The Second Dolomite Conference on the Global Governance of Climate Change

A NEW HOPE FOR CLIMATE

Actions Beyond Words

5TH - 8TH OCTOBER 2023

TRENTO - BOLZANO

CONCEPT PAPER (October 2023)

The concept paper of the Dolomite Conference guides the problem-solving process that occurs before, during, and after the event. It will first attempt to provide a general understanding of the nature of the problem and of the big questions addressed by the Conference; it will outline the event's structure with a brief introduction to the partners and participants. However, the focal point will be the third section, which will consist of concise papers framing each plenary and problem-solving group.

Therefore, it is structured as follows:

INTRODUCTION: THE NATURE OF THE CRISIS, THE MISTAKES TO BE ACKNOWLEDGED AND THE COMPLEXITY SYNDROME

"At a time when we should be accelerating action, there is backtracking. At a time when we should be filling gaps, those gaps are growing. **We are hurtling towards disaster, eyes wide open** – with far too many willing to bet it all on wishful thinking". The UN Secretary General, Antonio Gutierrez recently warned[1] that we risk falling into dangerous acquiescence. Indeed, the battle for mitigating (or adapting to) climate change appears to have lost political steam.

And yet, "we" (as part of the community of institutions, scientists, companies, media advocating the adoption of a new paradigm) also ought to quickly acknowledge that we have made some fundamental **mistakes**. The support of people to the agenda on climate change is not just optional: it is the energy we need to transform our societies, our cities, our families, the way individuals and institutions behave. We need to engage people and not just lecture them on what they should do. And the paradox is that people[2] are already part of the battle; after all they are the first to feel the heat.

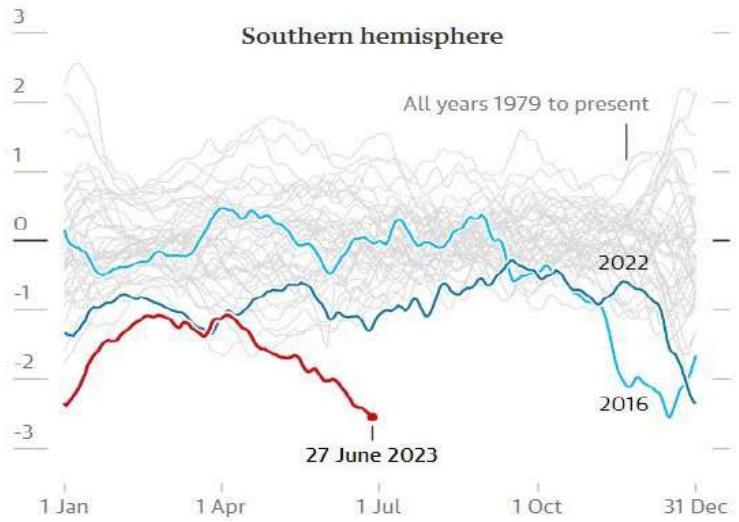
WORSE THAN "DON'T LOOK UP"…

In the winter of 2020, while the world was locked down by a crisis showing that the unconceivable can happen, Adam McKay managed to produce a movie[3] mocking the indifference of governments and media to a disaster that two scientists had announced. The climate crisis, however, is very different from a comet hitting the planet. The signs of the problem that may be about to escalate are already hitting the life of everybody.

Monday, July 3rd was **the hottest day** (for the first time it was above 17 Celsius degrees[4]) since human beings started measuring world temperatures. The record was beaten three more times in the rest of the month and even the **Oceans** overcame a threshold (20 Celsius degrees) resembling a Maginot line beyond which we risk losing the most powerful thermostat that prevents global heating to spiral out of control. Even more worryingly, on June 27th the sea ice around **ANTARTICA** was thinner than ever: the frozen continent has lost 2.5 million squares of ice area vis-à-vis the average of the last thirty years and 1 million squares as opposed to its former worst year (2022)[5].

[1] Press conference on climate on the 15th of June 2023, New York, UN Headquarters
[2] The term can be indeed misleading because it contains under the same umbrella very many different segments of population with different aspirations and fears.
[3] "Don't look up" (2021) starring Leonardo Di Caprio, Cate Blanchet, Meryl Streep and distributed by Netflix.
[4] 17.18 surpassing the previous record of 16.92 in August 2016. Source: US National Center for Environmental Protection (NCEP)
[5] Sea Ice Index, National Snow and Ice Data Centre

FIGURE 1: SEA ICE AROUND ANTARCTICA DECREASING OVER TIME, FROM THE 1981-2010 AVERAGE*, IN MILLION SQ KM.



Source: Vision on Sea Ice Index, National Snow and Ice Data Centre data and The ECONOMIST graphics
Note: * 5-day trailing average anomaly

Two and half million squares of missed iced land is the equivalent of losing a country seven times the size of Italy. It is 15% of the total surface of a frozen continent which holds 70% of the world's freshwater: its total melting would raise sea levels by 60 meters. This is probably just one of the most worrying sign that we may be close to one of those tip points beyond which, according to the Inter-government Panel on Climate Change (IPCC), climate may spiral out of control.

Climate change is thus no longer within some scientific circles. It is everywhere and does not spare anybody. In July, in hyper-conservative and climate change skeptical **Texas**, the thermometer repeatedly crossed the threshold beyond which the elderly is advised not to go out for most of the day. China is equipping itself to save from rising sea levels **Shanghai** and Beijing was hit by unprecedented typhoons at the end of July. Africa's most populous city, **Lagos** has lost most of its beach[6]. Pilgrims of the August visit to **Mecca** (Hajj) face temperatures over 50 Celsius and Saudi Arabia is rationing access[7]. In 1980, **Marmolada**, the most iconic glacier of the Dolomites, has lost 85% of its ice and this is the trigger for avalanches like the one that claimed 11 lives in 2022[8].

The crisis is already happening. The worst consequences may be about to unfold. And yet, the attitude of people (and electors) has changed. Even in just one year since the first edition of the Dolomite Conference.

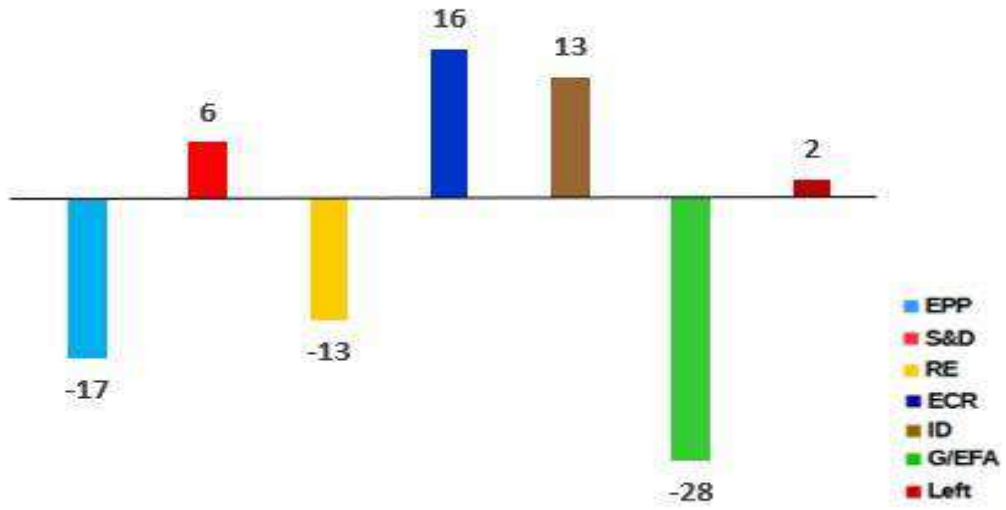
[6] CNN, August 1st 2021
[7] The Muslim News, 2nd July 2023
[8] WIRED, 6th July 2022.

.. CLIMATE CHANGE FATIGUE...

The "backtracking" that is happening "at a time when we should be accelerating action" (as for Gutierrez's words) has got political reasons. As market research, produced by Hokuto in partnership with Vision shows the perception of the cost of climate change is growing; but also, the one of the costs of the energy transition. This seems to generate a climate fatigue.

One of the strongest indications of it comes from the polls on the 2024 elections of the European Parliament. The elections are expected to change political equilibrium in the block. As for the graph below, the greens are expected to lose more seats than anybody else (one third of the ones they are currently holding) and one of the policies that may be most impacted by the results is the so-called EU green deal that was a strong qualifies of Ursula Von Der Leyen's presidency.

FIGURE 2: NUMBER OF SEATS EXPECTED TO BE LOST OR GAINED AT THE NEXT EUROPEAN PARLIAMENT ELECTIONS (POLL OF POLLS BY POLITICO)



Source: Vision on "Politico" Data

Climate skepticism is also high in America; less so in the so-called global south that may find in the innovation that the climate change challenge triggers, the opportunity to leapfrog the West (we will come back to this in the section on "energy" and the one on "intelligent infrastructure").

One reason for such a disaffection can be found in the overall cost of such transition. According to McKinsey,[9] a consultancy, the achievement of the targets agreed at the Paris COP, would imply investments in fixed assets for 275 trillion dollars from today to 2050: this would imply additional

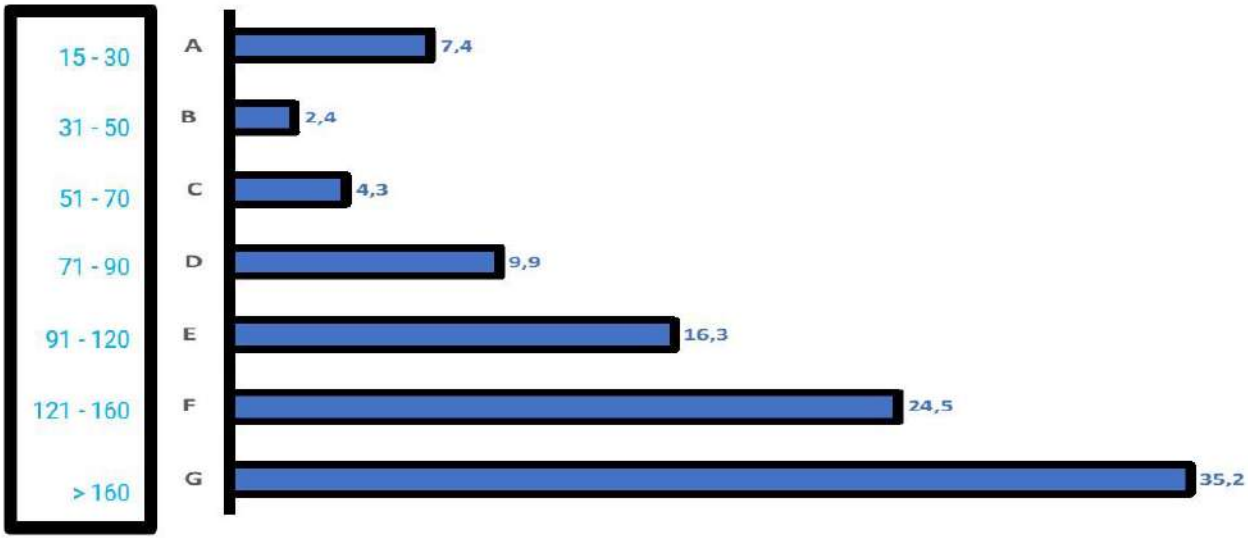
[9] McKinsey, Energy Transition to cost to the world 275 Trillion dollars, January 2022

investments for 3.5 trillion per year. To have an idea of the gigantic challenge we need to address, it is enough to remind that 3.5 trillion dollars are almost one fifth of the total tax revenues of the OECD (richest) countries.

