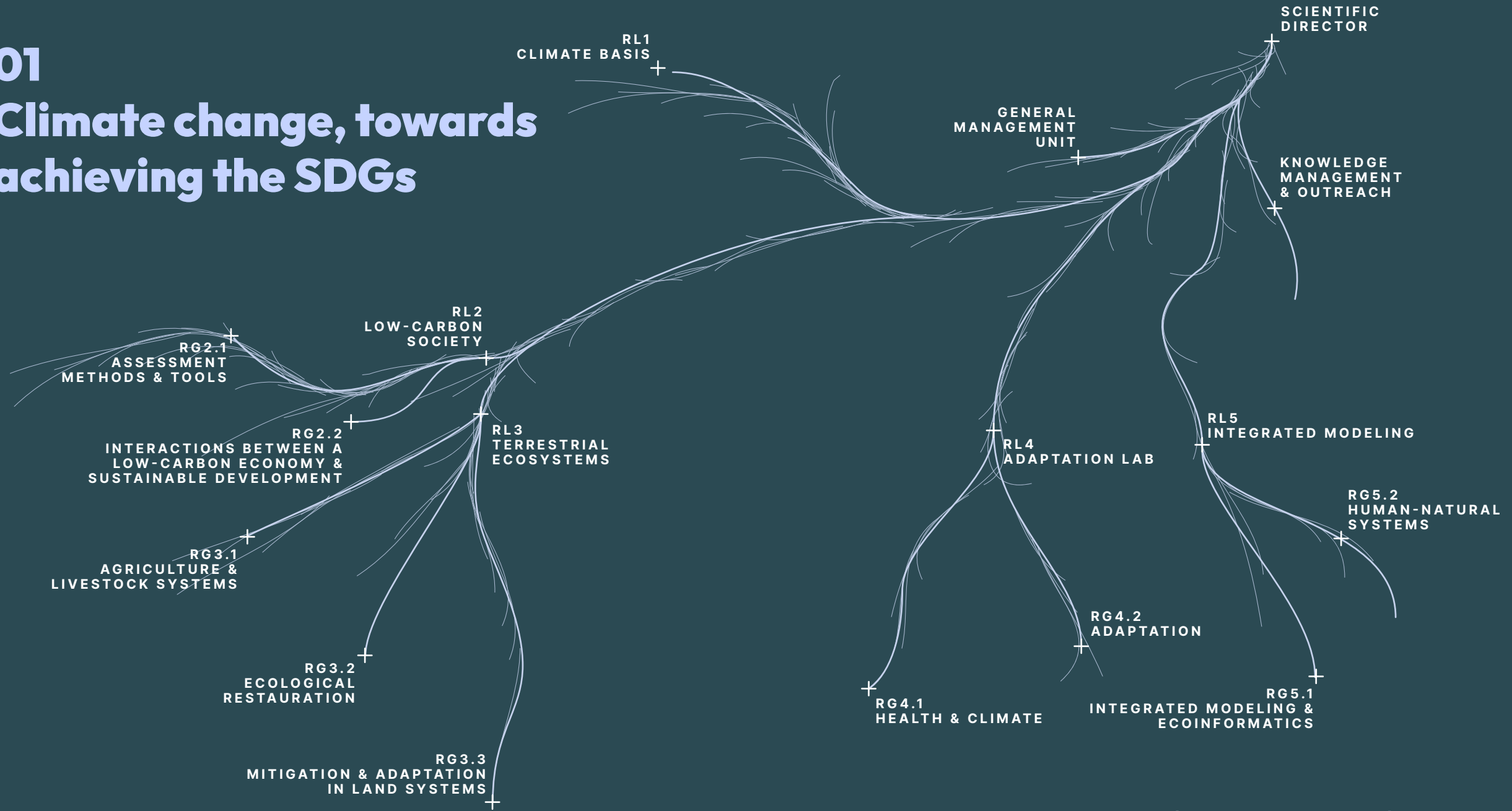
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01 Climate change, towards achieving the SDGs



HOW TO READ:

+ RL: RESEARCH LINE
 + RG: RESEARCH GROUP

Visualize our organizational structure through a river streams illustration, showcasing how our research is structured into distinct lines and groups, at the heart of our initiatives.

