



2008-2018

ANNIVERSARY
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ANNIVERSARY

This anniversary book explores **BC3** through the years since its inception in **2008**. It consists of a series of interviews with current and previous members, academic highlights and outreach activities. It sheds a light on our achievements, eventful years, successful projects and the people who have made, and who continue to make, **BC3** what it is today. While we publish an activity report each year covering our scientific outcomes, this book instead hopes to celebrate our accomplishments and successes from both an academic and human perspective.



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FOREWORD

We asked our former scientific director, Anil Markandya, and our current scientific director, María José Sanz to take a look back over our past 10 years and answer some key questions about the future trajectory of climate research and **BC3** as a centre. Here's what they had to say.



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In your opinion, what have BC3's main accomplishments been over the past 10 years?

AM: Well, one of the main ones is to have survived the financial crises that emerged almost immediately after we were set up. After about two years of funding as planned we were subject to significant cuts but, with enterprise and effort we raised resources from competitive sources and managed to continue to survive and do well. The second is to have established ourselves as a leader of climate research centres in the community of such centres. We were awarded some prizes in the early years for being a leading centre in climate economics and that was a great start, given the competition. Third is that we have maintained

an international focus, both in research and, more importantly, in the staff that work here. Thanks to all for making this possible.

MJ: I think BC3's main achievement is that the centre has evolved, despite many challenges, with a shared vision by the directors and staff. It is not always easy to maintain a long-term vision and excellence in research, especially while evolving with financial constraints. BC3 has managed to achieve this, and is recognised as a research centre at international, national and local levels - a difficult balance to secure. Another achievement, which I think is important to mention, is the commitment to the above by all staff, who together strive towards meeting the collective objectives of the centre.

In terms of living sustainably, how does BC3 practice what it preaches?

MJ: This is a difficult question, one obvious way could be our offices - we are still deciding on how to make them more sustainable. However, there also small gestures that can help such as safe energy, minimise the use of the printers, etc. Some of the staff are making an effort to use public transport or bicycles to commute to the office. BC3 is also participating in programmes that bring together local agents, companies and institutions that promote sustainability (GOSASUA Program lead by Innobasque). It is also a member of the UNESCOETXEA SDGs efforts leading SDG 13. Another aspect that BC3 is addressing (which to

me is of particular importance) is spreading its knowledge among the education system in the Basque Country through regular lectures in secondary schools, or other communication devices to target other sectors of the population. While targeting children and young adults is key, targeting the older segment of the population is also important, since they maintain values that can be transferred to younger generations.

We talk a lot about the importance of bridging science and policy. How do we also create a dialogue with the general public on this path to sustainability?

AM: This is not easy and I have no simple answers. First we have to have credibility for our scientific work in the eyes of policy makers, and I believe we have that. We are not seen as pushing an agenda but setting out the results of the best research. Next we need to communicate our work to them and to the general public and that is not so easy. It takes time, which is at a premium, with the incentives always being strongest to publish in the best journals. But we have persevered, through various programs, such as the Training Caravan, the Klimagune workshops and others. Again thanks to many people we have sustained that over many years. We must keep going.



MJ: One of the key aspects of bridging science and policy is understanding what policy makers confront in their day-to-day, and the timing in the policy context. This means that solutions need to be contextualised and adapted according to particular priorities. At the same time, it is also important to understand how society perceives and accepts changes. BC3 has demonstrated that we can work in this environment and propose solutions that can be implemented, and work hand-in-hand with society and policy makers, while preserving scientific excellency. We have to work more in this direction and take stock of the lessons learnt if we want to address climate change challenges in a critical and timely way.

Regarding our responsibility to future generations, can you talk about the delicate balance between narratives of mitigation and adaptation?

MJ: The original artificial separation between mitigation and adaptation, and the excessive focus on mitigation targets following business-as-usual models, proved to be inefficient and failed to achieve the ultimate goal of changing and developing models. Today, the undeniable evidence of impacts and the growing gap between the poor and

the rich (even within developed countries), has renovated an interest in adaptation. But it is still hard to see a proper balance in the treatment of both adaptation and mitigation. There was hope that the SDGs could provide a context to strike such balance, but the approaches being used for the implementation of SDGs are more of the same, nothing really innovative that deals with the crux of the problems our society has. This perceived imbalance is therefore just evidence that the real issues are not being properly identified or addressed.

AM: Adaptation needs to address existing climate variability as much as expected climate change, especially in developing countries. This gives it a greater urgency and a greater role in supporting resilient development as well as in complementing actions to meet the SDGs. Mitigation has to also be seen now through the lens of co-benefits (particularly health-related ones), which our research has shown can be huge; indeed large enough to justify the costs of decarbonisation almost on their own. So on the question of balance we have more weight on both actions! To me it means we need to give climate as a whole greater importance in policy making across government and the private sector.





When answering these important questions, what sets BC3 apart from other research organisations?

MJ: First, BC3 holds a commitment to provide solutions to real problems with sound science by all staff, despite different backgrounds and disciplines. Most of the time, at least as a starting point, this begins with problem-orientated research. Secondly, BC3 is composed of a mixture of researchers from different disciplines, including social and natural sciences. This allows for disciplines, methodologies and concepts to be interchanged in order to address particular research topics, and is supported by good international networking and collaboration. Lastly, BC3 has a soft internal structure that promotes collaboration, allowing for the natural formation of ad-hoc and flexible research groups. There is also excellent balance in terms of efficient administration and project assistants that detract the administrative burden away from researchers.

AM: I agree with María José. I would also like to add the fact that BC3 is more international than many other research organisations.

Anil, after seeing BC3 through so many years, passing on the baton must not have been easy. What do you hope for BC3 over the next

decade, and María José in the same regard, what is your vision for the future of BC3?

AM: Actually I was quite happy to hand on the baton. It was a great challenge and I was honoured and pleased to have started the Centre and seen in through its early years. But it is never good to stay on too long and in María José we have an excellent replacement. I look forward to seeing the Centre continue to thrive and to build its reputation, with lots of young and enthusiastic researchers creating a lively and friendly atmosphere.

MJ: My vision is a transdisciplinary working centre in which scientists are committed and find themselves useful and enthusiastic in addressing the challenges of climate change. This will give us credibility within academia and allow us to give timely and useful support to policy makers at local, national and international levels.



INTRODUCING BC3

We are a research centre on the causes and consequences of climate change. Led by one of the most recognised scientists in the Climate Change field - Prof. María José Sanz, we produce multidisciplinary knowledge to support decision making towards sustainable development at the international level.

BC3 is composed of a multidisciplinary team, which is connected to key scientific institutions, networks and socio-economic agents. For a decade now, our contribution to research on climate change and to the science-policy interface puts us in a unique position to offer knowledge, tools, new methodologies and cross-cutting proposals. Working with stakeholders, we aim towards taking action within a collaborative framework, which helps to design and implement policies for sustainable development.

VISION

To steer climate change science towards the co-production of new knowledge and the co-design of policy solutions together with other stakeholders through a solid and transdisciplinary approach, with the ultimate goal to achieve sustainable development.

MISSION

The BC3 mission is to strategically foster co-production of knowledge relevant to decision making by integrating environmental, socioeconomic and ethical dimensions of climate change.

RESEARCH LINES



Climate Basis understands past and future climate changes through analysis and interpretation of climate records as well as investigating the multiscale dynamics of the cryosphere.



Low Carbon strengthens the interdisciplinary character of policy assessments in the transition to a low carbon society through support in decision making, assessing energy transitions with the engagement of stakeholders and exploring the synergies between low carbon policies and Sustainable Development Goals.



Terrestrial Ecosystems covers integrated agriculture and land management for sustainability through understanding ecosystem resilience after climate change for restoring degraded areas, understanding vulnerability of terrestrial ecosystems to climate change and assisting their adaptation and investigating integrated solutions for the Livestock sector.



Adaptation Lab supports decision making for successful and effective adaptation through understanding risks and vulnerability; designing and assessing adaptation policies; instruments and solutions; measuring adaptation progress and understanding adaptation dynamics and understanding the implications of uncertainty.



Integrated modelling of coupled human-natural systems investigates scaled complexity in biophysical and social modelling via bridging disciplines: from biophysical to social through agriculture and food security, bridging scales: from process detail and agent behaviour to economic and policy instruments, to assist decision makers.

Cross-cutting themes (CCT)

Two CCT are also present covering **Climate Policy** and **Governance**

OUR TEAM OF RESEARCHERS



María José Sanz Sánchez
Scientific Director

"Progress does not necessarily mean growth"



Anil Markandya
Former Scientific Director/
Distinguished Ikerbasque Professor

"None of us is indispensable but together we can make a difference"



Amaia Albizua
GV-EJ Postdoctoral researcher

"We shape the world by the questions we ask." – John Wheeler



María Almagro
Postdoctoral Researcher

"The nation that destroys its soil, destroys itself" – Franklin D. Roosevelt



Mikel González-Eguino
Research Professor

"How could I look my grandchildren in the eye and say I knew what was happening to the world and did nothing." – David Attenborough



Marek Smid
Postdoctoral researcher

"In the long history of humankind (and animal kind) those you learned to collaborate and improvise most effectively have prevailed." – Charles Darwin



Asma Jebari
Junior researcher & PhD student

"Scientific research is light. Collective work is its spark."