Thing, however, is that the energy transition is hitting directly (as for the climate change) the lives (and pockets) of ordinary citizens.

The graph below gives a specific example of how what was supposed to be an "abstract" notion - mitigation – is indeed becoming very concrete. The European Commission[10] recently proposed a vast plan of modernization of buildings that make more than 40% of total emissions and are thus key to reach the targets of the "green deal"[11]. The European directives categorizes buildings in different levels of efficiencies (being A the most efficient and G the least so), whereas all offices and houses are meant to be at least at level E by 2033.

FIGURE 3: BUILDINGS BY ENERGY CLASS (RIGHT) AND CONSUMPTION (LEFT) (ITALY; 2023; %; HEATING; KWH PER SQUARE METER)



Source: Vision om ENEA Data

As for the graph, more than half of buildings in a country like Italy are above that minimum level threshold. Now considering that to bring a flat of 100 square meters from a category F to category E costs about at the very least 40,000 Euro[12] and that residential buildings are roughly 12.5 million (74% of Italian own a house), Vision estimated a total bill of 500 billion euros to be paid by Italian families in the ten years. This provides an idea of how energy transition becomes an everyday concern for most of citizens.

[10] European Commission, Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the energy performance of buildings (recast), Brussels, 15.12.2021.
[11] By which European Union needs to reduce emissions of 55% net emissions vis-à-vis 1990 level; and reach total neutrality by 2050.
[12] According to Oice (the Italian Association of engineers and architects)

The graph, however, also contains a hint that can lead to the solution of the dilemma: a more efficient building does generate to her owner a sizeable reduction of utility bills. EU States are proving subsidies that can run up to 110% of the cost of modernizing buildings: much more efficiently we should look to schemes that uses those savings to fund the initial investment so that public money is linked to an indicator of impact.

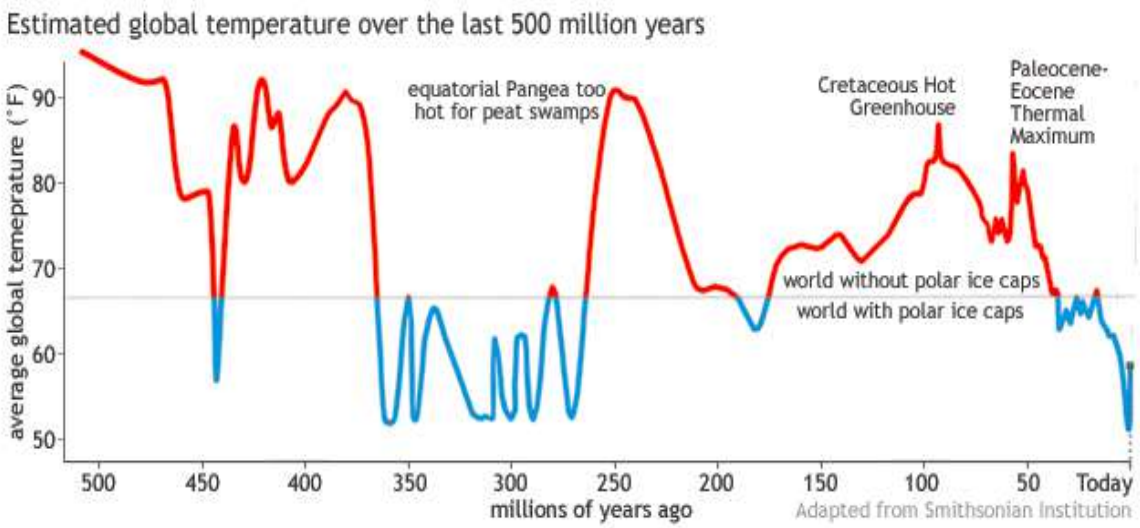
.. AND SOME QUALIFICATIONS OF THE PROBLEM

Climate change is, indeed, likely to be the worst threat that mankind has ever faced. And yet the story of climate change needs to be qualified in at least three dimensions:

1) It is obviously true that climate does change with huge impact of ecosystems also for factors that have nothing to do with humans. And yet the existential threat that we are facing is that the speed of change is higher than what species need to adapt.

The graph below provides a reconstruction of the evolution of temperature in the last 500 million years[13].

FIGURE 4: ESTIMATED GLOBAL TEMPERATURE OVER THE LAST 500 MILLION YEARS



One hundred million years ago, when dinosaurs were still around, the average temperature was around 26 degrees CELSIUS (11 more than today). In the same period, the average change in world temperature has been almost constantly of about one degree every 10 million years[14], we managed to add one and half degree in only thirty years.

Climate is today changing at a speed which is 500 thousand times higher than before the planet witnessed the "industrial revolution".

Science (and common sense) says that this acceleration is due to the only species that is capable to change the face of earth so that that modification (cities, dams, crops, …) is visible from a (man-made) airplane. It

[13] Science, "A 500 million survey of Earth's Climate", 22th May 2019

[14] And almost constantly such a change has been of a progressive cooling of the planet.

is the rapidity of the change that may be the problem that we need to address because ecosystem may have not enough time to adapt.

2) Consequently, it can be argued that it is not true that we are endangering the planet or the survival of life on earth. And probably not even the continuation of the homo sapiens. And yet, we still risk witnessing a gigantic loss in the level of wellbeing we reached thanks to the quantum leap industrialization and scientific progress in the last couple of centuries.

One of the most remarkable increases in biodiversity happened with the rise and differentiation of mammals: it took place indeed 100 million years ago when the planet, as we just mentioned, was 11 degrees hotter than today.
Humans may even survive the Armageddon: a yearly average temperature of 26 degrees Celsius did not prevent Luxor (Egypt) or Babylonia (Iraq) to become – 4000 years ago - the center of two of the most magnificent empires of history.
And yet this would still mean to accept most of other cities to be lost, our modernity to be swept away, hundreds of millions of people to die in the process.

3) Finally, we also need to acknowledge that not all countries will be affected in the same way in the short to medium term. Nor that necessarily that the amount of damage is conditional to current level of developments. In the medium term, however, we better acknowledge that this is the battle not of single nations or segments of population, but one for the survival of a world that needs to get together. For the first time in history.

Russia may paradoxically take advantage both from a deceleration of the energy transition (since it is the largest exporters of gas and the second largest of oil) and from an acceleration of climate change (diminishing sea ice is opening the arctic maritime routes of the Northwest passage and Northern Sea Route). It is not even necessarily true that poorer countries may proportionally suffer more than richer: excess mortality rates during COVID19 seem to say that less developed countries may indeed be more used to endure environmental crises[15].

[15] According to The Economist (The pandemic's true toll, updated 23rd September 2023) there is no African countries amongst the top twenty with more excess deaths for 100.000 people during COVID19; and five of the European Union.

FIGURE 5: THE UNEQUAL DISTRIBUTION OF THE CONTRIBUTION TO AND THE DAMAGE FROM CLIMATE CHANGE

Source: Vision on IMF forecasts

The relationship between climate change and macroeconomics is indeed uncertain[16]. Yet the chances are that in a not even long-time frame (ten years?) all countries[17] may experience significant losses in their wellbeing. The narrative and the instruments (including the "loss and damage") may better incorporate this as the climate change is really making "the world to be as one[18]".

The chances are thus that we are on the verge of a catastrophe that may endanger the future of our species (and not of the planet as somebody is wrongly assuming). And yet we are facing this existential threat as **paralyzed by a complexity** that overwhelms the intellectual tools that we have used for decades to govern a much more stable world.

The ultimate characteristic of the crisis we are living is that we seem to have lost trust into our capability to solve problems. And probably even before that, it sometimes seems that we may have even lost interest into the future. It looks we have lost the ferocious instinct of survival that made humans to solve problems. And yet the younger generations, many in the "global south" and whoever is used to fight for survival, are not ready yet to "go gently in that good night" (as for the Interstellar movie refrain echoing Dylan Thomas' words). They are our allies.

The challenge is political, managerial, technological but more eminently intellectual. And probably moral (in the sense that Kant gave to the term). Experts and lectures from experts are not enough, and they may even be part of the problem. We instead badly need intelligent people and organizations who are willing

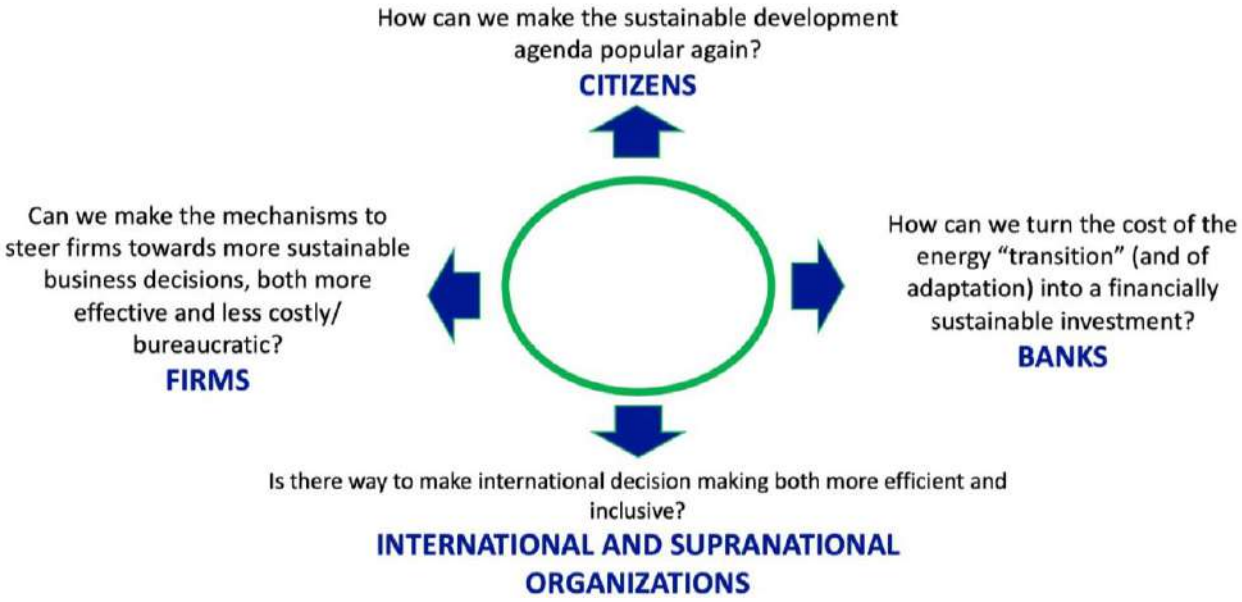
[16] Newell, R. G., Prest, B. C., & Sexton, S. E. (2021). The GDP-temperature relationship: implications for climate change damages. *Journal of Environmental Economics and Management*, *108*, 102445.
[17] Including the ones that may experience the melting of arctic maritime routes and yet may find themselves without markets where to ship goods.
[18] As in the words of the most famous of John Lennon's song.

to meet and learn from each other. We need "parties" coming from different backgrounds and working together with the aim not just admire complexity but to reduce it.

THE BIG QUESTIONS TO BE ANSWERED

The contribution of Vision and its partners[19] is about to find the institutional, technological, financial solutions and the tentative answers to the four big questions that this concept paper identifies as overarching. They propose four apparent dilemmas that appear to imply choices that can trap the world into a not sensical tug of war between different agendas.