Who we are

The Basque Centre for Climate Change (BC3) is an **international and multidisciplinary** research institution. Founded in 2008 by the Basque Government, it belongs to the Basque Research Centres of Excellence (BERC) network. It brings more than 120 researchers from 18 different countries and different fields of knowledge.

What we do

Through **transdisciplinary and participatory** approaches, BC3 contributes to the testing and demonstration of scalable solutions for adapting and mitigating climate change and promoting sustainable development in collaboration with over 170 international organisations and research centres in more than 60 countries.

Since BC3's creation, we have sought to be a cutting-edge and motivating centre from which researchers can continue **co-creating scientific knowledge, tools and methodologies** with stakeholders to better understand and address the on the causes and impacts of climate change and

contributing to design solutions for addressing one of the biggest challenges modern humans have ever faced. Together with our funders and partners, we harness climate research to accelerate the transition to a resilient and net-zero emissions society, aiming to limit warming to 1.5°C and secure better-informed climate policy-making by 2050. We strive to make **knowledge integration** around climate research stronger, faster, and smarter, contributing to a sustainable, decarbonized, resilient, prosperous and inclusive future.

To execute our mission, we pursue **six strategic objectives** to fulfil the challenges and demands that addressing climate change requires in a post-Paris Agreement era while moving towards the achievement of the 2030 SDGs.

Our values

In pursuing our mission we rely on excellence in long-term research and transdisciplinary, operations, and management. We prioritise collaboration and active participation in international research networks, while also fostering close cooperation with all interest stakeholder groups, reflecting our transdisciplinary approach.

We are committed to respecting people by developing highly qualified teams with differentiated responsibilities based on **equity**, promoting **equality**, and creating an **attractive work environment**. We aim to promote through the creation and transfer of knowledge that could be used to enhance citizens' standards of living incorporating societal inputs into our research.

Integrity is at the core of our actions, as we adhere to the highest ethical standards and promote transparency and sustainability in our governance and operations. Additionally, we support our members' research initiatives by ensuring **sustainable work conditions**.

Fifteen years of climate research together

This Annual Report marks 15 years of BC3's support to the climate community. Explore our anniversary timeline to see **key milestones** and achievements that have shaped our journey since 2008. Discover how we've grown from a pioneering research centre to a global leader in climate action, driving knowledge, tools, new methodologies and fostering cross-cutting proposals that make a lasting impact. Thank you for being part of our mission to create a sustainable future.



- BC3 milestone
- Key event
- Key publication
- Key partnership
- Climate milestone



2008
Founding of the Basque Centre for Climate Change (BC3) by the Basque Government and the University of the Basque Country

The Basque Centre for Climate Change (BC3) was founded in 2008 by the Basque Government and the University of the Basque Country.

2008
Anil Markandya is appointed as scientific director of the Centre

2009
The first Basque Research Centres of Excellence (BERC) program is launched from 2009 to 2012

BC3 becomes part of the Programme as a centre of excellence.

2010
BC3's headquarters are relocated within Bilbao

2012
I Workshop on mitigation of GHG emissions from the Spanish Agroforestry sector, Bilbao, Spain

The REMEDIA Network is created with the leadership of BC3 as the first Network of Scientists in Spain and Portugal focusing on climate change mitigation in the Agriculture, Land Use and Forest sectors.

2014
International Livestock Modelling and Research Colloquium MACSUR (LiveM) 14-16 October in Bilbao, Spain

Workshop organised by BC3 in the context of the MACSUR project.

2015
BC3 is recognized by the European Commission with the 'HR Excellence in Research Award'

As a recognition of its alignment with the 40 principles of the HR Charter & Code.

2015
Breakthrough for the future of climate action with the Paris Agreement adoption

BC3 has been a key contributor through its extensive climate policy research and international collaborations.