Simone Langhans
Research Fellow



Unai Álvarez
GV-EJ Postdoctoral Researcher



Iñaki Arto
Research Professor

"How sad to think that nature speaks and mankind doesn't listen." – Victor Hugo



Stefano Balbi
Research Professor

"I sound my barbaric yawp over the roofs of the world." – Walt Whitman



Aline Chiabai
Research Professor

"In a gentle way, you can shake the world." – Gandhi



Bosco Lliso
Junior researcher & PhD student

"Don't Panic." – Douglas Adams



Elena López
Junior researcher & PhD student

"A healthy ecology is the basis for a healthy economy."



Ainhoa Magrach
Postdoctoral Researcher

"In nature nothing exists alone" – Rachel Carson



Ambika Markanday
Junior researcher & PhD student

"Well, I say there are some things we don't want to know – important things!" – Ned Flanders



Jorge Curiel
Ikerbasque Research Professor

"May your traits be crooked, winding, lonesome, dangerous, leading to the most amazing view."



Agustín del Prado
Research Professor

"One who knows more and more about less and less" – Nicholas Butler



Sérgio H. Faria
Ikerbasque Research Professor – Ramon y Cajal Fellow

"Heaven is under our feet as well as over our heads." – Henry David Thoreau



Sebastien Foudi
Research Fellow

"Explore, discover and validate."



David Moreno
Ikerbasque Research Fellow

"Education is what remains after one has forgotten what one has learned in school." – Albert Einstein



Marc Neumann
Ikerbasque Research Professor – Ramon y Cajal Fellow

"When we try to pick out anything by itself, we find it hitched to everything else in the Universe." – John Muir



Marta Olazabal
Research Fellow

"The single most important problem (facing the world) is our misguided focus on identifying the single most important problem." – J. Diamond, Collapse, 2005



Ignacio Palomo
Postdoctoral Researcher

"The power of imagination makes us infinite" John Muir



Ibon Galarraga
Research Professor

"Twenty years from now you will be more disappointed by the things that you didn't do than by the ones you did do [...]." – Mark Twain



Silvestre García de Jalón
Postdoctoral Researcher

"Look deep into nature, and then you will understand everything better." – Albert Einstein



Xaquín García
Postdoctoral Researcher

"The secret of happiness is low expectations." – Barry Schwartz



Teresa Gimeno
Ikerbasque Research Fellow

"It is a fallacy to assume that the future will be no more than a continuation of the trends in the recent past." – Olivier Rackhman



Guillermo Pardo
Postdoctoral Researcher

"Do goats dream about the circular economy?"



Unai Pascual
Ikerbasque Research Professor

"Science Never solves a problem without creating ten more" – George Bernard Shaw



Josué Polanco
GV-EJ Postdoctoral Researcher

"It is not enough to be in the right place at the right time. You should also have an open mind at the right time." – Paul Erdős



Asun Rodríguez
Junior researcher & PhD student

"Every day you have an impact on the world. What you do makes a difference, so decide what kind of difference you want to make." – Jane Goodall

OUR TEAM OF RESEARCHERS



Iratxe Rubio
Junior researcher & PhD student

"I think; therefore I am" -Descartes



Elisa Sainz de Murieta
GV-EJ Postdoctoral Researcher

"There is nothing quixotic or romantic in wanting to change the world. It is possible. It is the age-old vocation of all humanity." - Gioconda Belli



Jon Sampedro
Junior researcher & PhD student

"Esana da erraz eta egina garratz"



Alessandro Silvestri
Junior researcher & PhD student

"The economy is a wholly owned subsidiary of the environment, not the other way around." - Gaylord Nelson



Mari Mar Solá
Junior researcher & PhD student

"En los sueños encontraremos un mundo enteramente nuestro."



Alevgul Sorman
Postdoctoral Researcher

"Let the beauty of what you love be what you do"- Rumi



Alina Tepes
Junior researcher & PhD student

"On ne voit bien qu'avec le coeur. L'essentiel est invisible pour les yeux." - Le Petit Prince, Antoine de St. Exupéry



Mireia Valle
GV-EJ Postdoctoral Researcher

"Understanding marine social-ecological systems and their trends will help us addressing current and future environmental issues"



Dirk-Jan Van de Ven
Junior researcher & PhD student

"Have no fear of perfection, you'll never reach it." -Salvador Dali



Ferdinando Villa
Ikerbasque Research Professor



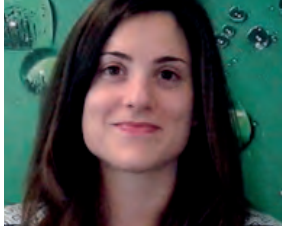
Inmaculada Batalla
Postdoctoral researcher

"There is a long story behind every piece of food we eat. If we thought more on it, I'm sure things would be quite different."



Elena Galán
Postdoctoral Researcher

"Be sweet and carry a sharp knife, was her motto." - Barbara Kingsolver, Flight Behavior



Itxaso Ruiz
Junior researcher & PhD student

"It is hard to fail, but it is worse never to have tried to succeed." - Theodore Roosevelt



Estibaliz Sanz
Research Assistant

"Live as if you were to die tomorrow. Learn as if you were to live forever" - Mahatma Gandhi



Alejandro Rodríguez Zuñiga
Research Assistant

"If you can't change your fate, change your attitude." - Amy Tan



Noelia Zafra
Postdoctoral Researcher

"Those are my principles and if you do not like them... well, I do not have others" - adapted from Groucho Marx

OUR TEAM OF RESEARCHERS



Sebastien Huclin
Research Assistant

"Measure what can be measured, and make measurable what cannot be measured." - Galileo Galilei



Enrico Girotto
BC3 External Service

"Every once in a while, a new technology, an old problem, and a big idea turn into an innovation." - Dean Kamen

OUR ADMINISTRATION TEAM



Nerea Ortiz
Operations Manager

"It always seems impossible until it's done." - Nelson Mandela



Ainhoa Azkarate
Project Manager



Susana Pérez
Management Assistant

"...I believe that tomorrow is another day and I believe in miracles." - Audrey Hepburn



Silvia de Luis
Project Officer

"La paz comienza con una SONRISA." - Madre Teresa de Calcuta



Cristina Sanchez
BC3 External Service

"As the Argentinian popular saying goes, you will reap what you sow, the same goes for our behaviour with nature."



Irune Vegas
Project Officer



Ainara Fernández
Community Manager

"Bizi sakonki momentu bakoitza ez baita inoiz errepikatuko, pozik bizi zaitez eta ahaztu zure kezak" - Etsaiaik



Raquel Vega
Project Officer

"Ignoramos nuestra verdadera estatura hasta que nos ponemos de pie." - Emily Dickinson