FIGURE 6: THE BIG QUESTIONS FOR DOLOMITE CONFERENCE PROBLEM SOLVING GROUPS



The conference is thus structured into ten plenary sessions and four problem-solving groups that will all contribute to understand:

a) How can international organizations like COP (but also the UN itself) become both much more efficient in terms of decision making and inclusive as far as considering all areas of the world; but also, the stakeholders (large cities, young citizens, ...) that are not currently formally part of the policy making. Vision's assumption is that the tradeoff between efficiency and inclusiveness is not to be taken for granted.

b) Which method can we envisage so to have a system capable to concretely steer firms towards more sustainable behavior so that both "green washing" and unnecessary red tape are minimized.

c) How can we use the economic return that energy transition is going to have when completed (in terms of savings, higher productivity, less inequalities because of more distributed energy production) to finance its initial cost. And last but not at all least

[19] A new hope is also the title of one of the first and most famous episodes of the Star Wars saga.

d) We expect some ideas on both efficient measures to compensate who may temporarily suffer from the transformation, as well as change a new language of the climate change story. So that the environment agenda becomes popular again.

None of these gigantic questions is totally novel and we found them into different shapes into all big complex problems that risk overwhelming humanity: war with its nuclear ghost; debt and the complexity of a financial system that may implode again; free movement of people and the risk of a new pandemic; the impact of a technological progress that may produce soon robots capable to autonomously design artificially intelligent machines of which we lose control. Climate change, however, has the paradoxical positive effect to be the question that is exposing more clearly that we need a completely new method. And most likely institutions that are different from the ones we used to govern a different century.

Vision and its partners are thus convening a four-day meeting, from 5 to 8 October 2023, where eighty intellectuals, students, policymakers, entrepreneurs, managers, journalists, political and natural scientists will try to find a common ground. A common language. So, to launch "actions beyond the (too many) words spent on climate change". And give a new hope to future generations.

THE CONFERENCE LOCATION, THE STRUCTURE OF THE PROBLEM SOLVING, THE PARTNERS AND THE PARTICIPANTS

The North-eastern part of Italy hosts one of the most famous and stunningly beautiful, territorial symbols of the fight to counter climate change in Europe: The Dolomites. Their community and economies are strong and yet highly vulnerable to the melting of glaciers. But they also provide instructive cases of how hard human beings can fight back when the challenge becomes existential.

The Trentino Alto Adige Region is doing so through both the application of leading-edge technologies and the social innovation typical of its local communities.

The Conference will be structured in sections as follows:

a) Seven plenaries in Trento devoted to key global – political, financial and business - issues raised by climate change; and three of an applied nature in Bolzano about the hosting Region – The DOLOMITES – showing cases of innovative practices as benchmarks to inspire others ; plenary sessions will be introduced by one of the scientific partners of the Conference, discussed by few selected participants and followed by Q/A; they will all be public and broadcasted;
b) in addition, there will be the opening plenary on Thursday morning and the concluding plenary on Friday before lunch when the draft DOLOMITE MANIFESTO will be presented; these will also be broadcasted.
c) Four problem solving groups devoted to four specific issues and prepared by Vision together with Bocconi and POLIMI, will generate ideas; **these groups will be under the CHATHAM HOUSE rule.**
d) There will be a session on "Climate journalism" where media will reflect on how climate becomes a lever to add value and readings to media.
e) Last, there will be short documentaries about how local communities are being impacted by and are adapting to climate change. In closing there will be an excursion to the Val di Funes, one of the most stunning sites of the Dolomites.

The Conference will be opened with an overview of the program by the organizers with the chairs who will frame the debate. The program will continue with four problem solving groups, after the 80 participants will divide themselves in the four groups. Each group will be moderated by one chair who will develop the conclusions of the WG together with the presenter and The Bocconi-POLIMI students, as rapporteurs. Students will present the outcomes of the working groups to the plenary during the final day. The other public plenary sessions will take place on days 2 and 3.

The work adopts a methodology that Vision is successfully applying to the cycle of Vision Conferences on the future of Europe (the 4th edition took place in Siena on June 8th-10th 2023). The output, the Dolomite Manifesto, will feed directly into the United Nations Conference on Climate Change (COP) to take place in the United Arab Emirates from November 30th to December 21st, 2023.

Organizer of the Conference is **Vision**, the think tank (whose director is Francesco Grillo - Fellow at the European University Institute[20]) with the scientific partnership of the **POLITECNICO of Milan** and **Bocconi University**. These two renowned institutions in 2022 launched a joint degree on "transformative sustainability", a significant case of the multi-disciplinary teaching and research that Vision is looking for. The 2023 edition will also involve the participation of the **University of Trento** and **Oxford's Blavatnik School of Government.**

Founding corporate partner will be **AXA Italia** and **Autostrada del BRENNERO**; both have accompanied Vision in the successful first edition of the Dolomite Conference. The Conference will also be supported by the **Province of Trento** and by **Trentino Marketing**.

The chairs of the conference will be **Alexandra Borchardt** (Former Managing Editor of Süddeutsche Zeitung and Independent Media Researcher, Journalist and Consultant), **Enrico Giovannini** (former Italy's Minister for sustainable infrastructures and mobility), **Rohinton P. Medhora** (Distinguished Fellow and former President, Centre for International Governance Innovation), **Cliff Prior** (CEO, Global Steering Group for Impact Investing), and **Barbara Kolm** (F. Vice President of the Austrian Central Bank and Director of the Austrian Economics Center).

Some of the envisaged key participants of the conference will be: **Erik Berglof** (Chief Economist, Asian Infrastructure Development Bank), **Giovanna Melandri** (President of Human Foundation/Social Impact Agenda), **Paola Antonia Profeta** (Full Professor, University Bocconi; Dean for Diversity, Inclusion, and Sustainability), **Francesco Billar**i (Full Professor, University Bocconi; Rector), **Matilde Mesnard** (Deputy Director of Environment at OECD), **Jan Piotrowski** (Business Editor of The Economist), **Cerian Jones** (Climate Change and Global South correspondent at The Economist), **Colin Mayer** (Emeritus Professor and former Dean of Oxford Saïd Business School; Visiting Professor at Blavatnik School of Government), **Flavio Deflorian** (Rettore Università Trento), **Giacomo Gigantiello** (CEO, AXA Italia), **Diego Cattoni** (CEO, Autostrada del Brennero), **Pilita Clark** (Business Columnist Financial Times), **Alexander Janiaud** (Senior Investment Correspondent, Sustainable Views, Financial Times), **Rossella Miccio** (President of Emergency ONG ONLUS), **Fabrizia Lapecorella** (Deputy Secretary General, OECD).

The media coverage will be global. **Sky News Arabia** will maximize the possibility to reach out both the Global South. **Rai Radio1** will interview participants live from Trento. Sessions will be chaired by The

[20] The team at **Vision** have also included **Clara Donati, Margherita Curti, Francesco Paresce** and **Giorgia Caianiello.**

Economist, Al Jazeera, Süddeutsche Zeitung, Financial Times, Corriere della Sera, Sole 24 Ore, CNBC and many others.

PLENARY SESSIONS

OPENING SESSION "THE TITANIC SYNDROME: ADVANCEMENT ON THE OUTCOME OF COP27, LATEST IPCC AND OUTLOOK FOR COP 28" – DAY 1 (Thursday 5th October)

The "Titanic Syndrome" refers to this tendency that has been embraced, of ignoring warnings about impending disasters and continuing a dangerous course of action until it is too late. This concept can be applied to climate change, because despite warnings and factual evidence of its devastating effects, the world has been slow to take meaningful action. COP28, or the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change, is scheduled to take place in December 2023. The primary goal of COP is to continue the implementation of the Paris Agreement, which aims to limit global temperature rise to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C. The latest update of the Intergovernmental Panel on Climate Change's (IPCC) report signals that in only 10 years (2034) the world may end up being consistently trapped into a red alert area which is beyond the 1.5°C threshold: human activities are unequivocally causing the Earth's climate to change much faster than in any other period of the history of our planet[21]. This speed will reduce dramatically the possibility to adapt to the climate change and the consequences will be devastating for the humans[22].

Looking ahead to **COP28**, it is evident that much work needs to be done to achieve the goals set out in the Paris Agreement. Governments, businesses, and citizens all have a role to play in reducing greenhouse gas emissions and transitioning to a more sustainable future. This involves investing in renewable energy, reducing energy consumption, adopting sustainable agricultural practices, and implementing policies that promote sustainability.
Ultimately, it is crucial that the world promptly takes action to address the threat of climate change and avoid the "Titanic Syndrome." The consequences of inaction are simply too dire to ignore.
The purpose of this session is to introduce the topics that will be discussed during the upcoming Conference. The objective is to develop proposals for each theme and consider solutions to prevent inaction.
How can we reframe our approach to climate change to involve the general public, businesses, governments, and international institutions in addressing more concretely this urgent situation? What could be the new perspective that offers hope and guides us in finding solutions to various aspects associated with climate change?

Addressing the possible Titanic Syndrome related to climate change requires a multifaceted approach and collective action on a global scale. Firstly, we need to acknowledge the urgency and severity of the

[21] The average temperatures of our planet, as well as the concentration of C02 in the atmosphere have been much higher than presently in some specific periods (for instance 100 million years ago when volcanoes dominated the landscaper and dinosaurs were the dominating species).
[22] We also need to admit that the challenge posed by climate change to other species is of a different type: human civilization risks to be destroyed because it is much more sophisticated and, thus, vulnerable than that of animals. It is, thus, possible that the world will end up in a situation where the first casualty of the natural disaster is the species that originated it.

situation, understanding that the consequences of inaction will be catastrophic. It is crucial to foster widespread awareness and education about the realities of climate change, ensuring that individuals, communities, businesses, and governments are fully informed and motivated to act. Additionally, we must prioritize sustainable practices and embrace renewable energy sources while reducing reliance on fossil fuels. Implementing effective policies and regulations that encourage emission reductions and promote sustainable development is essential. Collaboration between nations, international institutions, and stakeholders is critical to fostering innovation, sharing best practices, and mobilizing resources. By adopting a proactive and comprehensive approach, we can overcome the Titanic Syndrome associated with climate change and steer humanity towards a sustainable and resilient future.

1. PLENARY 1. THE FUTURE OF ENERGY: STORAGE AND GRIDS TO REMOVE THE BOTTLENECK OF RENEWABLES - DAY 1 (Thursday 5th October)

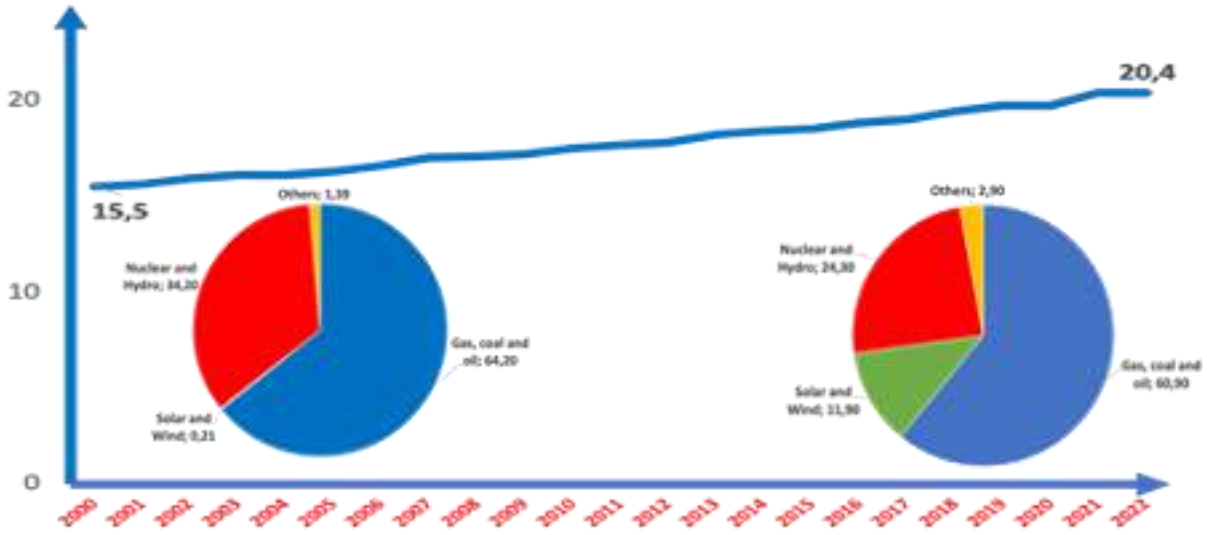
What does it take to achieve the ambitious targets of global energy coming from renewables that most countries have embraced What are the greatest technological bottlenecks? What are the solutions to scale up in terms of storage and transmission? Which incentives can encourage adoption by consumers and local communities?