2016
BC3 moves its headquarters from Bilbao to Leioa

2016
María José Sanz, new scientific director of BC3 after Anil Markandya

2018
BC3 receives the "Maria de Maeztu" accreditation of excellence by the National Research Agency, for the first time

Being awarded a "Maria de Maeztu Excellence Unit", a competitive excellence grant by the Spanish Government, a recognition of scientific research excellence that includes an annual

2018
BC3 starts the implementation of the 3rd BERC Strategic Plan, based on six strategic

new premises in the Scientific Park of Leioa

2019
BC3 starts working in Africa (Senegal) for the first time

BC3 collaborates with local partners within the framework of a climate project financed by the Basque Cooperation Agency, as part of the

2019
The Ararteco (Ombudsman) presents its annual report to the Basque Parliament, this time dedicated to the energy transition. The study was co-developed by BC3

For this, interviews were conducted with the main institutions and experts

2019
BC3 as main coordinator and lead author of the IPCC: 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories

The aim is to provide an updated and sound scientific basis for supporting the preparation and continuous improvement of national GHG

*Continue reading on the next pages. This section is based on a poster, which you can download here.

More than 190 experts met in Bilbao to work on a new Methodology Report to update the guidelines Parties to the UNFCCC use for estimating greenhouse gas emissions

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2016
María José Sanz, new scientific director of BC3 after Anil Markandya

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BC3 hosts the first lead author meeting for the 2019 Refinement to the IPCC Guidelines for National Greenhouse Gas Inventories in Bilbao

More than 190 experts met in Bilbao to work on a new Methodology Report to update the guidelines Parties to the UNFCCC use for estimating greenhouse gas emissions and removals, bringing them into line with the new requirements of the 2015 Paris Agreement.

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Being awarded a "María de Maeztu Excellence Unit", a competitive excellence grant by the Spanish Government, accreditation is a recognition of scientific research excellence that includes an annual funding for 4 years.

2018
BC3 starts the implementation of the 3rd BERC Strategic Plan, based on six strategic objectives, moving to new premises in the Scientific Park of Leioa

2021
BC3 becomes a member of Think Sustainable Europe

Launched in 2019, Think Sustainable Europe is the network of European sustainability think tanks. BC3 joins the coalition of leading institutes across Europe to collectively offer a space for discovering transdisciplinary and more coherent solutions for the environmental and socio-economic challenges and for promoting transformative changes that the EU and its Member States are facing.

2021
The Spanish Government sends to the European Commission the National Energy and Climate Plan (NECP) 2021-2030, along with an economic and social impact study prepared by BC3

2021
BC3 presents the Observatory of Energy

2021

2016
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BC3 collaborates with local partners within the framework of a cooperation project financed by the Basque Cooperation Agency, as part of the Governadapt Project, spanning from 2019 to 2023.

2020
BC3 and the Basque Foundation for Science Ikerbasque signed an agreement to participate in the Basque Government's IKUR 2030 Strategy program

IKUR 2030 is the Basque Strategy for Ikur 2030 was created to strengthen the scientific output of the Basque Country and achieve an international position in specific niches.

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For this, interviews were conducted with the main institutions and experts of the Basque Country.

2020
Opening of the LurLab ('Soil' lab) laboratory for experimental work on understanding the vulnerability of terrestrial ecosystems to climate change

2020
BC3 and the Department for Environment of the Basque Government sign a four-year collaboration agreement to promote climate change research in the Basque Country

2012
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The aim is to provide an updated and sound scientific basis for supporting the preparation and continuous improvement of national GHG inventories.

2019
A European Green Deal to accelerate the transition to climate neutrality is adopted

It commits to remake Europe's economy to achieve Climate neutrality by 2050. BC3 has contributed ever since by providing cutting-edge research, policy analysis, and innovative solutions to support and guide its implementation.

author meeting for the 2019 Refinement to the IPCC Guidelines for National Greenhouse Gas Inventories in Bilbao

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+
2021
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+
2021
BC3 presents the Observatory of Energy Transition and Climate Action (OTEA) and the OTEA 2020 Report

OTEA's goal is to provide data, a rigorous analysis and new methodologies based on the best scientific knowledge to make a good follow-up of the energy transition in Spain and its economic, social and environmental implications.

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Being awarded a "Maria de Maeztu Excellence Unit", a competitive excellence grant by the Spanish Government, accreditation is a recognition of scientific research excellence that includes an annual funding for 4 years.