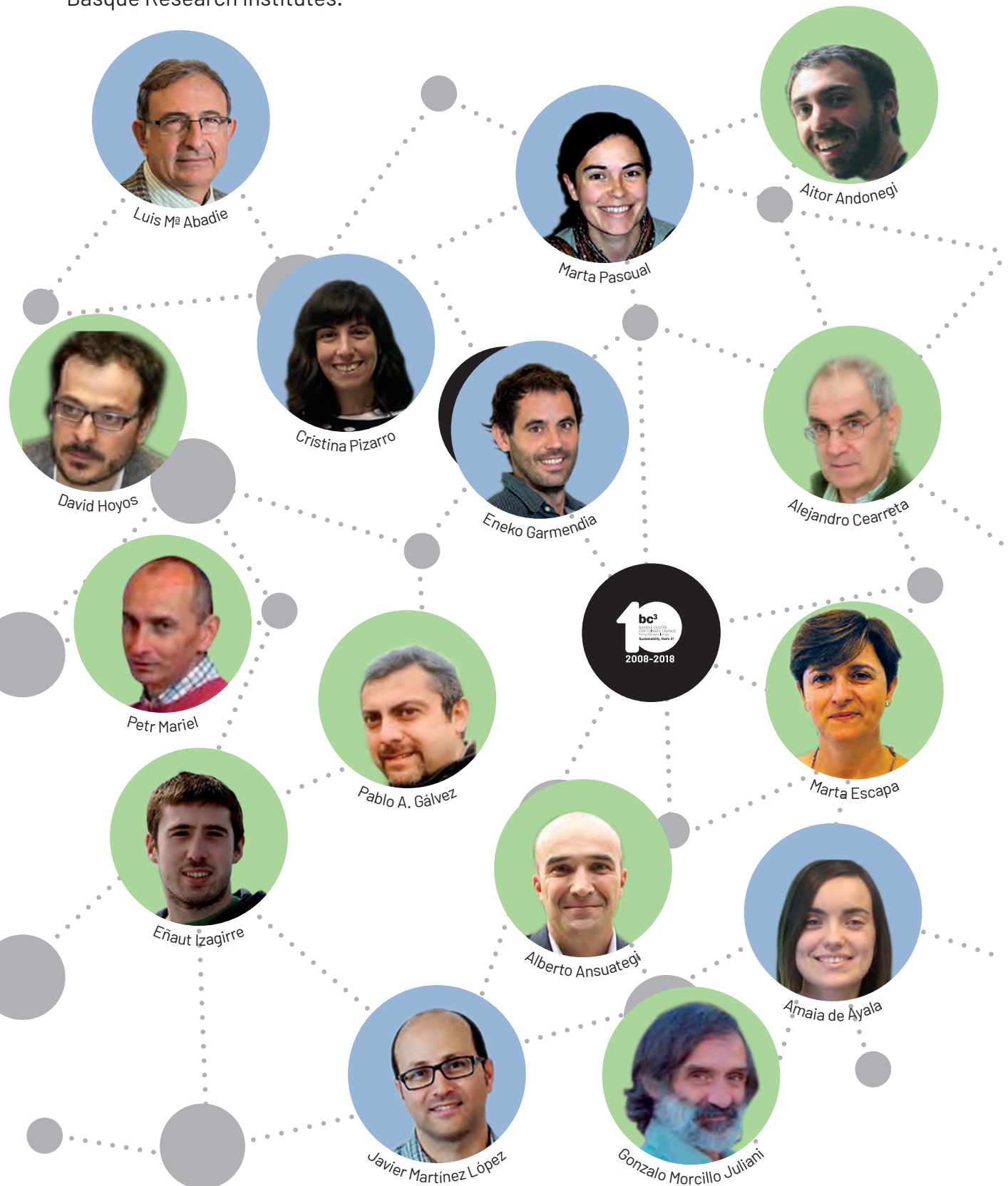


María José Sanz Sánchez
Scientific Director

"Progress does not necessarily mean growth"

BC3 ASSOCIATE RESEARCHERS

Extending collaboration within and outside of Basque Research institutes.



FORMER BC3 EMPLOYEES

Here's a look at some of the people that have come and gone through BC3 over the years.



A CONVERSATION WITH OUR ADMINISTRATION TEAM



Here from the very start, we interview Nerea Ortiz (Operations Manager) and Susana Pérez (Management Assistant) on how it all started and how **BC3** got to where it is now.

From both a professional and personal standpoint, can you tell us how BC3 started?

NO: The creation of the BERC network was a mandate from the Basque Government to the Basque Science Foundation, IKERBASQUE. The first BERC to be launched was BC3, with such a relevant topic to be studied, climate change. As there was a niche of knowledge in the area of the economics of climate change, the Basque Government decided to focus on that issue. Before I was contracted, Ikerbasque launched a call for recruiting a Scientific Director, and Anil Markandya was finally selected for that position. In June 2008, I was selected as Operations Manager of BC3 after a competitive call, and Anil and I started to review the Strategic Plan and to build the basis of BC3 from scratch. I really have very good memories of this time. Luckily we had a lot of help from Iñigo Atxutegi, Jaime Sagarduy, Ainhoa Madariaga all of them from Ikerbasque, and of course, the Director of Ikerbasque at that time, Mari Carmen Gallastegui.

Before joining BC3, I was working for 7 years as a consultant for an international firm, and after such an active and interesting period, I was willing to work on topics such as innovation and research. The call for an Operations Manager at a Basque research centre that aspired to be internationally renowned and led by one of the most respected researchers in the area of environmental and economic resources, caught my attention. I still remember how nervous I was, just being interviewed by such a relevant scientist that had been awarded a share of the Nobel Peace Prize in 2007 for his contribution to the IPCC. But it seems that the interview went well and I was offered the position. So although my experience as consultant was great, I decided to accept the offer from BC3 and start work in June 2008.

Initially our offices were located in Bilbao, and we shared them with the second BERC created in 2008, BCAM. As I said before, Anil and I started to build BC3 from scratch, so it was time for a very hard work,

and imagine, in October 2008, the first researchers were also contracted! Aline Chiabai from Italy, Ramon Arigoni Ortiz from Brazil and Nigol Seo from Korea. In December 2008, Susana joined BC3 and the administration tasks and operations in general, started to flow.

SP: To be honest, I didn't think I would be selected for the position. When I received the call from Nerea confirming I had the position, I knew straight away I wanted the job. I wanted to execute things, and I knew deep down I was worth more than I was doing at the time. When Nerea told me the extent and coverage of all the things I could do at BC3, it felt like hitting the jackpot. I was delighted to be able to work in three languages, collaborate with people from all over the world, and learn new things all at the same time. I started working at BC3 in December (2008). One of my first responsibilities was to start up all the formal procedures for researchers arriving at BC3: register them, prepare their workplace (their office, a

computer with passwords...) We wanted everything to be perfect on all fronts. I can assure you that to this day I remember all the names and surnames of the people that have come and gone through BC3.

NO: When I look back, deciding to work at BC3 was a risky bet. I had been offered a position at two other organisations with a history, and no one at the time even knew how to explain what BC3 was. But this made it more attractive to me; being part of the creation of a centre at the heart of the Basque Country, my homeland, generating knowledge on climate change and contributing to building a more sustainable world. It seemed that all my aspirations and values were coming together.

What were some start-up challenges and memorable moments over the past 10 years?

NO: The biggest challenge, starting from scratch, was how to attract internationally relevant people in the field of climate change research. There was already competition at the time from research centres and universities with a lot more history than us. Anil Markandya was our biggest asset in this sense. He was a great resource for attracting valuable researchers at the beginning who, in turn, would later bring other significant researchers through their networks. We have been growing ever since.

SP: During the 9 years I spent at reception, I was the secretary of the scientific director as well as the reference person for any problem that researchers had at BC3. I had to be fully present from the beginning, for whatever issues came up. Special attention was needed when researchers would come from far away. It was important that they felt there was someone who could assist them



or help out with any challenges that they faced. People were often far away from home, working and living in another language, which must have been difficult. I had a lot of empathy for them. I tried to respond to their needs as much as possible, thinking at the same time how I would feel if I were in their shoes. I have learnt a lot interacting with so many international people. Primarily, that people coming from abroad are often used to living in such diverse, international contexts, and are extremely open and generous. As a Basque, I have deep feelings of belonging and loyalty to my home. But I've noticed that when people come from abroad they extend their hand and reach out to include everybody, and it comes naturally to them. This sense of unity is a great take-home lesson for me, and has changed my perspective a lot. Indeed, one of my saddest moments was when our first researcher left BC3. It was then that I started apprehending the natural and normal cycle of the research process.

NO: One of my most memorable moments at BC3 was when we changed scientific director. I had been working alongside Anil for such a long time, and I didn't know

what to expect for the next stage of BC3. Fortunately, María José was a great choice. It was truly a symbolic moment, Anil literally passed over a baton to María José, representing the passover, which made it quite extraordinary..

What are some of BC3's biggest accomplishments so far?

NO: While Anil and MJ have covered BC3's scientific and professional accomplishments during their dialogue, I want to talk about something else, that for me, is equally important and distinguishes BC3 from other research centres. That is, the group of people that make up BC3. One of our greatest achievements has been being able to maintain a good team of people from



different backgrounds, cultures and scientific fields, who are able to work collaboratively. We have often avoided conflicts, and when few conflicts have arisen, we have been able to solve them, collectively. For me, this has been most important in creating a successful future for a research centre of excellence, founded on values of collaboration and respect, working towards a common goal, both scientifically and at the management level. These are the types of values that prevail at BC3. We have core values that make us a different, and I see this as our biggest achievement.

SP: I believe our researchers have achieved a lot through the years, particularly in terms of our increasing number of publications over time, which has promoted the centre and attracted more researchers and interest in BC3. We have also received great evaluations, both scientifically and with respect to our administrative

and management team, from the Basque Excellence Research Centres (BERC) Programme. I believe everyone has contributed to these “drops in the ocean”, but Nerea deserves special attention.

Back then, would you have imagined BC3 as it is today? What can we aspire for in the future?

NO: I would have never imagined that as of 2018 we would reach 53 people here at BC3. Our success has been driven largely by our ability to attract financial funding and our extensive network of research collaborators across the world.

SP: I don't think we ourselves realise how big of a centre we've become. We only notice when we realise how much less time we have to execute our work! We are accustomed to working with a lower number of people, but our family has been multiplying!

NO: I hope that BC3 remains a relevant actor in the field of climate change and decision making. I also hope that somehow, financial pressures are lifted so that our researchers can really focus on knowledge production and our management team can be relieved from administrative burden. On a personal level, I hope to continue to work hard to better our already great environment here at BC3, one which promotes gender equality and collaboration on all levels. On that note, I also hope that within the next 10 years we will see many more women leading research lines here at BC3.

SP: Not only is BC3 a welcoming environment, but there is a human value and connection here that makes people feel at home. I believe as a centre we show, execute and promote the values that we believe in; from its people, to the way we share and co-create knowledge. These are the core principles of our centre.



A LOOK BACK

This series of interviews delves into the professional lives of 6 researchers that were here from the very start. It looks into their disciplines, relationship with the Centre and their personal and professional development over time.



AGUSTIN DEL PRADO
BC3 RESEARCH PROFESSOR

What brought you to BC3?