So many problems are surrounding *climate change* and, in the last decades, states and international organizations have drawn a common line to mitigate the actions that cause damages to the Earth. In the 21st United Nations Framework Convention on Climate Change, celebrated in December 2015 in Paris, it was agreed to keep the global average temperature increase well below 2 °C compared to pre-industrial levels.
As part of this process, a key aspect is to increase the use of renewable energy, thereby reducing the amount of greenhouse gases being spread, especially using non-renewable energy sources. In fact, the proliferation of the greenhouse effect is having serious effects on the average temperature we face on our planet, increasing it at an excessively high rate.
Much of the focus will be on the energy sector, which currently accounts for just under 75 per cent of greenhouse gas (GHG) emissions generated by the combustion of hydrocarbons in the electricity, industry, transport and heating sectors.
The main aim of the energy transition is to transform the world system from one based almost exclusively on the production and consumption of fossil fuels to one system in which the sources of energy are renewable energy sources, such as wind power, solar photovoltaics and electric vehicles.

The essence of the energy transition is, thus, rather simple, and yet largely misunderstood. A transition of this kind, thus, then imply to pursue a two-fold political and technological objective: a higher share of total energy consumed coming from electricity; as well as a higher share of electricity consumption coming from renewables (where now most of electricity is produced by gas and other fossil sources).

Against such background progress in the last twenty years have been smaller than the amount of talking about it as for the graph below that Vision developed out of data from the International Energy Agency:

FIGURE 7: SHARE OF ELECTRICITY OUT OF TOTAL ENERGY CONSUMPTION; SHARE OF ELECTRICITY FOR DIFFERENT ENERGY SOURCES (LEFT IN 2000; RIGHT IN 2022) (%)



Source: Vision on IEA and Oxford University DATA

In a nutshell:

a) The electrification of society (and the development of the infrastructure – distribution, storage – that the transition requires) is such that we only gained 5 points in 22 years (with big differences amongst countries: in China such a share has gone from 17% to 27% in the last 10 years; in Europe and the USA has stayed broadly the same; in Russia has gone down).

b) As far as the share of electricity coming from distributed energy (the one that theoretically individuals – solar – and local communities – wind) increased a lot, and yet – at the same time – the share of renewables coming from large investments – nuclear and hydro – went down; the bottom line is that the percentage of electricity coming from fossil fuel has stayed almost the same (with big differences amongst countries: in Norway, Brazil or Kenya more than 90% of electricity comes from renewables).

This is the picture if we look to percentages. It does change if we consider absolute values and, indeed, the consumption of energy has increased a lot: from 123 thousand of Terawatt to 179 thousand of Terawatt. This is a significant great increase of 45%, and yet the world GDP tripled in the same period, and this means that the world is also becoming much more energy efficient.

It is also essential to underscore that the reasons for this transition are not only about climate change.

Renewables are, indeed, much less geographically concentrated than fossil: in theory not only every country of the world can – to a different extent – produce renewables-based energy (even nuclear and hydro); but also, (in the case of photovoltaic and wind) every local community and citizen could contribute. This would make the entire system less unstable, less dependent on dictators (it has long been observed that natural resources endowed countries tend to be run by rentiers), more equal

because the energy markets would, in theory, tend to perfect competition amongst a larger number of sellers.

In fact, although, as we just saw, electricity today constitutes only 20% of the world's energy consumption, in the future "*it will be the spinal column of the entire energy system*", as stated by Gerhard Salge, Chief Technology Officer at *Hitachi Energy*, a leading supplier of grid equipment.

While the overall goal of the energy transition is clear, the pathways to efficient decarbonization are not obvious and may differ, depending on the context of the world's nations. The road to the renewable energy transition is not easy, as there are several 'bottlenecks' that could be brakes and obstacles to an efficient transition.

Of the different elements that play a key role in this challenge, the debate identified five "gaps" (as for UN' secretary general words). The first two are mainly about technologies and investments; the last two about the capabilities of (global and local) policy makers; the third is a combination of both:

1) **Mismatch between demand and supply due to weather conditions**. The production of both wind and solar energy are intrinsically not stable. This is true also for demanding, which is driven by many factors, including once again natural factors.
Paradoxically the summer is the season with more supply of solar energy and the least demand for it (due to longer daylights and higher temperature[23]) while the opposite may be true for winter. Storage of excess supply is one of the bottlenecks that is generating great business opportunities that the Conference will explore.

2) **Infrastructure for transmission**. This is a double challenge. First, a much higher share of electricity on total energy consumed will require much more transmission power; second, a grid that becomes – in theory – a "many to many" network[24] (where technically every consumer/ household/ local community can also be a producer/ seller of energy produced in excess) implies a higher degree of sophistication. This "gap" is one of the most expensive investments needed to accomplish the transition. The Conference will explore how a business case can be devised to show that the cost of the initial investment will be repaid by future savings, higher security of the grid and fewer inequalities.

3) **Supply risks of some of the key materials that the transition will require**. One study identified thirteen elements that present a very high or high risk, including, copper, lithium, silver, tellurium. Tellurium, mainly required for producing photovoltaic solar cells, presents the highest risk.
Awareness is to consider that the risk of the concentration of critical resources in some countries (as it happened with oil and gas) will also exist to realize the new model.
But it will be a different kind of risk because whereas with oil, it was the raw supply itself to be concentrated, in the case of the transition it is a matter of more specific minerals needed to manufacture the key "machines" required by the new model (turbines, solar cells, batteries). This is not a marginal difference because technologies are already providing the alternative to their very vulnerability (as for

[23] Although global heating is increasingly the demand for air conditioning. And most likely helped Europe to get rid of its dependency on imports of gas during the Ukraine war.
[24] It will be similar to the INTERNET.

the beyond lithium batteries).

4) **Political gridlocks at global level.** Some countries (mainly oil and gas exporters) are expected to resist the transition and to even use the vetoes that they are holding in multilateral organizations. The same behavior may be true for some oil companies that are lobbying to delay the change.
However, the cases of the hosts of COP 28 demonstrate that it is possible to find a venue towards development without oil[25] (DUBAI) or beyond oil (as for ABU DHABI, building some of the largest solar factories of the world, by leveraging the location advantage of the desert).
Likewise, the example of all car makers shows that even fuel-based industries have sometimes accepted the challenge of the turnaround.

5) **Political gridlocks at local level.** A new energy paradigm will require to redesign cities. No less important is to find ways to overcome the NIMBY ("not in my back yards") phenomenon and bureaucratic procedures that are making difficult for Europe and the USA to equip themselves with the capacity for wind and solar energy.

The session on "*the future of energy*" will convene the mix of companies and policy makers to clarify the nature of one of the most important battles in the war against climate change and to disentangle the gridlocks that are delaying the transition.

2. PLENARY 2. CLIMATE CHANGE AS A GENDER/AGE AGENDA – IS THERE A DIFFERENT WAY TO PERCEIVE NATURE AND FUTURE ACROSS GENDERS AND GENERATIONS? - DAY 1 (Thursday 5th October)

Climate change affects people in different ways – depending on where they live, on their social status and apparently also on their gender and age. This panel will specifically focus on the different perceptions of the urgency and gravity of the crisis across gender and age.

From a gender perspective, the panel will address how climate change impacts women and men differently, on the basis of distinct vulnerabilities and opportunities. This perspective could shed light on how traditional gender roles and societal norms might influence climate-related decisions, actions, and responses. Do women tend to care more about nature? Are they more disproportionately affected by climate change due to existing gender inequalities? Do they express an approach that is different from the one we expect from men?

A large body of research shows that women are, on average, more likely than men to be concerned about the environment. Moreover, they tend to have stronger pro-climate opinions. Scholars have tried to explain such differences on the basis of gender socialization and value systems (e.g., women are raised with a stronger focus on compassion and altruism than men), perception of general risk and feminist orientations such as commitment to egalitarian values and social justice. Some other research have underlined a link between gender differences in climate concern and a country's GDP per capita[26].

[25] On this, see the VISION paper (AUGUST 2023) on..
[26] "Facing Change: Gender and Climate Change Attitudes Worldwide", S.S. Bush, A. Clayton, on American Political Science Review, 2023

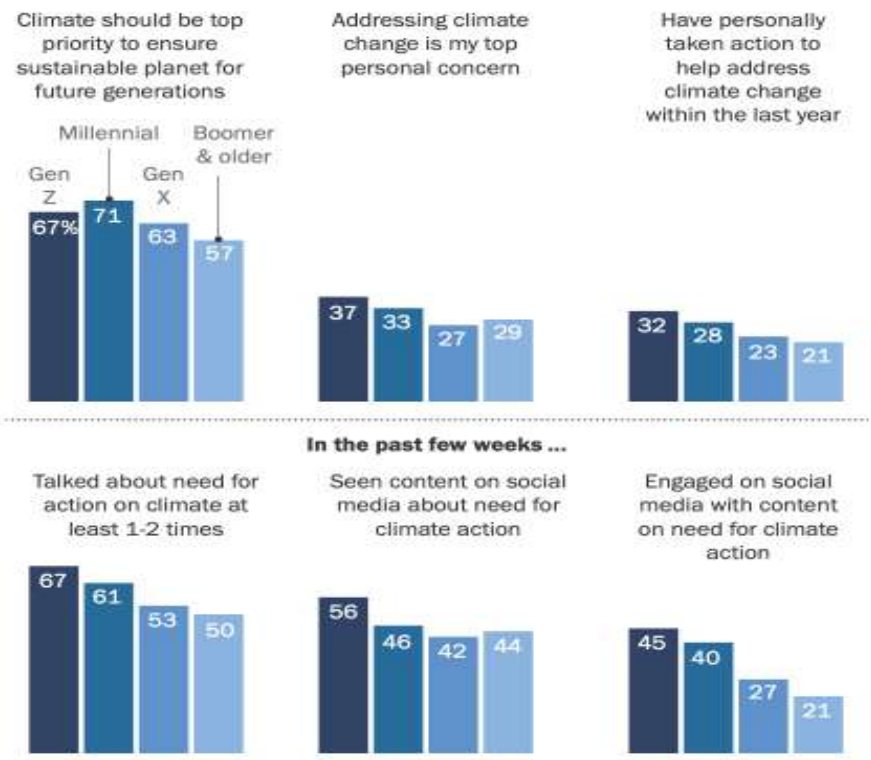
According to these studies, although both men and women tend to express less concern about climate change in wealthier countries than in poorer countries, the decline of concern is more significant among men.
Studies conducted in the US have shown that, although a similar proportion of men and women perceive global warming as a human-caused and real issue, women consistently attribute to the same problem a higher risk. A greater proportion of women, compared to men, also think that climate change will not only harm them personally, but it will also harm people, plants and animals in the US[27].