+
2021
BC3 launches ARIES for SEEA: the first AI tool for rapid natural capital accounting.

Developed in collaboration with the Statistics Division of the United Nations Department of Economic and Social Affairs (UN DESA), the UN Environment Programme (UNEP) and the U.S. Geological Service, ARIES for SEEA helps accelerate the implementation of the SEEA standard for valuing the contributions of nature, adopted by the UN Statistical Commission.

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+
2022
Official opening of Izotzalab ('Ice' lab) laboratory, for testing and analysing the physics and chemistry of cold samples and prototypes

+
2022
BC3 in collaboration with UPV/EHU organizes the International Symposium on Ice in a Sustainable Society (ISS) on 5-10 June, in Bilbao, Spain

+
2019
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2022
Presentation in the Spanish Congress of Deputies of a BC3 study on green taxation

+
2022
BC3, co-coordinated the Citizen Assembly for the Climate, receives the Extraordinary Prize of Environment - Climate Action and Civic Commitment, from the Spanish Ministry of Ecological Transition and Demographic Challenge

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2023
BC3's scientific director Maria José Sanz, appointed member of the Task Force Bureau on National Greenhouse Gas Inventories of the IPCC for the seventh assessment cycle

BC3's scientific director is the second Spaniard to form part of the IPCC Bureau.

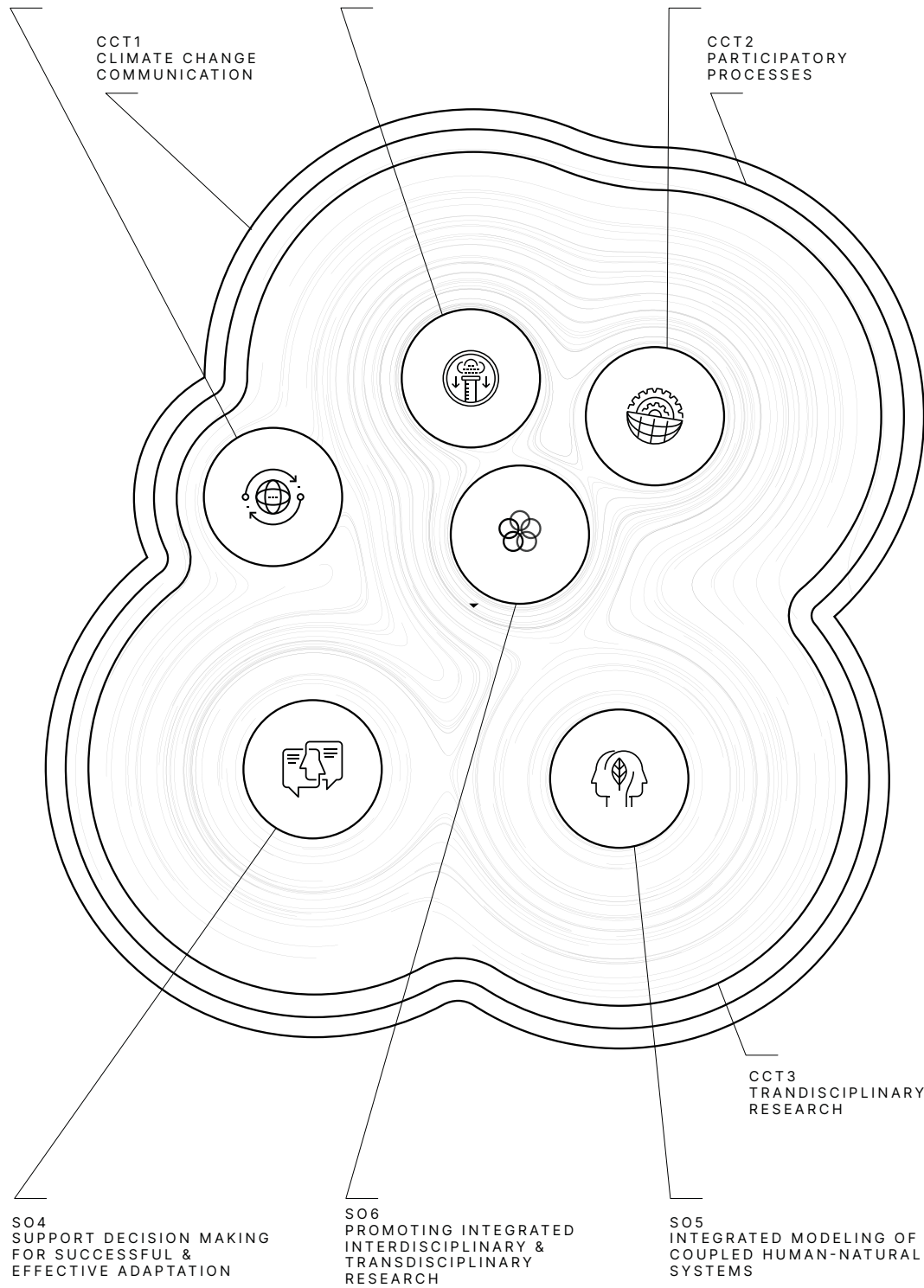
SO1
UNDERSTANDING PAST &
FUTURE CLIMATE CHANGES