It was about 10 years ago. At that point I had been living in the UK for 7 years and I wanted to come back home. At that time both the BC3 and Ikerbasque had been launched and the information about what they were all about was still a little bit “under construction”. I remember that as soon as I knew about the BC3 from the local media I was interested in the knowing the types of expertise the Centre would be looking for. The publicity about BC3 indicated very ambitious areas. In May/June 2008, when the scientific director was officially named, I realized that the person chosen to lead the Centre, Anil Markandya, was also a Professor at Bath University, a city I was living relatively close to at the time. I wrote an email to Anil Markandya and asked him for a meeting to know more about the BC3 and whether my expertise could be useful. I remember that During my short meeting with Anil he was very kind and informative. My anecdote for this visit was that I got a traffic fine for stepping on a bus lane in central Bath, which I only found out about some weeks later. I got lost in the city and I drove through areas there was less traffic.

What are some of your most memorable moments at BC3?

My most memorable moments I suppose have to do with the successful completion of PhD theses that I have supervised (Patricia Gallejones and Guillermo Pardo; and currently Asma Jebari). It is always hard to evaluate success on a personal level but I suppose that completion of a PhD, acceptance of a paper, and successful grants helps your self-steam.

What about your proudest moments?

At the BC3 I have always been extremely proud of the freedom and support to bring my ideas and plans into fruition. I am extremely thankful and can’t help but mention whenever I can (maybe sometimes too often) the support that I received, especially from the admin staff as I enrolled into promoting the Spanish Sci. network for studying climate change and agriculture (RED REMEDIA). It all started with the organization of the first workshop in Bilbao (March 2012) but continued through the years. The quick growth of the network (over 500 people interacting through workshops and/or REMEDIA social media tools) was certainly facilitated by the “bureaucracy-free” conditions of the BC3, through which I found the perfect ecosystem to foster rapid and efficient promotion of the REMEDIA network.

You have been at BC3 for 10 years now! What can we expect from you in the future?

I would like to continue with our small group working on different aspects centred around sustainability in agricultural systems. A success sign for oncoming years will be how much our group can interact with other groups in order to substantiate some of our burning questions and hypotheses on food and climate change.



IBON GALARRAGA
BC3 RESEARCH PROFESSOR

You are currently supervising a number of PhDs at BC3, is there a one-size-fits-all strategy?

In my opinion, to successfully undertake a PhD, the candidate needs to prove capacity to do research on her/his own. This is not always easy and often implies a relatively solitary process. As a supervisor I try to accompany the candidate throughout the whole process but I cannot do the work for them. Instead, I try to adapt to the needs of the candidate and tailor the type of support I offer: some may need more tutoring, others more technical support or general guidance. I have not encountered two PhD candidates with similar needs - All very different!

In any case I also learn a lot working with enthusiastic PhD candidates! We are very lucky with the candidates we have at BC3!

Securing good researchers also means securing good funding. How do you handle this process?

Looking for funding is always a hard part of our work and requires a huge effort from our side. On top of this, a large number of proposals to which we devote a significant amount of effort are not funded in the end. It is not always easy to undertake research and at the same time work on proposals. There is an important trade off, which sometimes requires titanic effort.

Fortunately we have been very successful in connecting with leading research consortiums in Europe (and elsewhere). This has helped us a lot as we have been able to join very strong teams in preparing proposals, and of course, collaborating with strong research teams has also helped us to engage in very high quality research. The reputation of our former and actual Directors (Prof. Markandya and Prof. Sanz) has helped us a lot in this regard. We have also proven to our collaborators that we are excellent partners for research projects, as we work hard and have a very strong, highly qualified and very motivated team of researchers.

Part of this process must also involve networking and collaborating. How does this skillset help when translating climate change science into effective policy design?

Indeed, “translating” research findings into the language of policy makers is very challenging, but also having a good understanding of what the main questions are is crucial. And it is not always easy to know these. I would say that very close and intensive interaction with policy makers is required, often assuming part of the responsibility of how the information we provide to them is used. This is a cornerstone of good policy advice. Policy makers do not need to be told what to do, as they usually have a very good understanding of the area they are managing. What I believe they often need is good science based advice to support their policies, and access to state of the art methodologies and data to fine tune their instruments. Engaging with professionals that have been involved in policy making enhances a lot the understanding of their needs. Sometimes these kind of professionals are also part of our research teams.



BC3 promotes a lot of external collaboration. You, for example, are now working with the Grantham Research Institute on Climate Change at the London School of Economics. How has this process been for you?

I was having a hard time looking for funding when I was granted a Basque Government's scholarship, so it was the best Christmas gift ever! It represented a great opportunity to focus on my own research at the Grantham Research Institute, an outstanding centre in climate change research. It was challenging to get out of my comfort zone and make family arrangements, but overall working at the Grantham has been an amazing process. I have enjoyed the opportunity to meet and collaborate with top researchers, also to see first-hand how another research centre is organised. I find working in an atmosphere of challenging debate inspiring, and I particularly like the way science and policy approaches are combined, as well as the strong links of their research to actual decision-making processes at different scales. This is one of things I value most in science, that it gives us opportunities to network, collaborate and benchmark our performance against other leading researchers and institutions, helping us improve individually, but also collectively, as it can have a positive effect on our home institutions as well.

You mention difficulties of finding and securing funding...

I am quite sure that this is one of the key problems for most researchers. Scientific funding in Europe is extremely competitive, which is something good, but after the economic crisis and a reduction in national budgets for scientific programmes, excellent science fell out of funding schemes. For researchers, this highly-difficult funding environment adds to the temporary nature of contracts (linked to funding schemes or scientific projects). And we shouldn't forget the huge amount of time that we devote to prepare research proposals, rather than to develop actual science. Having access mid- to long-term funding schemes is fundamental to both, research centres and researchers.

On top of this, being a woman in science must have its own challenges...

Unfortunately, women face challenges in many professional fields. There is an increasing body of literature addressing the specific challenges of women in science, but I would say that the underlying factors are the same as in any other career, mainly gender bias and maternity, linked to life-work balance. I believe the problem has roots in how our society is organised, rather than being specific to a professional area. For example, Ikerbasque's 2017 report showed that while there is about the same number of men and women in doctoral and predoctoral positions, this relationship diverges -quite strongly- in postdoctoral, senior or director positions. The first step to improve is to acknowledge there is a problem. I feel that in the last few years there is an increasing concern about guaranteeing equal opportunities to women, even though there is still much to be done. Pursuing gender equity needs to be an active policy of science organisations worldwide and, beyond statements, it needs to be translated into specific measures to guarantee equal opportunities.

ELISA SAINZ DE MURIETA
GV-EJ POSTDOCTORAL RESEARCHER



One of your strong suits is cultivating strong relationships with policy makers, industry, environmental campaigners, NGO's and scientists. How important do you think these (cross-cutting) relationships are to BC3 as a research centre?

Solutions for climate change need the effort and participation of all economic and social agents. Therefore, it is important to be in permanent and direct contact with these agents, without exclusions, and be as close and grounded as possible to their reality, understanding their concerns and legitimate interests that exist. Working directly with companies, public decision-makers or NGOs, in addition to giving you a more complete vision of reality, is undoubtedly very enriching from a personal and human point of view. Although it's not always easy, I really enjoy this process. BC3 has given me the opportunity to extend my work as an economist to other fields of knowledge and expertise. For too long researchers have worked, in my opinion, in very narrow disciplines and in BC3 we are trying to break these barriers and have a more multi-disciplinary and multi-agent approach to problems. For me it is exciting to be able to contribute, together with all these agents, to the task of advancing the transition towards a fossil fuel-free economy operating within the environmental and social limits of the planet. The change we need is enormous and logically will not be done from our offices and laboratories, so we have no choice but to go out.

But there must be difficulties in translating science to different domains (i.e. public platforms such as TV and radio?)

I believe that the fundamental challenge is to encourage researchers to dive, without fear into the pool of communication. We have to leave the comfort zone of our offices and laboratories and make a greater effort to reach people with a vocabulary that is closer to and more apprehensible to society. Society demands more and more scientific knowledge and we have to give answers. It is important not to forget that the space of communication that we do occupy as experts, will be taken over by others who may not have the knowledge or worse, be interested in promoting particular interests, something that has already happened in the field of climate change and has cost us a huge delay. Given that it is not easy to communicate well and that we are not trained as researchers to deal with the media, it would be very useful in this sense to have some basic training and support so that all are encouraged to take that step.

This "delay" must also have repercussions...being father to 3, how do you feel about handing over our current world to future generations?

No doubt, having children has changed my perception of environmental risks. Although the ecological crisis has never been something abstract or theoretical to me, having children has made me appreciate with greater depth the fragility of life and the planet. To my children and future generations, I would like to pass on a world in which they can prosper and be free and happy and I am concerned to see that this future is objectively in danger. For me the real risk, our greatest enemy, is the magical belief that progress is guaranteed: it is not and will never be, neither the environmental nor in other fundamental aspects of development. Therefore, it is necessary to constantly work in favour of the forces promoting progress, in terms of our work and responsibilities.

Having children has also made me anticipate a question that may arise in the future: "Aita, where were you and what did you do to solve the ecological crisis?" I would like to be able to answer that, with my contradictions, trying to put my grain of sand of contribution towards this purpose, to say that I was brave and I did not conform. I also feel that I have a responsibility because I belong to the first generation of people with access to objective knowledge backed by science which talks about the tremendous harm we are causing to the planet and all the options we have at our disposal to give a reasonable solution. I hope to be living up to the task when I am posed this question.