At the same time, examining climate change through the lens of age reveals how the younger and older generations perceive nature and envision the future. Are young people, who are inheriting the consequences of current climate actions, more active and vocal advocates for urgent climate action? Do older generations hold distinct perspectives shaped by their experiences, wisdom, and concerns for future generations? How can intergenerational collaboration and dialogue contribute to finding sustainable solutions?

A 2018 Gallup analysis conducted in the US, for example, found a "global warming age gap" in some beliefs and risk perceptions: 70% of adults aged 18-34 said they worried about global warming, compared to 56% of people aged 55 or older[28]. Another study conducted across EU countries showed that people from younger generations tend to place responsibility of solving climate change on the business/industrial sectors and environmental groups more often than the preceding generations do[29]. Moreover, younger generations seemed to assume personal responsibility for climate change more than older generations, using environmentally friendly alternatives to personal cars and considering carbon footprint before purchasing products.

FIGURE 8. PERCENTAGE OF US ADULTS WHO SAY:

[27] "Gender Differences in Public Understanding of Climate Change", Ballew, M., Marlon, J., Leiserowitz, A., Maibach, E., Yale Program on Climate Change Communication, 2018,
[28] "Global warming age gap: younger Americans most worried", Gallup, 2018
[29] "The differences of climate change perception, responsibility and climate- friendly behavior among generations and the main determinants of youth's climate- friendly actions in the EU", A. Skeirytė, R. Krikštolaitis, G. Liobikienė, on Journal of Environmental Management, Vol. 323, 1 December 2022.



SOURCE: PEW RESEARCH CENTER, SURVEY FROM APRIL 2021.

The multiple perspectives on climate change force us to think beyond the conventional approach and to consider the interconnectedness of gender and age in shaping our understanding of nature and the future. Climate change is not a one-size-fits-all issue; understanding the unique experiences, concerns, and aspirations of different genders and generations can enrich our efforts in crafting a more equitable and sustainable future for all. By acknowledging the diverse ways in which individuals perceive nature and the future, we can foster meaningful dialogues, collaboration, and policies that truly embrace the needs and aspirations of every member of society in our collective journey towards climate resilience.

3. PLENARY 3. BACK TO MARE NOSTRUM: CLIMATE CHANGE AND MIGRATION IN AND FROM NORTH AFRICA *(IN PARTNERSHIP WITH EMERGENCY)* DAY 2 (Friday 6th October)

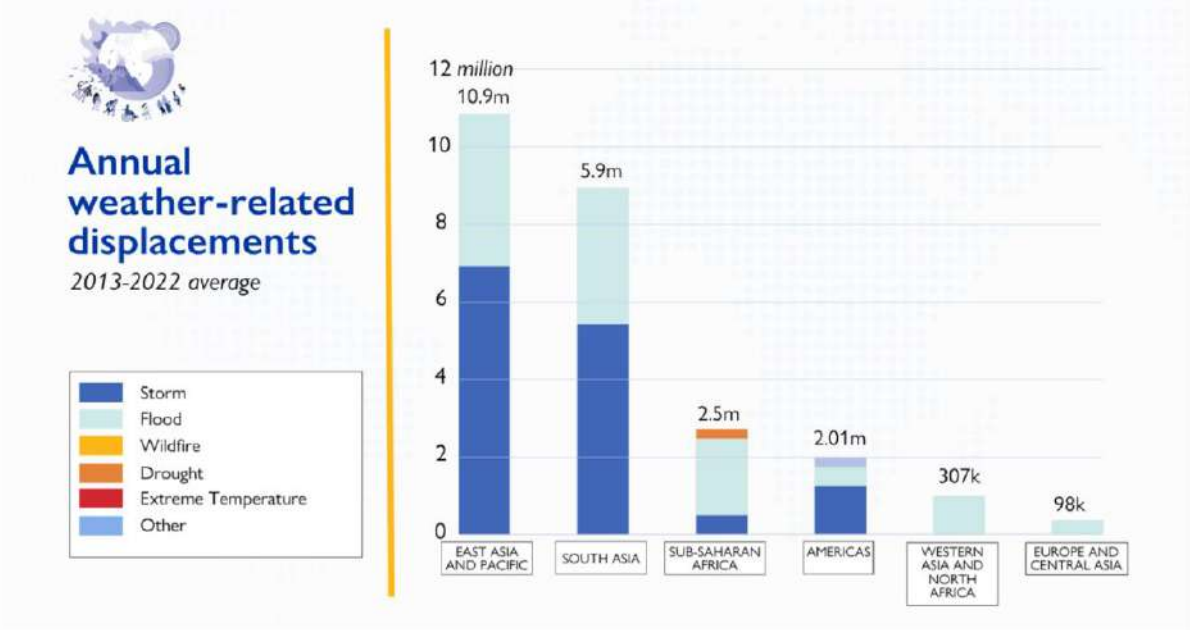
As climate change and its consequences are rapidly worsening, some parts of the earth are made uninhabitable by extreme weather events, such as floods, droughts, heat waves, wildfires and slower-moving issues as rising seas. The UNHCR has described climate change as the "*defining crisis of our time*", whilst the European Institute of the Mediterranean calls it a *"threat multiplier in the 21st Century"*[30]; the extreme consequences of climate change are forcing tens of millions of people to leave, making them *"climate migrants":* this is happening mostly within country borders with internally displaced people, but cross-border migration caused by climate change is also on the rise[31]. In 2020, disasters led to over 3 times

[30] "Climate Migration in the Eye of the Storm: A Future Challenge for the Mediterranean Region", Matías Ibáñez Sales on European Institute of the Mediterranean (IEMed), 2022

[31] The IPCC report in 2022 stated that *"climate change and weather extremes are increasingly driving displacement in all regions around the world.*

as much displacement –around 30.7 million people – as conflict and violence displaced 9.8 million people. 98% of disaster displacement in 2020 was due to weather and climate hazards[32].

FIGURE 9. WORLDWIDE ANNUAL WEATHER-RELATED DISPLACEMENTS IN MILLIONS (2013 – 2022, AVERAGE).



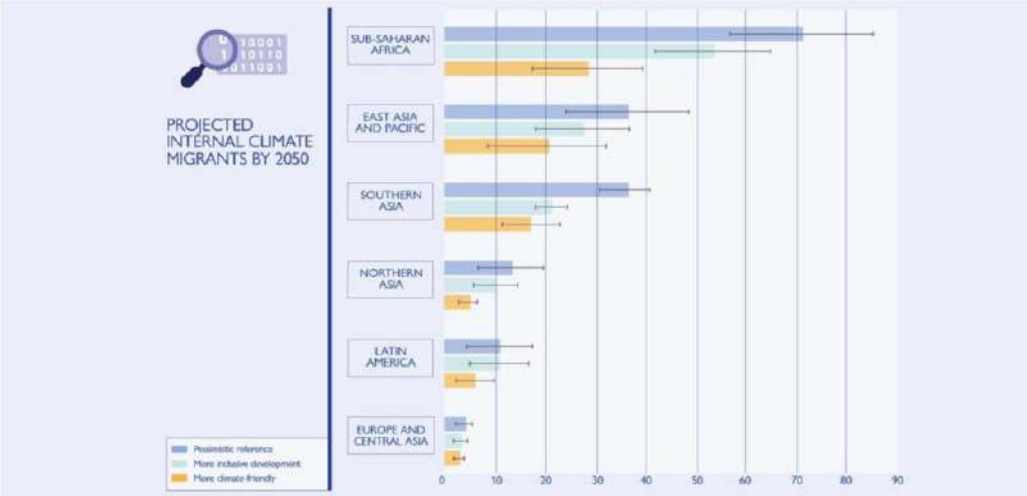
SOURCE: INTERNATIONAL ORGANIZATION FOR MIGRATION (IOM), 2023[33]

East Asia/Pacific, South Asia and Sub-Saharan Africa[34] are among the most vulnerable regions to the consequences of climate change and will most likely witness large increases in both internal and cross-border migration[35]. This is particularly alarming as more than half of the developing world's population lives in those three areas. Moreover, people already living in vulnerable conditions are most likely to face risk from the negative impact of climate change. These groups include indigenous population, peasants, women, people with disabilities, citizens of small-islands, individuals living in conditions of poor access to water, and exposed to desertification, land degradation and drought[36]. According to the World Bank's projections, 216 million people from six regions[37] could be forced to migrate within their countries by 2050. In particular, the Sub-Saharan region will see the highest number of internal climate migrants (86 million by 2050)[38]. Today, the Mediterranean region is one of the world's main climate change hotspots: the region is warming 20% faster than the global average, annual precipitation rates will decrease considerably in the upcoming years and sea-level rise may increase by between 20 and 110 cm by the end

[32] "Displacement in a changing climate", IFRC, 2021
[33] "Climate Change and Human Mobility: Quantitative evidence on global historical trends and future projections.", IOM (Beyer, Robert; Milan, Andrea).
[34]"Climate Change Is Fueling Migration. Do Climate Migrants Have Legal Protections?", M. Prange on Council on Foreign Relations, 19 December 2022.
[35] "The slow onset effects of climate change and human rights protection for cross-border migrants", Office of the United Nations High Commissioner for Human Rights (OHCHR), in collaboration with the Platform on Disaster Displacement (PDD), 2018.
[36] "The impacts of climate change on the human rights of people in vulnerable situations", Report of the UN Secretary General (A/HRC/50/57), 6 May 2022.
[37] Sub-Saharan Africa, South Asia, Latin America, East Asia and the Pacific, North Africa, Eastern Europe and Central Asia
[38] Groundswell Report Part 2: Acting on Internal Climate Migration, World Bank, 13 September 2021

of the century, according to the First Mediterranean Assessment Report (MAR1) on Climate and Environmental Change prepared by the independent network of Mediterranean Experts on Climate and environmental Change (MedECC)[39].

FIGURE 10. ESTIMATED CLIMATE-CHANGE-INDUCED INTERNAL MIGRATION BY 2050 BY WORLD REGION. BARS: PROJECTIONS BASED ON CLIMATE MODEL ENSEMBLE AVERAGES; WHISKERS: UNCERTAINTIES ACROSS CLIMATE MODELS.



SOURCE: IPCC ON DATA FROM CLEMENT ET AL. (2021).

Sharing with other countries a strategy of mitigation and adaptation to climate change is not only a moral obligation towards climate migrants and future generations but is also economically convenient - which is even more obvious when we talk about the nexus between climate change and the effects of uncontrolled migration from Africa towards Europe. Migration has a negative economic impact on countries of origin, as they lose the human capital that could eventually help them escaping the underdevelopment trap; it also has a political cost for Europe, where migration continues to be a highly controversial issue. As the UN High Commissioner for Refugees Filippo Grandi stated, *"We need to invest now in preparedness to mitigate future protection needs and prevent further climate caused displacement. Waiting for disaster to strike is not an option".*

Climate migration drivers should also be considered in the EU development cooperation frameworks with the Southern Neighborhood and with Sahelian countries since the Sahel – North Africa – Europe axis is going to be directly hit by climate-induced migration in the following decades.
It is time that Europe goes back to Africa with a completely different mission vis-à-vis the colonial decades: redesigning underdeveloped infrastructures so that Africa can be better equipped to the incoming climate Tsunami.

[39] Mediterranean Experts on Climate and environmental Change (MedECC). Climate and Environmental Change in the Mediterranean Basin: Current Situation and Risks for the Future. First Mediterranean Assessment Report, 2020.