SO2
SUPPORT DECISION MAKING IN
THE TRANSITION TO A
LOW-CARBON SOCIETY

SO3
UNDERSTANDING AND MANAGING
TERRESTRIAL SYSTEMS FOR
SUSTAINABILITY

CCT1
CLIMATE CHANGE
COMMUNICATION

CCT2
PARTICIPATORY
PROCESSES



SO4
SUPPORT DECISION MAKING
FOR SUCCESSFUL &
EFFECTIVE ADAPTATION

SO6
PROMOTING INTEGRATED
INTERDISCIPLINARY &
TRANSDISCIPLINARY
RESEARCH

SO5
INTEGRATED MODELING OF
COUPLED HUMAN-NATURAL
SYSTEMS

CCT3
TRANSDISCIPLINARY
RESEARCH

03 Our strategy: Leveraging science to shape climate policy

In recent years, escalating ecological, political, economic, and security crises have are deeply affecting the global community. To fulfill our mission during this 'polycrisis', we are providing science-based integrated knowledge that bridges science, policy and practice. By developing methodologies, publishing in high impact journals, providing policy briefings, conducting training programs, and participating in both local and international scientific and policy advice networks and organizing and participating in policy-relevant events, **BC3 informs decision-making** and builds capacity for accelerating climate action. To enact our strategy, we focus on four interlocking fields of action - local and regional, national, European, and global. **Six strategic objectives and three cross-cutting themes** guide the activities of BC3. The objectives include: understanding past and future climate changes; supporting decisionmaking for a low-carbon society; managing terrestrial systems for sustainability; enabling effective adaptation; integrated modelling of human-natural systems; and promoting interdisciplinary and transdisciplinary

research. Our three cross-cutting themes are participatory processes, climate change communication, and transdisciplinary research.

Our vision for the future of climate policy

Scientific knowledge forms the foundation for understanding climate change, ensuring citizens, institutions, and stakeholders across sectors have reliable information for effective responses. Establishing a structured system is vital to facilitate timely access to these insights, fostering strong relationships between science, policy, and practitioners through ongoing dialogue. Collaborative efforts among scientists, policymakers, and social actors are key to advance knowledge and support more effective policymaking. Looking ahead, our focus over the next years will center on producing polic-relevant knowledge and strengthening bi-directional connections between climate science and policy at local, national and international levels.

04 2023 at a glance

Explore the significant achievements of 2023 through six impactful research outcomes. These milestones exemplify BC3's commitment to advancing climate science and policy, making substantial contributions on a global scale.

S01 Understanding past and future climate changes

Monte Perdido Glacier, one of Europe's southernmost glaciers, is rapidly losing mass due to climate change and may disappear within 50 years. This research led by BC3 provides the first microstructural characterization of a high-impurity concentration segment of an ice core drilled.

[VISIT LINK>](#)

S02 Support decision-making in the transition to a low-carbon society

The National Energy and Climate Plans (NECP) represent the central element of the climate policies of the EU Member States. The Spanish NECP defines the main actions to achieve the objectives of reducing GHG emissions, renewable energy and energy efficiency. During 2023, BC3 researchers assessed the economic, social, employment and health impacts of the draft revised version of the NECP.