MIKEL GONZALEZ-EGUINO
BC3 RESEARCH PROFESSOR

You work a lot on aspects of health and sustainability. How important do you think it is to incorporate these elements into our personal and professional lives as climate scientists?

This is an essential point. I believe that without personal work on ourselves, which basically means to change our lives and our usual thinking, any change on the outside would be impossible. So any effort, either in research path or in decision-making, will be in vain if we don't accompany that process with a personal effort to change our lifestyles. However, lifestyle interpreted as external behaviours (healthy food, physical activity, recycling products, efficient use of energy, etc) can be truly sustained only when individual thinking patterns and beliefs are modified in the long-term. One way to make this change from the inside is through meditation. A "regulated mind" also fosters intuitions and creativity at higher levels, which is the basis for more inspired research able to bring a real added value to decision-making. A "regulated mind" is also able to make sustainable and healthy decisions in all aspect of life (consuming, moving, etc), which translates to better health for humans and ecosystems. A healthy population (healthy in body, mind and emotions) is also more resilient to any change that might occur, including climate change impacts. A healthy population is less exposed to any kind of external manipulations (in way of consuming and living), etc.

So personal and behavioural change will be important in the fight against climate change?

In addition to what already said above, I believe that personal and behavioural change is key for human beings in this era, and therefore the basis for all other necessary change on a societal level. I would add that when I refer to personal change I do not mean only external behaviour but also "internal behaviour" (way of thinking and feeling), which is what first needs to be changed.

Bringing about change is not always easy. In fact, you are part of a minority of female researchers in senior positions. How hard has it been to get to where you are today?

Yes, I have faced many obstacles and prejudices. I feel I had to work harder than some of my male colleagues to get to the same level, though I took it as an opportunity to develop myself. Due to personal circumstances in my life, I had the opportunity to travel and move which is an added value in research. The area of health where I am working is somewhat better represented in terms of female seniority, but I would obviously be further gratified to work alongside other senior female colleagues in less represented fields such as physics and mathematics. The current research system is not supporting women in their career development taking into account family issues appropriately, given that women may have less "linear" career development in comparison to men. Actually I think that the system in general does not favour any career that follows paths not predefined by the system itself. By imposing these predefined career development steps we are losing many brilliant minds among both women and men. Talent can be fostered only by leaving individuals free to express and develop their career opportunities. I want to conclude by saying that any contraposition between population groups (based on gender, race, religion, etc) has created a society which is more prone to manipulation compared to a society based on the integration of groups and respect of diversity. This is the real problem.

ALINE CHIABAI
BC3 RESEARCH PROFESSOR

Being a musician and a photographer, how important do you think it is to integrate elements of creativity into climate research?

I think the idea of a scientist as someone who proceeds from notion to notion through reasoning, deduction and proof may be the popular view, but I believe it is backwards compared to reality. I am more comfortable with the idea that we humans, as complex systems, are born with wired-in intuitions and those of us who make what we call "scientific discoveries" spend their careers learning the language and the tools to articulate and communicate what they always knew. Science is as much a creative act as playing an instrument or producing visual art is, I do not see any boundaries between my activities in science and in the arts - in truth, I think I am always doing the same thing, whether I am playing music, coding, writing research proposals or taking photographs. It's always the same sand castle I am building. I am fortunate to have the opportunity of seeing it from many different sides, and humbled by the fact that when I look back after a day of working on it, someone else is usually there to watch (and criticize!) what I'm doing.

Still, going against the current can be difficult, especially when pushing science to its limits. For example, you work on interfacing climate research with artificial intelligence, what types of challenges are involved?

I think one of the main problems in academia is a self-referential culture, one that drives researchers to think more about the research itself than the problems it should be solving. I don't spend much time thinking of the challenges in my work - I am fine when my perception tells me they are solvable. The reason why I believe that an integration, however challenging, of AI with sustainability science is a good thing to pursue is the complexity of human-natural systems. I am convinced that the complex behaviours of ecological, social, economic systems are beyond the understanding of the human mind, let alone the interactions between them. In fact, much of current science has essentially given up understanding to concentrate on the prediction of systems that remain largely unknown, using statistical techniques. AI is central to this process: it can help synthesise the mountains of information coming to us every day into small, ephemeral pearls of wisdom that are mostly only useful in the very moment they are produced, but can give us eyes on the planet that our minds, alone, cannot. The AI used today in sciences like meteorology has not seen similar success to those in integrative areas, like the ones my group work in. Integration is challenging because it requires humility: towards complexity and towards each discipline involved in the dialogue. There isn't much of that in the academic world. Those are the biggest challenges - and I see solving them as my responsibility to the planet.

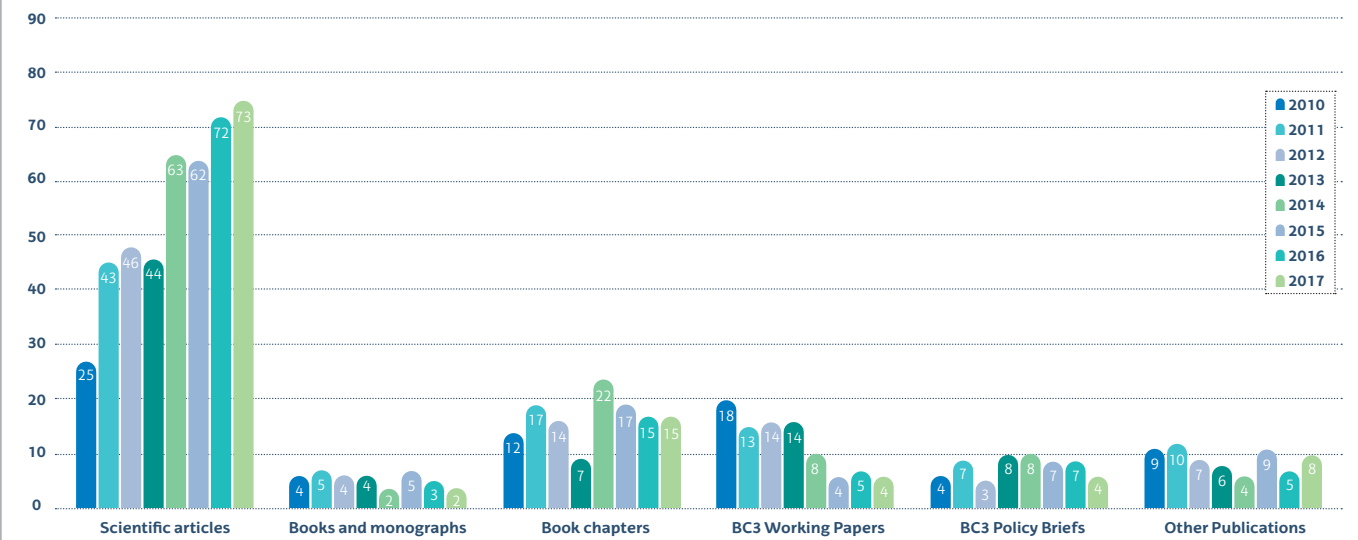
FERDINANDO VILLA
IKERBASQUE RESEARCH PROFESSOR

BC3 THROUGH THE YEARS

Around 100 collaborative projects over 10 years,
distributed across 5 continents.

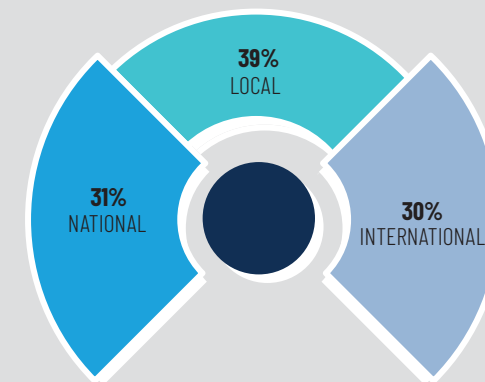


THE EVOLUTION OF OUR SCIENTIFIC OUTPUT OVER THE YEARS

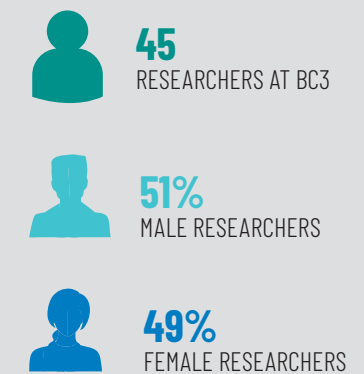


860
MORE THAN 860 PUBLICATIONS

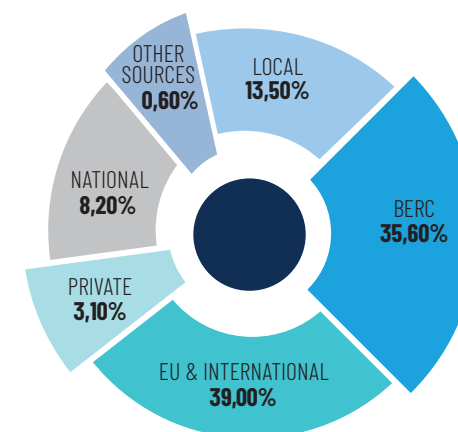
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RESEARCHERS



FUNDING SOURCES 2017



100
AROUND 100 RESEARCH PROJECTS

D E C C M A

**DECCMA****DELtas, vulnerability & Climate Change: Migration & Adaptation (DECCMA)**
www.deccma.com/

DECCMA is one of the four Consortia funded by the International Development Research Centre under the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA). DECCMA focuses on the impacts of climate change in three deltaic regions: the Ganges-Brahmaputra-Meghna delta in Bangladesh and India, the Mahanadi delta in India and the Volta delta in Ghana.