4. PLENARY 4. HOW THE MIDDLE EAST (AND NORTH AFRICA) TRANSIT FROM FOSSIL DOMINATED ECONOMY TO BE LEADERS OF RENEWABLE? - DAY 2 (Friday 6th October)

The UN decision to have COP27 to be hosted by Egypt (in Sharm El Sheikh) in 2022 and COP28 by the United Arab Emirates (UAE) in 2023 is a strong confirmation that the Middle East and North Africa (MENA) region is a central player in global efforts to combat climate change. Ahead of the forthcoming conference, MENA has announced targets for renewable energy of 44% by 2050. Having relied on oil and gas as a formidable generator of wealth for decades, it is time for the region to embrace the move to net-zero carbon emissions.

The climate change challenge does, indeed, imply at least three major challenges for the Middle East: how to adapt to an economic outlook where fossil energy will progressively become less central; how to use natural and regulatory advantages that the region may have on renewables; how to tackle risks that climate change may exacerbate, starting from stress on drinkable water.

Ambitious 2050 initiatives such as the Dubai Clean Energy Strategy, aimed at transforming Dubai into a global clean energy center, show the resolve of the United Arab Emirates (UAE) to diversify its energy portfolio. More importantly, the "name of the game" is to embrace renewables not just to contribute to global commitments, but also as a huge business opportunity and lever for local development. The Middle East does, indeed, have a huge location advantage on photovoltaic energy – the desert has got tens of times the average solar exposure as other terrains -, but also the possibility to leverage much less red tape when it comes to have permissions to build parks dedicated to generating energy from sun or wind.

But as of 2022, renewable energy contributes only 12% of the UAE's GDP. Going further to reach net-zero targets will take an inclusive, participatory process built on an understanding of local conditions and stakeholders.

The transition of the Middle East will also be the stage for an important geopolitical game.

China's huge demand for energy is a key contributor to the region's revenue stream, and the energy transition is creating new opportunities to transfer technology, develop infrastructure and strengthen economic ties between China and the Gulf. Europe, however, geographically is much closer and it can play a role in filling the gaps of a new renewables-based system.

This panel will investigate some of the key tools and technologies that businesses and governments can use to help transform the energy sector.

Key discussion points include:

1. What can governments in the MENA region do to meet export demands and keep GDP growth stable while diversifying their economies?
2. How will solar and wind power lead the charge for renewable energy in the region?
3. Which technologies and innovative concepts will be most central to hitting ambitious net-zero targets?
4. As China's stake in the region grows, how will geopolitics affect the transition to renewables?
5. What kind of concrete cooperation can the European Union pursue?

5. PLENARY 5. THE "POST GDP AND EBITDA" WORLD – HOW CAN WE BETTER MEASURE IMPACT SO THAT FIRMS AND GOVERNMENTS TAKE ON BOARD SUSTAINABILITY? *(WITH OXFORD BLAVATNIK SCHOOL OF GOVERNMENT)* – DAY 2 (Friday 6th October)

Many of the problems that people around the world face nowadays — such as **climate change, biodiversity loss, financial instability, inequalities of opportunity** — derive from a **deficiency in the moral foundations of capitalism**. They are collective action problems that are not addressed within the current framework of the market economy focused on individual actions.
However, a central reason for this deficiency is that **the prosperity of nations and businesses is not measured appropriately.** National and business prosperity are measured primarily in terms of GDP and shareholder value, respectively. This deficiency is not inherent in the capitalist system. Rather, it is **a failure to measure success within the capitalist system in ways that promote the pursuit of human flourishing because they benefit both shareholders and all citizens.**
The two indicators, GDP and shareholder value, do not take proper account of the negative impact of environmental degradation and social fragmentation. For example, climate change and biodiversity loss clearly endanger the present and future of humanity, but these phenomena are often not counted as detriments to GDP and shareholder value. Capitalism is a system that enables people to mobilize resources, goods, and services in the pursuit of given goals. **If the goals are defined and measured inappropriately, then the market system will function inappropriately as well.**

On this account, a major challenge of our times is to rethink the measurement of prosperity, at both the national and business levels. By measuring prosperity in ways that are consistent with the achievement of meaningful human wellbeing — individually and collectively, now and in the future — by accounting and reporting on such measures, we come into a position of **conceiving how the capitalist system can be redirected to serve the genuine interest of humanity and the rest of the natural world.**
Though there are many existing measures of wellbeing, none thus far has been focused exclusively on the pursuit and achievement of moral values. The ***SAGE Dashboard*** is the first purely normative dashboard of wellbeing, being composed of 4 elements:
i) Solidarity (S), measuring social cohesion and embeddedness); **ii) Agency (A)**, measuring empowerment; **iii) Gain (G),** in the economic sense of GDP and profit; **iv) Environmental sustainability (E)**, measuring the ability of the natural world to sustain and regenerate itself. All these four elements (empowerment, solidarity, economic prosperity and environmental sustainability) are to be understood as a "dashboard": just as the dashboard of an airplane measures magnitudes (altitude, speed, direction, fuel supply, etc.) that are **not substitutable for one another** (e.g., correct altitude is not substitutable for deficient fuel), so those four indices are meant to represent separate goals. **Only when a country makes progress with respect to all four goals** can there be some grounds for confidence that a **broad array of basic human needs and purposes is being progressively met.** [40]

[40] Extracts from the paper D. Snower, C. Mayer, "Measuring prosperity ethically", 20 February 2023

This can be viewed as a first step towards a "moral capitalism," in which businesses can compete for profits and consumers can fulfil their needs equitably and inclusively.

6. PLENARY 6. INTELLIGENT INFRASTRUCTURES AS A KEY TO THE LONG-WAITED SELF DRIVING PARADIGM AND TO MUCH MORE EFFICIENT MOBILITY - DAY 2 (Friday 6th October)

For years policy makers have been debating how quickly electric cars should replace petrol fueled ones. And for at least two decades companies have been talking about self-driving vehicles. And yet the discussion is still missing an extremely important pre – condition to really allow the transition: infrastructure that will need to be as "intelligent" as the vehicles that will be hosted by them.

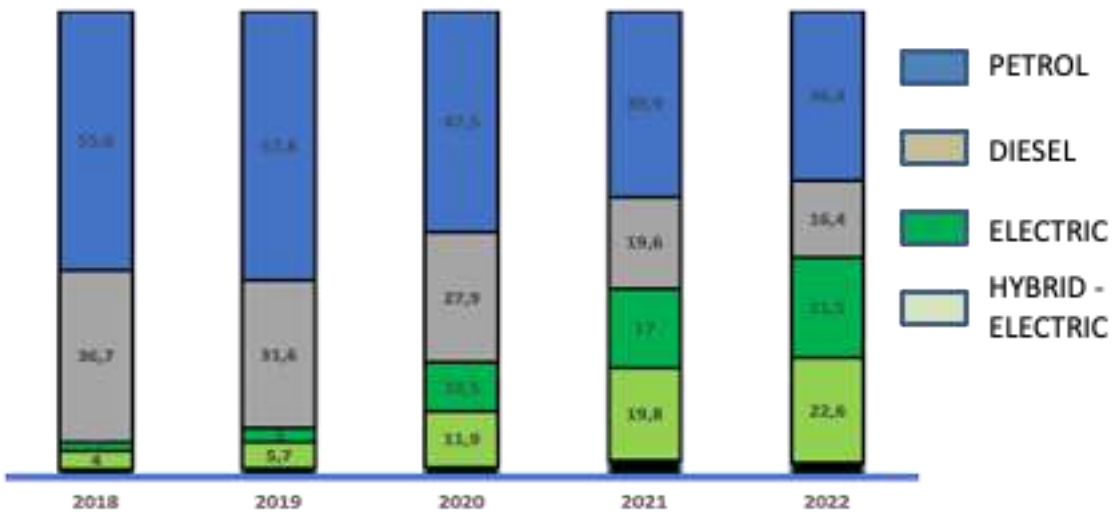
Most historians date the birth of the industrial society to 1886, the year in which a penniless German engineer, **Karl Benz**, filed a patent for the **first vehicle capable of moving** without the support of horses **thanks to a petrol-powered internal combustion engine**. However, an innovation of different kind was the one that made the revolution possible: over the following decades, **roads, squares and bridges** had to be built to accommodate the technology that was replacing horse-drawn carriages. After 150 years, **the meaning of the revolution is the same**: to move from a world based on the internal combustion engine to a new one made up of driverless, electric or flying vehicles, we will need an enormous infrastructure investment that will radically change the environment in which we live. And of entirely new rules to regulate the way forward. The paradox is that, compared to 150 years ago, **we are** faster in conceiving new products, but **slower in re-imagining the infrastructure** that will accommodate them.

The **digitalisation of transport infrastructure** has been talked about for decades. And it is an area in which Italy has little-known competitive advantages: it was, for example, Autostrade per l'Italia that was the first in the world to introduce the **Telepass** in 1989. It is still on an Italian motorway (**Autostrada del Brennero**) that is testing tracks moving in platoons without a driver: this may even bring us closer where railways and highways will converge into a seamless system. Nevertheless, there are now two powerful forces that are pushing towards a quantum leap.

The first is a strong push towards sharp reduction of the emissions of transportation due to climate change. Secondly, and only partially because of the climate crises and its regulation, energy transition is going much faster for cars. The graph below provides a very robust trend[41]:

[41] Fuel types of new passenger cars in the EU, ACEA, 8th May 2023

FIGURE 11: SALES OF NEW CARS BY ENERGY SOURCE (2018 - 2022; %)



Source: Vision on European Automobile Manufacturers Association (ACEA) DATA

It is, thus, now time to have the infrastructure to host electric cars and more profound innivations.

The transformation of roads into digital platforms (parallel to Tesla's drive to design computers on four wheels) is taking place on three major trajectories.

First, there is the idea of providing infrastructure with **sensors that drive vehicles.** Airports were the first to make this transition: technically, planes are already self-driving.

Secondly, **roads** not only become populated with new charging systems, but also become **capable of storing energy** - static and dynamic - from cars and returning it to them through an induction mechanism when they are parked (or even when they are moving).

There is, then, a third, **less demanding level** where the relationship between transport authorities and user is digitalized: road signs, crosswalk become digital; parking spaces and entrances to the city are booked and the control of violations becomes no longer avoidable: all massively cheaper and infinitely flexible.

However, smart infrastructure is an achievement that requires an ingredient that we have in smaller quantities than the states that at the beginning of the last century were able to plan infrastructure as their historic function. Even the countries that invented capitalism, played a crucial role into equipping their economies with infrastructures: the US federal administration issued the regulations meant to make railways accessible to everybody (a sort of anticipation of the notion of the “Internet neutrality”) so that cities could specialize; the British National Highways were born out of an investment decided by Margaret Thatcher. Today, the West **lacks** precisely this ability to **redesign its physical environment**, paralyzed by too many vetoes. Some find this to be natural for mature democracies. Vision argues that there are mechanisms to overcome the gridlock.

Rules and investments are badly needed for new mobility to happen. Populating the streets of a city with electric cars and motorbikes might require special road lanes, even just to avoid dangers to pedestrians who are used to recognise the approach of an internal combustion engine by the noise.

Not less important, however, is to recognize that new infrastructures will need experimentations (most likely in less problematic places/ cities); simple but effective metrics so to assess what is working and why; mechanisms to scale up successes by attracting private investments on cases that showed to pay off. **Almost all main urban roads in Beijing** are designed so that different lanes are dedicated to dif-ferent kind of vehicles (including self-driving). In Bengaluru facial recognition will soon replace tokens and cards to access the metro . In general, less developed countries show that they may have the possibility to leapfrog due to less legacy. Yet, Sweden is an interesting case: it is now turning a highway into a permanent electrified road - the first of its kind in the world. One where cars and trucks can recharge while driving.