[VISIT LINK>](#)

S03 **Understanding and managing terrestrial systems for sustainability**

Before the next United Nations (UN) climate conference in the United Arab Emirates at the end of 2023, BC3 collaborated in a research study strengthening the role of the international sectoral cooperation for effective transformational changes that the following Global Stocktake should include for a successful mitigation strategy.

[VISIT LINK>](#)

S04 **Support decision-making for successful and effective adaptation**

As part of the EU Mission for Adaptation, BC3 supports local governments in implementing climate resilience policies through the Collaboration Platform for the Climate Neutrality of Spanish Cities, citiES 2030. This initiative promotes synergy between the EU Missions for Cities and Climate Change Adaptation 2023-2024 in Spain through the CLIMAGOB tool.

[VISIT LINK>](#)

S05 **Integrated modelling of coupled human-natural systems**

BC3, through the ARIES for SEEA Sector Hub, serves as the first UN global hub for capacity-building and training for researchers, statisticians and data scientists in connecting data and models, since November 2022. Throughout 2023, capacity-building workshops were carried out to increase technology and innovation in the Global South and improve data collection and monitoring for the achievement of the SDGs.

[VISIT LINK>](#)

S06 **Promoting integrated interdisciplinary and transdisciplinary research**

In 2023, BC3 launched a pioneering "Guide for the design, organization and facilitation of climate citizens' assemblies," coordinated by BC3's scientific director Maria José Sanz. The guide draws on experiences from national and local Climate Assemblies and details techniques and tools to facilitate these assemblies.

[VISIT LINK>](#)

05

BC3's people

7

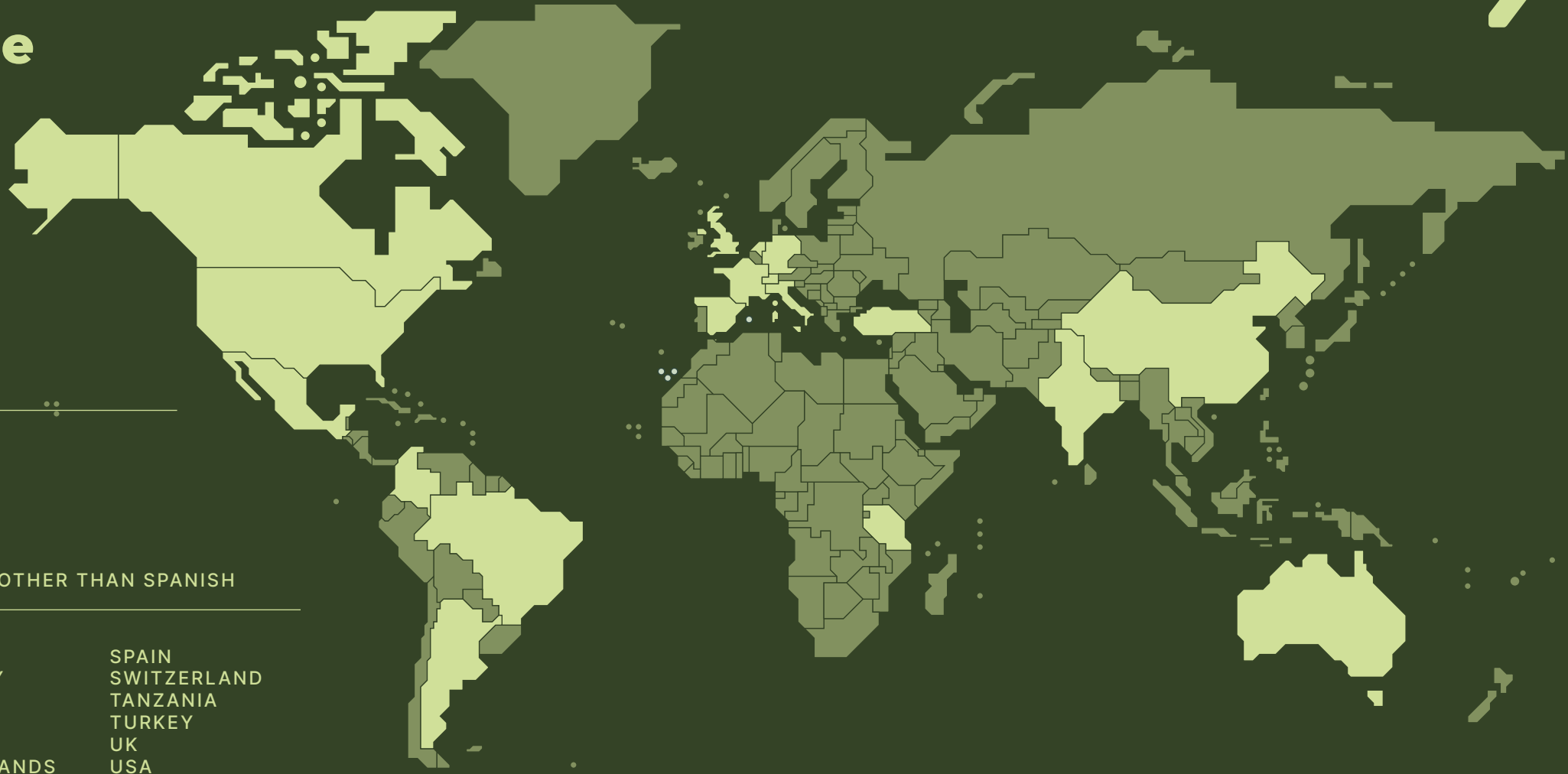
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NATIONALITIES