**TRANSrisk****Transitions Pathways and Risk Analysis for Climate Change Mitigation and Adaption Strategies.**
<http://transrisk-project.eu/>

TRANSrisk is an EU-funded research project studying the risks and uncertainties within low carbon transition pathways, and how transitions can be implemented in ways that are technically, economically and sociably feasible. The project's objective is to produce a new assessment framework, and an accompanying toolbox, for policy makers through 14 country case studies at the core of the project.

The TRANSrisk project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 642260.

**EastGRIP****East Greenland Ice-core Project**
<https://eastgrip.org/>

The EastGRIP project is both a logistic undertaking and a scientific collaboration. With EastGRIP, the project hopes to gain new and fundamental information on ice stream dynamics, thereby improving the understanding of how ice streams will contribute to future sea-level change.

International project financed with national contributions from the participating nations.

**ECONADAPT****Economics of climate change adaptation in Europe**
<https://econadapt-toolbox.eu/>

ECONADAPT project provides user-orientated methodologies and evidence relating to economic appraisal criteria to inform the choice of adaptation actions using analysis that incorporates cross-scale governance under conditions of uncertainty.

The ECONADAPT project has received funding from the European Union's Seventh Framework Programme under grant agreement No 603906.

**PURGE****Public health impacts in Urban environments of Greenhouse gas Emissions reduction strategies**
<http://purge.lshtm.ac.uk/>

PURGE examines the health impacts of greenhouse gas (GHG) reduction policies in urban settings in Europe, China and India, using case studies of 3-4 large urban centres and three smaller urban centres. Sets of realistic interventions are proposed, tailored to local needs, to meet abatement goals for GHG Emissions for 2020, 2030 and 2050. Mitigation actions are defined across four main sectors: power generation/industry, household energy, transport and food and agriculture.

The PURGE project has received funding from the European Union's Seventh Framework Programme under grant agreement No 265325.



10 REMARKABLE PROJECTS

**EcoFINDERS****Ecological Function and Biodiversity Indicators in European Soils**
<https://ect.de/ecofinders/>

The EcoFINDERS project increases our knowledge of soil biodiversity and its role in ecosystem services across different soils, climate types and land uses; standardizes methods and operating procedures for characterizing soil biodiversity and functioning and assesses the added value brought by cost-effective bioindicators, and of cost effectiveness of alternative ecosystem service maintenance policies.

The EcoFINDERS project has received funding from the European Union's Seventh Framework Programme under grant agreement No 264465.

**AQUACROSS****Knowledge, Assessment, and Management for AQUatic Biodiversity and Ecosystem Services across EU policies**
<https://aquacross.eu/>

AQUACROSS seeks to expand current knowledge and foster the practical application of the ecosystem-based management (EBM) concept for all aquatic (freshwater, coastal, and marine) ecosystems (as a continuum) by contributing to the development of robust and cost-effective responses integrated management practices, and innovative business models addressing current and future changes in major drivers and pressures, integrated management practices, and innovative business models.

The AQUACROSS project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 642317.

**EQUIVAL****Nurturing a Shift towards Equitable Valuation of Nature in the Anthropocene**
<http://www.futureearth.org/news/announcing-winners-grants-programme-biodiversity-research>

EQUIVAL provides the seed for a transdisciplinary (integration of multiple disciplines together with involvement of stakeholders) vision of the role of equity in the valuation of nature. It seeks to identify and analyze on-the ground cases with varying degrees and understandings of equitable valuation-led decision-making processes.

Program for Early-stage Grants Advancing Sustainability Science (PEGASUS).

**ARIES****Artificial Intelligence for Ecosystem Services**
<http://aries.integratedmodelling.org/>

ARIES is a networked software technology that redefines ecosystem service assessment and valuation for decision-making. The ARIES approach to mapping natural capital, natural processes, human beneficiaries, and service flows to society is a powerful new way to visualize, value, and manage the ecosystems on which the human economy and well-being depend.

The National Science Foundation to the Ecoinformatics Collaboratory at the University of Vermont (2007), joined by Earth Economics and Conservation International.

**iSAGE****Innovation for Sustainable Sheep and Goat Production in Europe**
www.isage.eu/

iSAGE will enhance the sustainability, competitiveness and resilience of the European Sheep and Goat sectors through collaboration between industry and research. iSAGE has a powerful consortium with 18 industry representatives from various EU production systems and socio-economic contexts.

The iSAGE project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 679302.



BC3'S ONGOING **COLLABORATION** **WITH THE UNIVERSITY** OF THE BASQUE COUNTRY

We interview **Marta Escapa** and **Alberto Ansuategi** from the **UPV/EHU**, who help drive collaborative efforts between **BC3** and the university. They talk about this relationship as well as key initiatives such as the Summer School, Klimagune and the Low Carbon Programme.

Alberto, over the years BC3 the the UPV have formed a close relationship. Can you tell us a bit about this partnership?

AA: When the Basque Government at the UPV/EHU decided to launch the Basque Centre for Climate Change ten years ago, they knew that, if the project was to succeed, it had to overcome many administrative and bureaucratic barriers and make use of all the synergies within the Basque Research System. One of the first challenges was related to the interdisciplinary nature of the research to be conducted by the centre, knowing that most scientific systems (and the Basque system was no exception to this rule) are organised according to traditional discipline-based knowledge. However, the interdisciplinary

nature of the Centre was soon seen as an opportunity to widen the research scope of existing research groups. This complementarity was facilitated by initiatives such as Klimagune and the Summer School in Climate Change, which were designed to help share knowledge among local researchers and promote research at the frontier, respectively.

A second challenge for the newly born research centre at the time was having full access to Doctoral Programmes that could offer training and award PhD's to graduate students working under the supervision of researchers at BC3. Several Doctoral Programmes at the UPV/EHU showed interest in incorporating experienced researchers from BC3 among their faculty members, and this has definitely jointly

benefited both institutions. Finally, the collaboration between researchers at BC3 and the UPV/EHU has provided a sufficiently diverse ecosystem of institutions and a critical mass of researchers that has made it possible to leverage substantial private funding of research through instruments such as the Low Carbon Programme.

Marta, how has this journey been for you?

MA: I have known BC3 since its inception, so I have had the privilege to collaborate with this research centre since the very beginning. I started working on the economics of climate change in the 90's; since then I became fully aware of the need for multidisciplinary knowledge to understand the causes and



"IT IS SAID THAT THERE ARE TWO THINGS THAT WE SHOULD GIVE OUR CHILDREN: ONE IS **ROOTS** AND THE OTHER IS **WINGS**."

consequences of climate change. This multidisciplinary knowledge is precisely something that BC3 has been able to convey not only to academia but also to policy makers, stakeholders and society at large. From my position at the University of the Basque Country I am happy to have been involved in the organisation of teaching and research activities with BC3. Students in our Master and Doctoral Programs in economics with an interest in the field of climate change have always been introduced to BC3 researchers willing to supervise their theses. I am especially proud of having been involved in the Summer School that BC3 organises annually, jointly with the University of the Basque Country, since 2010.

I hope the mutual cooperation between BC3 and the UPV/EHU will keep growing in the future, and I am sure that both parties will profit from it.

You have both seen BC3 evolve and mature over the years, how has this process been?

AA: It is said that there are two things that we should give our children: one is "roots" and the other is "wings". The same can be applied to a newly born Research Centre. The "wings" can be interpreted as the search for excellence in research, whereas the "roots" can be interpreted as the integration in the existing research fabric. I am glad to see that, after ten years, BC3 is very

well rooted in the Basque Research System and has, at the same time, spread its wings and reached noteworthy levels of excellence.