Fifteen years after the invention of the first car, Engineer Benz's factory (before merging with Mercedes) sold about 4,000 cars. Today, fifteen years after the first successful trial - in a competition funded by the **US Agency for Special Research Projects** (**DARPA**) - of a totally driverless car, fully self-driving vehicles are still not on the roads. The paradox is that the **most technologically advanced society in history is less politically ready for innovation** than the one that was preparing to enter an era we are about to leave behind. The technologies are there; we need people to reorganize whole societies around them.

7. PLENARY 7. CLIMATE CHANGE AS THE TRIGGER FOR A LONG-WAITED REFORM OF BRETTON WOODS INSTITUTIONS *(WITH INET)* – DAY 2 (Friday 6th October)

Right before the Bretton Woods Conference in 1944, Henry Morgenthau, who was then serving as the US Treasury Secretary, asserted that the key to the triumph of the post-war global financial system was to expel *"the usurious money lenders from the temple of international finance"* and to ensure that capital was utilized for the betterment of *"the general welfare".*

As the world faces another critical juncture in global multilateralism amid the aftermath of the Covid-19 pandemic[1] a deepening debt crisis, and mounting global economic and geopolitical instabilities, it seems that this visionary approach has been lost. Climate change is arguably the most powerful catalyst for rethinking the UN system that we have used for decades to address global problems.

The UN system includes specialized agencies, such as the World Bank group (WB established in 1945 together with the UN)[42] that should (and want) to play a pivotal role in co-financing - alongside private funders - the enormous financial effort triggered by the climate crisis. Moreover, the eco-system of finance is itself more populated and complex than it was in the immediate post-war era, with domestic savings playing a larger role in development finance in most countries and the creation of new institutions – the regional developments banks and players like the AIIB, BRI, EIB, and the BRICS bank. Yet, many of the solutions to climate change must be global, even if implemented regionally and locally. For example, carbon pricing only works if there is a unique global carbon price standard to guide investment and trade decisions.

[42] The WORLD BANK GROUP includes the International Bank of for Reconstruction and Development (still the largest and the first to be established in 1944); the International Development Association (established in 1960); the international Finance Corporation (1956); the Multilateral Investment Guarantee Agency (1988); the International Centre for Settlement of Investment Disputes (1966).

The original "articles of agreement" did not mention "climate change" as a threat to be included in the World Bank's mandate. Yet the institution seems to take on board the challenge with a not enough clearly explicit scope[43]. At the same time, also the International Monetary Fund[44] (IMF),) is playing a role by suggesting conditions to countries that may need financial assistance to support economies that climate change may destabilize.

The criticisms of the Bretton Woods system have a history almost as long as those institutions. Nobel prize laureates like Joseph Stiglitz (who also was chief economist of the WB) and Amartya Sen have argued that their capability to fulfill their principal mandates (poverty for the WB and stabilization and IMF) is debatable[45]. A map of the vast literature on the critiques to the system also reveals that there is sometimes a transposition of arguments applying to IMF to the World Bank; as well as some points that refer, more generally, to the UN system[46]. And yet if we consider the governance of the global financial system from the climate change prospective even the critique and more importantly the proposals for reform will change[47].

Some of the questions that the session may tackle are: is the role assigned to the WB to address climate change the right one? Is it enough to focus on adaptation or should mitigation also be added to WB lending operations? Do we instead need a totally different institution dedicated to the climate crisis? Is there a legitimacy problem in institutions (like the IBRD) where the G7 countries still hold 40% of the voting rights (when only three of the G7 are still amongst the seven largest world economies)? How can we improve and simplify the assessment of the impact of the WB's and IMF's fundings and how can we improve accountability? How can finance principles be used to better price climate related loans? How can we better leverage private banks and firms to co-fund the energy transition and adaptation? Finally, in a post-Washington Consensus world, do we have the right development paradigm that incorporates issues like climate change and pandemics?

[43] The WB **seems** indeed relatively focused on one of the two legs of the climate change policies (adapting more than mitigating) and is concentrated on helping developing countries.

[44] Also founded at the last World War. And, indeed, actually before its conclusion, in 1944 at the meeting in Bretton Woods where 44 countries conceived a dollar based, post WW2 global financial order.

[45] UN Press Release, "With Multiple Crises Battering Developing Countries, Global Economic Governance Reform Key for Sustainable Development, Deputy Secretary-General Tells Bretton Woods Meeting", 13 April 2023

[46] Civil society itself has been expressing the need to urgently redesign the Bretton Woods Institutions: in July 2023, 74 organizations and individuals endorsed a joint paper (Civil Society calls for rethink of World Bank's Evolution Roadmap as part of wider reforms to highly unequal global financial architecture", the Bretton Woods Project https://www.brettonwoodsproject.org/wp-content/uploads/2023/07/CSO-reaction-to-WBG-evolution-roadmap_FINAL-1.pdf)
in response to the World Bank's public consultation on the WB's "Evolution Roadmap". The joint paper underlined the limitations of the World Bank reform proposals, as they contained an "*incomplete analysis of the current crisis of development […] which ignores the role of the highly inequitable global financial architecture in causing this crisis and the Bank's role within it".* Among its recommendations, the paper suggested to "invert the cascade" approach, "putting the public at the core of the World Bank's efforts to support global public goods", to "develop better metrics for measuring – and policies to tackle – inequality" and to "mainstream climate justice into the Bank's operations"

[47] A. Chhibber, "Modernizing the Bretton Woods Institutions for the Twenty First Century", Atlantic Council Geoeconomics Center (Bretton Woods 2.0 Project), October 17, 2022

8. PLENARY 8. CLIMATE JOURNALISM (*ORGANIZED WITH* ORDINE DEI GIORNALISTI ITALIANI) (Saturday 7th)

The climate crisis need media for fostering a debate so that people feel ownerships of the battle and new ideas (like the one that the Dolomite Conference is looking for) emerge. But it is also true the opposite: the challenge to find a mode to talk about the environment in an appealing way, can lead media to find the ideas to solve their own crisis.

Media used to be the "public town square48" where communities could form their identities and power was kept in check. The place where competition amongst different visions of societies could take place and proposals could be debated. As such media were, indeed, the information system that made democracy work. The system is not working any longer.
The crisis is both of:
technological obsolescence of a business model: the advertising revenues for the US newspapers run today at less than a third of 20 years ago, whereas META alone makes almost seven times more money out publicity of all US newspapers put together (plus it is much more profitable with return on sale which is more than 30%) and consequently of
independence: newspapers that need to fight for survival, are more vulnerable.

There are, however, new media that show that there is a way out of the crisis and even some old newspapers show that they can find a new equilibrium (the Dolomite conference will host some of the most interesting cases). The ingredients are simple: innovation in the way you communicate, new ideas and new angles to look to problems.

The need to talk about climate provides two essential challenges that can make journalism to grow: a different perception of time (the threat is hitting us now and yet most of the problems and solutions need to be understood with a time scale that is not the one of the daily gossip); a different perception of space (climate is really the case where a butterfly flapping its wings can produce a tornado hundreds of kilometers away so that we really are part of the same world).

Climate change can thus bring the intellectual and even moral energy around which quality media can flourish again. But how? How can media successfully tell the climate story? Without excess and yet working again as the communication backbone of a world that will be as one. ?

[48] This was indeed the definition that Elon Musk gave of a much different media called TWITTER immediately after having launched a controversial take over.

CLOSING SESSION - PRESENTATION TO MEDIA AND PARTICIPANTS OF THE DRAFT DOLOMITE MANIFESTO "HOW TO TURN THE PROBLEM OF THE 21ST CENTURY INTO THE OPPORTUNITY FOR A NEW WORLD ORDER"- DAY 3 (Saturday 7th October)

This closing session aims to provide a general reflection on what has emerged from these three days of meetings, including the results from the problem-solving groups and the topics discussed in the plenary sessions. The focus is to gather the perceptions of all the speakers on how climate change can be transformed into an opportunity for companies, firms, institutions, and citizens.

PROBLEM SOLVING GROUPS SESSIONS

*Each problem-solving group will meet on the first day (**Thursday 5th October**) of the Conference after previous web meetings, organized by Vision, to prepare the discussion.*
During the second day the PSG will meet up again to finalize their reports and on Saturday the chair, together with the students, will present the group results (20 minutes for each presentation) to the plenary.

1. MEASURE LESS AND MEASURE BETTER: BEYOND ESG. WHICH ARE THE MECHANISMS FOR STEERING PRIVATE INVESTMENTS TOWARDS SUSTAINABILITY?

Sustainable finance involves considering environmental, social, and governance (ESG) factors when making investment decisions[49]. This approach aims to promote long-term investments in sustainable economic activities and projects. Environmental considerations may include mitigating climate change and adapting to its effects, preserving biodiversity, and implementing circular economy practices to prevent pollution. Social considerations may encompass issues such as inequality, inclusivity, labor relations, investment in human capital and communities, and human rights. The governance of public and private institutions, including management structures, employee relations, and executive remuneration, is crucial in ensuring that ESG considerations are integrated into decision-making processes. Ultimately, sustainable finance seeks to align financial objectives with sustainable development goals to achieve a more sustainable economy and address pressing social and environmental challenges.
Nevertheless, there are several problems with ESG ratings that can make them difficult to interpret and use effectively[50]: lack of standardization, limited scope, data qualities, lack of transparency and difficulty to measure impact. ESG has become a popular approach for promoting sustainable investing, but it has faced criticism for its limitations as a measurement tool and risk management strategy. The criticism is that ESG may maximize compliance tasks (of what may be seen especially by smaller firms as an additional red tape) and not do enough for the gigantic task of making "capitalism more sustainable" (larger firms may use ESG as a tool for mere communication and even "greenwash" some of their core investments).
The concept of "measuring less and better refers" to turn around the ESG metrics. The questions that the PSG will address are thus: Which incentives can make firms to shift sustainability to the heart of their strategy

[49] EUROPEAN COMMISSION: WHAT IS SUSTAINABLE FINANCE https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en
[50] Walter, Ingo, Sense and Nonsense in ESG Ratings (July 23, 2020). Journal of Law, Finance and Accounting, Available at SSRN: https://ssrn.com/abstract=3568104 or http://dx.doi.org/10.2139/ssrn.3568104

(making, for instance, them to use their core technologies, know-hows to contribute to global sustainability goals)? Which are alternative ways to boost private investments toward sustainability without using indices? What about the provocation of dropping the "S" or the "G" of the ESG metrics so to focus on the "E"? How can we compare companies belonging to different industries? What if we move from an absolute measurement of the footprint to the change in time of it? Can be an idea to shift from the environment Can Green Bond, Certificate Schemes, Sustainability-Linked Loans, effectively foster investments in a sustainable way?

PROBLEM SETTING – STUDENTS DEVELOPMENTS

ESG INVESTING: THE CONTEXT

ESG (Environmental, Social, and Governance) is a reporting framework for evaluating sustainability and ethical practices of a business or investment in terms of environmental, social, and governance aspects. Carbon emissions, resource use, stakeholder interactions, and with the company's management are considered among other pertinent factors.

Over time the evolution of ESG related assets has been fast and promising.