42%

OF US HAVE A NATIONALITY OTHER THAN SPANISH

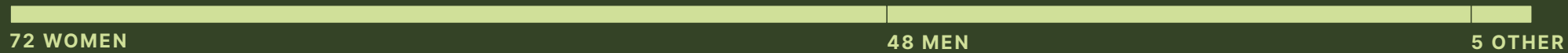
- ARGENTINA
- AUSTRALIA
- BRAZIL
- CANADA
- CHINA
- COLOMBIA
- FRANCE
- GERMANY
- INDIA
- ITALY
- MEXICO
- NETHERLANDS
- SPAIN
- SWITZERLAND
- TANZANIA
- TURKEY
- UK
- USA



DISTRIBUTION OF PEOPLE BY AGE



DISTRIBUTION OF PEOPLE BY SEX



DISTRIBUTION OF PEOPLE BY AREA



05 Key highlights 2023

PUBLICATIONS

162

H INDEX

94

CITATIONS

9k+

ERCs

3

MSCA INDIVIDUAL FELLOWSHIPS

3

ANNUAL BUDGET

€7.4k

EUROPEAN PROJECTS

26

PHD THESIS DEFENCES

7

Key highlights 2008 - 2023

PUBLICATIONS

1.2k+

CITATIONS

41.2k

ERCs

3

MSCA INDIVIDUAL FELLOWSHIPS

7

TOTAL BUDGET

€54.3M

EUROPEAN PROJECTS

69

PHD THESIS DEFENCES

44

Abadie, Luis M., and M. Paz Moral. "A Method for Selecting a Climate Model: An Application for Maximum Daily Temperature in Southern Spain." *Theoretical and Applied Climatology*, vol. 152, no. 1–2, Apr. 2023, pp. 773–86.

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Ramos, Andres, et al. "Analysis of Different Flexible Technologies in the Spain NECP for 2030." *Frontiers in Built Environment*, vol. 9, Oct. 2023, p. 1065998.

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Del Prado, A., et al. "Animal Board Invited Review: Opportunities and Challenges in Using GWP* to Report the Impact of Ruminant Livestock on Global Temperature Change." *Animal*, vol. 17, no. 5, May 2023, p. 100790.

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Análisis del impacto económico de las inversiones del Plan de Transición Energética y Cambio Climático 2021-2024	Arkaitz Usubiaga Liaño, Mikel Gonzalez Ruiz de Eguino, Iñaki Arto, et al.	Ministerio de Transición Energética y Cambio Climático	LINK
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