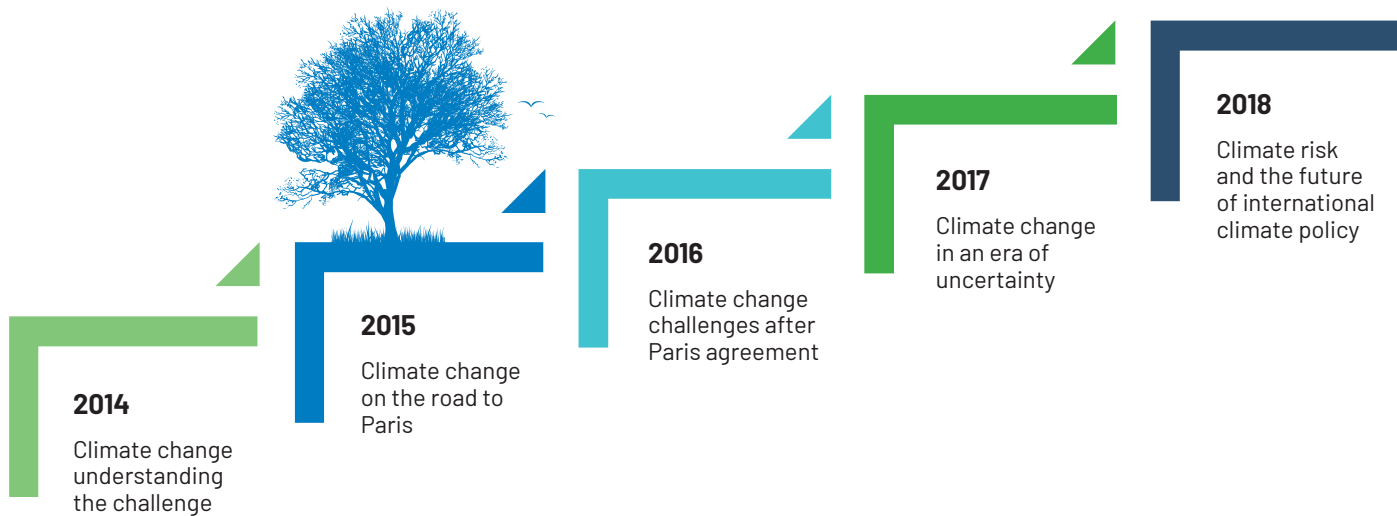
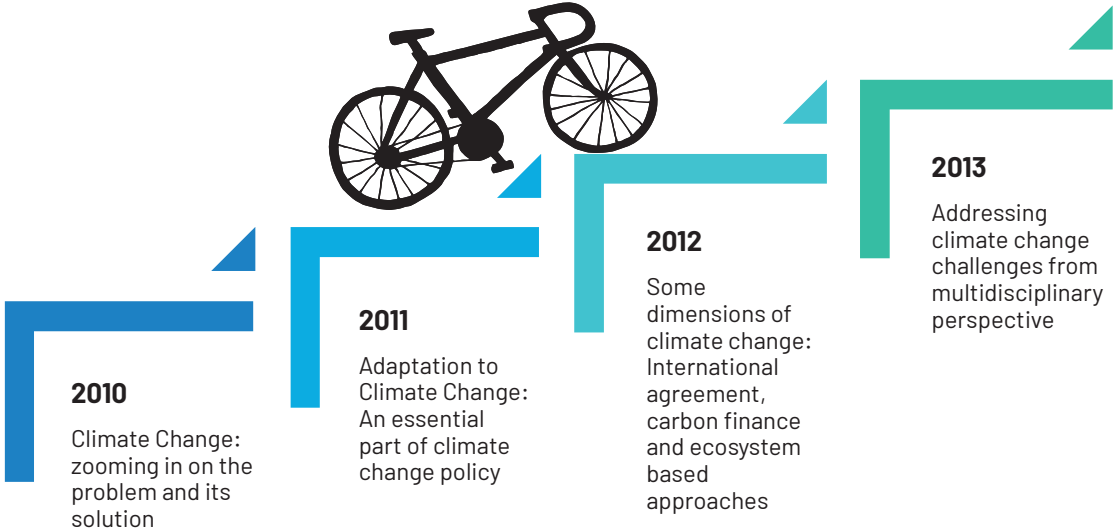
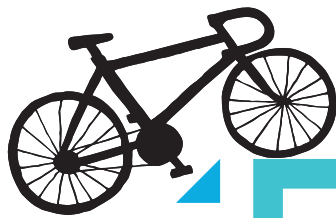


THE BC3-UPV/EHU SUMMER SCHOOL

The BC3-UPV/EHU Summer School is a key initiative intended to address the most current and pertinent issues relating to the field of climate change. It invites leading experts in the field and students from top universities and research centres worldwide to discuss the challenges and pathways towards a more sustainable future.



bc³ | summer school



"THIS **MULTIDISCIPLINARY KNOWLEDGE** IS PRECISELY SOMETHING THAT BC3 HAS BEEN ABLE TO CONVEY NOT ONLY TO ACADEMIA BUT ALSO TO POLICY MAKERS, STAKEHOLDERS AND **SOCIETY AT LARGE.**"





BC3 TRAINING CARAVAN

The Ministry of Education of the Basque Government and the BERC (Basque Excellence Research Centre) Basque Centre for Climate Change, BC3, jointly organise the Training Caravan (Researchers at classroom) initiative that has been active since 2010. This initiative is organised under the BC3 Responsible Research and Innovation (RRI) Programme Framework. Responsible research and innovation is an approach that anticipates and assesses potential implications and societal expectations with regard to research and innovation, with the aim to foster the design of inclusive and sustainable research and innovation.

Responsible research and innovation is a key action of the 'Science with and for Society' objective. BC3 is firmly committed to this objective on its transition towards a Trans-disciplinary Science, that will be one of the key axes of BC3 future strategy on how best address the complex challenge of Climate Change.

In fact, the Training Caravan initiative was promoted via the 'Science with and for Society' objective as one of the actions on the thematic elements of its RRI programme Science Education. With the objective to better align both the BC3 research process and its outcomes with the values, needs and expectations of society, BC3 launched the Training Caravan (Researchers at classroom) initiative in 2010, targeted at Basque Country's students aged (17-18).

The Training Caravan initiative, underpinned by the Science Education thematic area of BC3's RRI Science Education, aims to provide evidence(science)-based answers to some central questions about climate change, drawing on the best current scientific understanding and at the same time, making science education and careers attractive for young people.



BC3 is a research centre for Climate Change in which we are firmly committed to value creation, either through the development of research projects or through knowledge transfer; with such actions being designed for the international scientific community, the agents in the Basque Science and Technology Network, economic-business players, policy makers and, ultimately Basque society as a whole.

Accordingly, our operations at BC3 include actions designed for sharing and disclosing rigorous information on Climate Change. There are two highlights amongst these initiatives, with the first being the Klimagune Workshops, which provide a forum for informal discussion on Climate Change that is open to all the agents in the Basque Science and Technology Network. The aim of this initiative is to share knowledge, projects and developments in terms of scientific advancements, based on the

creation of synergies and possible frameworks for cooperation between the various research groups, organisations and institutions that address this matter.

The second initiative is the Klimagune Conferences, a series of lectures through which we seek to incorporate multidisciplinary insights and viewpoints into the debate on Climate Change, whereby we can help to create a society that is more and better informed regarding the collective venture of social and economic development from a sustainable perspective.

I understand that the challenge of building a new world on new foundations based on sustainability calls upon us to join forces and find frameworks for collaboration and cooperation involving all those agents working in this direction.

INTERNATIONAL SPRING UNIVERSITY ON ECOSYSTEM SERVICES MODELING



ARTIFICIAL INTELLIGENCE FOR ECOSYSTEM SERVICES

The International Spring University on Ecosystem Services (ES) Modeling is an annual 2-week intensive course that aims to build a new generation of actors, in research, policy and management, who can profitably use ecosystem services models to address and solve sustainability problems. In its very successful first edition, launched in the Spring of 2013, a large number of applications were received, from professionals in the field, academics and governmental actors. The course follows a problem-based paradigm, in which advanced Ecosystem Services modeling techniques are learned from both theoretical discussion and practice using case studies proposed by the attendees themselves. During two weeks of intensive instruction, participants learn how to effectively model ES problems of different scope and scale using a high-level modeling language that supports the integration of different modeling paradigms. ES and IT experts from around the world help the participants to independently create, run and analyze Ecosystem Services models and scenarios.

BC3 EXPLORING ARTS AND CLIMATE CHANGE

There is growing recognition for the integration of concepts of “ARTs” in traditional dialogues of science, technology, engineering and maths (STE(A)M).

Not only can this serve as a communication tool for reaching broader audiences, but can also help to express and diversify perspectives of science.

Acknowledging this need, BC3 has made efforts to explore elements of the arts within climate research, through seminars and workshops. Displayed in our offices are “artistic expressions” of what climate change means to BC3 members, here are a selection of examples.

TOKI BAT

“In June of 2015, three months after moving to Bilbao, I went cycling until the end of Zorrozaurre. At that moment, that part of the city was still unchanged, but the reform was imminent. Three years later I can say that I do not like the reform because I find the place uglier and the new urban design has worsened the access on foot and by bicycle. I never returned to the picture's place, but I bet it does not exist anymore. I feel frustrated with the change and I stare with nostalgia at those times when everything was possible.”



PHOTO & DESCRIPTION BY ELENA GALAN

FIRE FOREST

“The hidden beauty of beech forest. With some effects of climate change, as temperatures and drought increase, the ecological niches of beeches are decreasing, and if this situation keeps going on, in the near future we could lose these types of sceneries.”



PHOTO & DESCRIPTION BY JUNE HIDALGO



THE GORNER GLACIER



“This glacier in the Swiss Alps in the Monte Rosa Massif is, as most glaciers in the Alps, losing length and volume due to climate change. The heavy clouds represent an uncertain future for the glacier.”

PHOTO & DESCRIPTION BY IGNACIO PALOMO

PETIT PRINCE OF THE NORTHLANDS

“If some day you are lost and you see a landscape such as this one maybe you will find there a little child.”



PHOTO & DESCRIPTION BY GONZALO MORCILLO JULIANI

SUNNY DAY IN GREENLAND

“This is an iceberg melting in the southwest coast of Greenland. I took this picture in July, 2016.”



PHOTO & DESCRIPTION BY ASUN RODRIGUEZ

BC3 CELEBRATING ITS 10TH YEAR WITH THE MARÍA DE MAEZTU AWARD

"The María de Maeztu credential represents an acknowledgement of the work of a team with a shared vision on climate change and rewards the effort exerted to advance in multidisciplinary knowledge about this subject. It is an exceptional way of celebrating our 10th anniversary".

Prof. María José Sanz Sánchez

Scientific Director, BC3 - Basque Centre for Climate Change



For more information see: <https://info.bc3research.org/>

BC3 IN THE NEWS

BC3 has made a number of public appearances in different media outlets.

Here are just a few



María José Sanz: «Los fenómenos climáticos extremos resultan cada vez más frecuentes»



SPOT- LIGHT ON OUR TEAM

This next section takes a deeper look into life as a researcher here at BC3. It consists of a short insight into the life of one PhD candidate, one postdoc and one senior researcher.

A SPOTLIGHT ON A PHD CANDIDATE

"Two years ago I became part of BC3 as a PhD student and, at that moment, I started the most challenging and enriching experience of my life. The truth is that I arrived here without knowing anything about this centre and, because of my ignorance I was not expecting at all to be mainly surrounded by economists, especially in a research centre focused on climate change. In fact, some of them were also surprised when they saw me in the office with my backpack and fieldwork clothes, or watering plants for my experiments.

These kinds of situations happen when you work in a multidisciplinary centre such as BC3. We come from different backgrounds, so we see climate change issues from different but complementary perspectives. Far from being a weakness, I see this as our best strength. BC3 is a very enriching place for research, where I have learnt the importance of diverse social and political factors for nature conservation.

I would also like to highlight the essential work done by the administration team. I am sure that wherever I will work in the future I will never find such an efficient and supportive group. I feel very grateful to belong to this marvellous family who has made me realise how much I like science. I am living many special and unforgettable moments with great people that help me to face the challenges of this learning process."

Asun Rodriguez

Junior Researcher & PhD Student



NOTES FROM A POSTDOC

"I joined BC3 in 2014, after a transdisciplinary PhD at the Social-Ecological Systems Laboratory at the Universidad Autónoma de Madrid. Throughout my post-doc years at BC3, I have sought to develop research that contributes to the sustainability challenge. Alpinism being one of my passions, the human dimensions of climate change on mountain environments slowly emerged as a central research line for me.

Having started blogging on this topic in 2011, focusing on this research line, quickly allowed me to join passion and work. From the beginning, I realized that BC3 has the fresh, welcoming atmosphere of new institutions, which facilitates collaboration within research lines and disciplines. Collaborating closely with Ikerbasque Prof. Unai Pascual, I dived into an international environment that allowed me to grow as a scientist and as a person, and have recently been selected as Fellow and Lead Author of the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) and member of the Global Young Academy (GYA).

Together with other BC3ers, I am trying to foster sustainable mobility by regularly cycling to campus despite Bilbao's famous weather. I really appreciate the team we are at BC3, and how we support, motivate and inspire each other. The mix of cultures, backgrounds, different research topics and the passion we put into our work, have made BC3 a great place to work. In only ten years, BC3 has become an internationally renowned research centre. Let us work together to continue this great trajectory in the next ten years to come."

Ignacio Palomo
Postdoctoral Researcher



REFLECTIONS OF A SENIOR

At a young age, surrounded by news of global warming, acid rain and disappearing rainforests, I became an active member of the WWF. Since then I have been strongly engaged with the topic of how humans impact nature. Studying civil-, rural- and environmental engineering highlighted the complex relationships between humans and nature in modern societies.

Following postdoctoral research in water engineering, in Switzerland and Canada, I obtained a research professorship with Ikerbasque, the Basque Foundation for Science. When visiting BC3, which had been my first-ranked host institution, I was impressed by the diversity of backgrounds coming together to address climate change.

And indeed, the work here has allowed me move from a disciplinary engineering research perspective to inter- and transdisciplinary modes of scientific endeavour. It has been an enriching experience to collaborate with economists, physicists and ecologists. I found that my scientific background in environmental engineering and modelling has enabled me to act as a translator between disciplines.

BC3 has turned out to be a very fitting research environment, both professionally and also personally. Investigating potential pathways of climate change mitigation and -adaptation together with enthusiastic colleagues who share a common vision of a sustainable future is highly gratifying.

As a bonus, Bilbao, Biscay and the Basque Country with their cultural, natural and culinary heritages offer a very high quality of life.

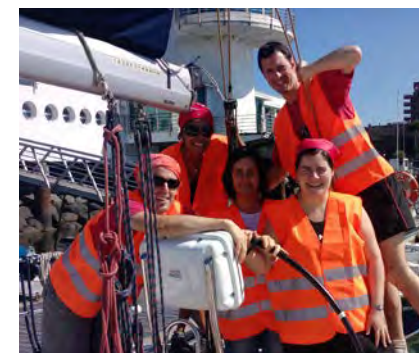
Marc Neumann
Ikerbasque research professor

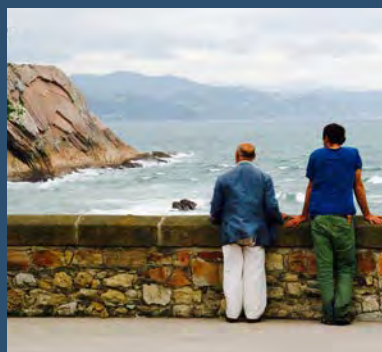


BC3 TEAM BUILDING

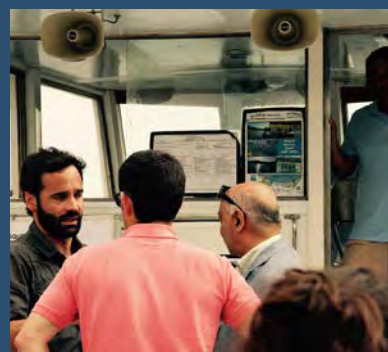
BC3 TEAM BUILDING

BC3 promotes extensive collaboration and learning between disciplines. Regular team-building exercises, such as excursions and social events are important components to strengthening our team.



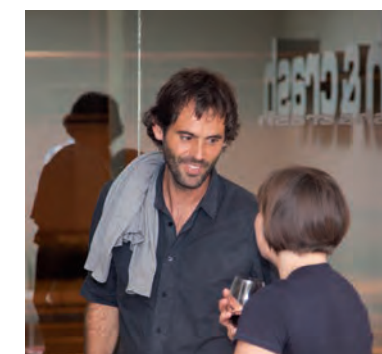


"At BC3, I have always been extremely proud of the **freedom** and **support** to bring my ideas and plans into fruition."



BC3 SOCIAL EVENTS

What makes our team different.



"..one of the things I value most in science is that it gives us opportunities to **network, collaborate and benchmark our performance** against other leading researchers and institutions."





CLOSING REMARKS

While we have a duty to provide high quality science, we hope this book also reflects the importance of collaborative effort on the path to building more resilient societies in the face of climate change.

As a centre for climate change, we hope to enhance knowledge while also striving for a better future. As this book demonstrates, strengthened principles of solidarity and teamwork are vital components on our personal and collective quests for sustainability.

There is indeed plenty to reflect upon. For now, one thing is clear. We have come a long way over the past decade. Lets strive to nurture this spirit for the future.

“THE MIX OF CULTURES, BACKGROUNDS, DIFFERENT RESEARCH TOPICS AND THE PASSION WE PUT INTO OUR WORK, HAVE MADE BC3 A GREAT PLACE TO WORK.”



"Look again at that dot. That's here. That's home. That's us. On it everyone you love, everyone you know, everyone you ever heard of, every human being who ever was, lived out their lives. The aggregate of our joy and suffering, thousands of confident religions, ideologies, and economic doctrines, every hunter and forager, every hero and coward, every creator and destroyer of civilization, every king and peasant, every young couple in love, every mother and father, hopeful child, inventor and explorer, every teacher of morals, every corrupt politician, every "superstar," every "supreme leader," every saint and sinner in the history of our species lived there - on a mote of dust suspended in a sunbeam.

The Earth is the only world known so far to harbor life. There is nowhere else, at least in the near future, to which our species could migrate. Visit, yes. Settle, not yet. Like it or not, for the moment the Earth is where we make our stand.

It has been said that astronomy is a humbling and character-building experience. There is perhaps no better demonstration of the folly of human conceits than this distant image of our tiny world. To me, it underscores our responsibility to deal more kindly with one another, and to preserve and cherish the pale blue dot, the only home we've ever known."

Carl Sagan - Pale Blue Dot: A Vision of the Human Future in Space , 1994

TO BE CONTINUED ...



bc³

BASQUE CENTRE
FOR CLIMATE CHANGE
Klima Aldaketa Ikergai

Sustainability, that's it!



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