- ESG Fund Assets: ESG exchange-traded funds' cumulative inflows should surpass $135 billion before 2021, and growth is expected to accelerate, with $1 trillion possibly entering such ETFs globally in the next five years[51]
- Green Bonds: The market for green bonds, which are used to finance environmentally friendly projects, experienced significant growth. Global green bond issuance hit a record US$314 billion in the first half of 2023 with the finance sector dominating the market. Governments and agencies also played a larger role[52]
- Social bonds and sustainability-linked bonds (SLBs): Beyond green bonds, social bonds and sustainability-linked bonds (SLBs) emerged as additional financing instruments for projects aligned with social and environmental goals; total volumes of social bonds issued grew by 1,253% from 2019 to 2021[53] and SLBs comprised 8% of sustainable bond issuance in 2022[54].
- Impacting investing: A more flexible approach focusing on generating measurable positive impacts alongside financial returns; the global impact investing market was valued at $2.5 trillion in 2021[55].

ISSUE WITH ESG MEASUREMENT

In this context, it's worth noting the significance of private equity (PE). The PE industry, with $6.3 trillion in assets in 2021 and projected to exceed $11 trillion by 2026[56], plays a pivotal role in society's efforts to

[51] Bloomberg Intelligence. 2021. "ESG assets may hit $53 trillion by 2025, a third of global AUM" <https://www.bloomberg.com/professional/blog/esg-assets-may-hit-53-trillion-by-2025-a-third-of-global-aum/>

[52] Wong M. and Palmer R.. 2023. "Impact Bond Analysis Global green bond issuance booms" <https://www.ice.com/insights/impact-bond-report-q2-2023>

[53] Global CIB. "Social Bonds: What's Next?" *Library*, Natixis - Natixis CIB, 19 June 2023, <home.cib.natixis.com/articles/social-bonds-what-s-next.>

[54] Sugrue D. and Popoola B. 2023. "Sustainable Bond Issuance Will Return to Growth In 2023" <https://www.spglobal.com/_assets/documents/ratings/research/101572346.pdf>

[55] Allied Market Research. 2023. "Impact Investing Market by Sector (Education, Agriculture, Healthcare, Energy, Housing, Others), by Investor (Individual Investors, Institutional Investors, Others): Global Opportunity Analysis and Industry Forecast, 2021-2031." <https://www.alliedmarketresearch.com/impact-investing-market-A53663>

[56] Harvard Business Review, 2022. Private Equity Should Take the Lead in Sustainability <https://hbr.org/2022/07/private-equity-should-take-the-lead-in-sustainability>

address emerging sustainability issues. However, the industry's ability to effectively pursue sustainability targets through ESG is also contingent on overcoming key ESG measurement challenges. ESG ratings are founded on comparative assessments of industry peers rather than universal standards, giving rise to several issues that underscore the need for in-depth analysis. The uneven nature of ESG data and its reliance on self-reported information from businesses make it difficult to ensure its accuracy and reliability.

- Lack of Standardization: There's no standard for evaluating social and environmental factors; different agencies use different assessment techniques and assign varying ESG ratings.
- Greenwashing: Some businesses misrepresent their ESG efforts to make themselves seem more sustainable than they actually are.
- Measurement of Long-Term Impact: Given that results may take years to manifest, determining the long-term impact of ESG activities and investments can be difficult.
- Complexity and Subjectivity: ESG variables have many facets and are subjectively assessed, which can result in conflicts amongst analysts and investors.

The worldwide use of multiple ESG frameworks (e.g., GRI, EU Taxonomy, SASB, TCFD) induces inconsistency. As no single global standard for ESG reporting exists, most companies end up adopting multiple ESG reporting frameworks.
Moreover, conflicting regulations between markets might lead to tensions between countries, as evidenced by the EU new carbon tariff. The stricter environment in the EU may create regulatory arbitrage opportunities for some companies that are not fully integrated into the global economy or have limited exposure to the EU single market.
As investors increasingly integrate ESG considerations into the investment process, calls to regulate the ESG ratings sector have increased in recent years.

EVOLVING ESG REGULATIONS

As of March 2021, the new Sustainable Finance Disclosure Regulation (SFDR)[57] became effective, requiring financial market participants to disclose 18 mandatory and up to 46 optional indicators. The Non-Financial Reporting Directive (NFRD) also underwent an overhaul, leading to the New Corporate Sustainability Reporting Directive (CSRD) being launched in 2022.
The SFDR emphasizes disclosure and reporting for social and environmental compliance among asset managers and investment funds, requiring them to define their sustainability strategies. The objectives of these regulations are redirecting capital flows to a sustainable economy, integrating sustainability into risk management, and promoting transparency and long-term commitments. SFDR classifies products as 'Article 8' and 'Article 9', based on their sustainability characteristics.

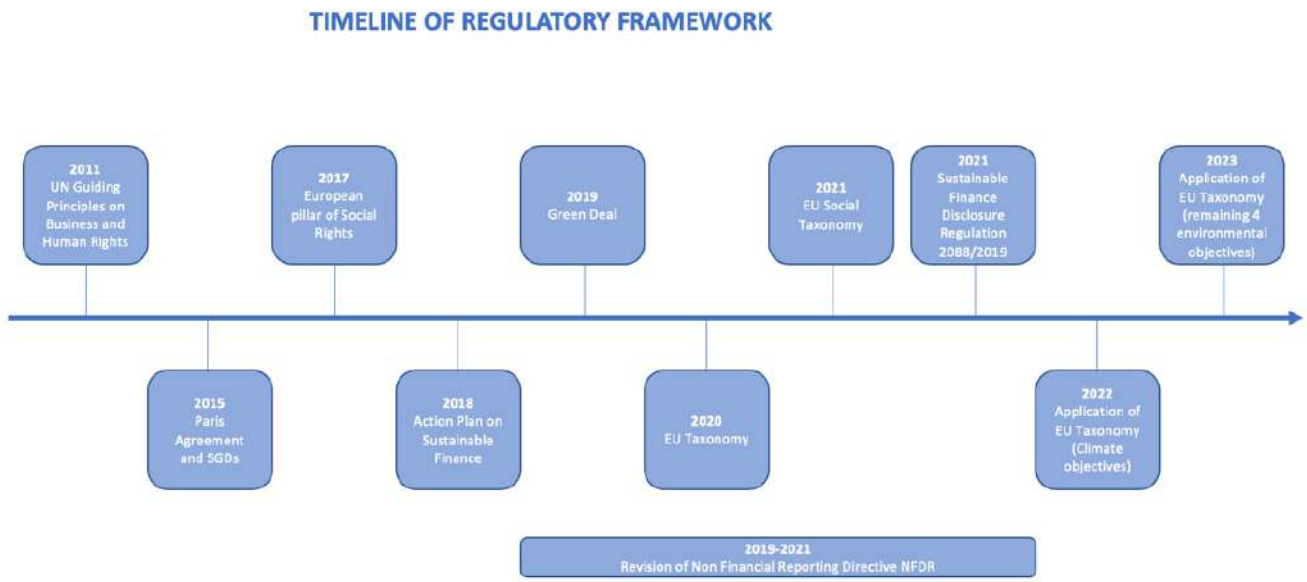
The EU taxonomy[58] (Regulation EU 2020/852) establishes a unified language for sustainability, harmonizing criteria for assessing economic activities' sustainability. This framework underpins the EU's

[57] Bengo I., Boni L., Sancino A. (2022). "EU financial regulations and social impact measurement practices: A comprehensive framework on finance for sustainable development". <**https://doi.org/10.1002/csr.2235>**

[58] European Commission. EU Taxonomy for sustainable activities. <https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en> [last access: 07/23/2023]

comprehensive ESG regulatory framework with legally binding standards for businesses and financial actors. The SFDR and CSRD are integrated into the taxonomy, to be further expanded by the EU Commission through delegated acts to define sustainable economic activities.
This brand-new institutional setting can significantly impact the finance industry's operations. Although the rule outlines different duties in terms of what must be disclosed and reported, asset managers and investment funds still lack a clear application process for the new policy. One of its biggest weaknesses is that it barely links to the methods for measuring social impact that are now accessible.

FIGURE 12: TIMELINE OF REGULATORY FRAMEWORK



COMPLEX ESG DATA MANAGEMENT

To meet these new regulatory requirements, data management may be the biggest challenge companies will face. ESG reporting is already posing challenges to companies because sustainability is inherently hard to quantify. The connection between ESG results and financial performance isn't often well understood because businesses have no clear way to see how sustainable activities impacted the bottom line. Without a centralized source of financial and sustainability data, it's difficult to draw a line between ESG action and financial outcome.

ISSUES THAT SHOULD BE ADDRESSED

The conference should address the following issues:

- Which incentives can encourage businesses to put sustainability at the forefront of their strategies (by, for example, encouraging them to leverage their core expertise and technologies to support global sustainability goals)?
- What other strategies exist to encourage private investments in sustainability without the use of indices?

- What about the provocative decision to ignore the letters "S" or "G" in the ESG metrics in favor of the letter "E"?
- How can businesses from various industries be compared? What if we switched from measuring the footprint's absolute size to its temporal variation?

2. THE IDEA OF A GLOBAL ACCOUNTABILITY: IS THERE A WAY TO CONSTRUCT MECHANISMS OF GLOBAL REPRESENTATION? SHOULD THEY PROVIDE FOR A REPRESENTATION SKEWED TOWARDS YOUNG GENERATIONS?

Common wisdom maintains that there is a political trade – off between representativeness and governability is a tough challenge for States and is even tougher in a global perspective. Representativeness reflects the extent to which global actors – States, civil society and marginalized groups included – take part to the decision-making process. On the other hand, governability is the ability of decision makers to undertake effective decisions that can be implemented. Increasing representation means making the decision-making process more time consuming with a possible lack of coherence in global governance. On the other hand, prioritizing governability may lead to decisions perceived as less legitimate[59]*.*
And yet Vision argues that the trade-off is at least partially one of those cognitive bias that has recently prevented political systems to adapt to the 21st century. After all, when collective decision are shared, they also tend to be more quickly implemented because they can leverage on the energy of the people who feel some ownership of those decisions.

The United Nations and, more generally, global governance systems are a peculiar example of the relationship between democracy and efficiency: by democracy here it is meant the weight given to the voice of each of the 196 member states; by efficiency the speed by which decisions are taken. A confirmation of Vision's theory is that, for instance, UN manages to be both not representative enough (as for the decades old criticism of the security council or the shareholders' composition of the IMF) and, yet not quick enough (whereas institutions are often paralyzed by vetoes). The idea we would like to explore is to make global governance to become more directly capable to engage citizens, public opinions; to give a more formal role to the parties (cities, NGOS, business, ...) which currently do not express votes on the deliberations taken by the 196 parties (states) making the UN and the COPS.
Global accountability needs effective mechanisms of global representation able to provide platforms for dialogue and decision making that shall include the whole society. Representatives of all countries and regions, of all generations fairly represented, should discuss and develop policies on issues with a global impact, such as climate change, economic inequality and human rights violations. While it is true that young people will bear the brunt of many of the challenges facing our world, it is also important to recognize the expertise and experience of older generations.
During the 2022 Dolomite Conference, e-democracy, youth quotas, a future generation ombudsman were some of the solutions to the Working group which discussed about democracy and the attempt to find a common agenda for all generations.
How should an effective global forum or assembly work? Can more innovative mechanisms better reflect the

[59] Electoral laws are indeed normally expected to strike a balance between the representativeness of government and its ability to govern effectively. Majoritarian systems can be seen as prioritizing governability over representativeness, while proportional systems do the opposite.

diversity of global perspective and interests? How can the trade - off between representativeness and governability be solved? Can the solutions found in 2022 fit for a democratic, effective and global assembly?

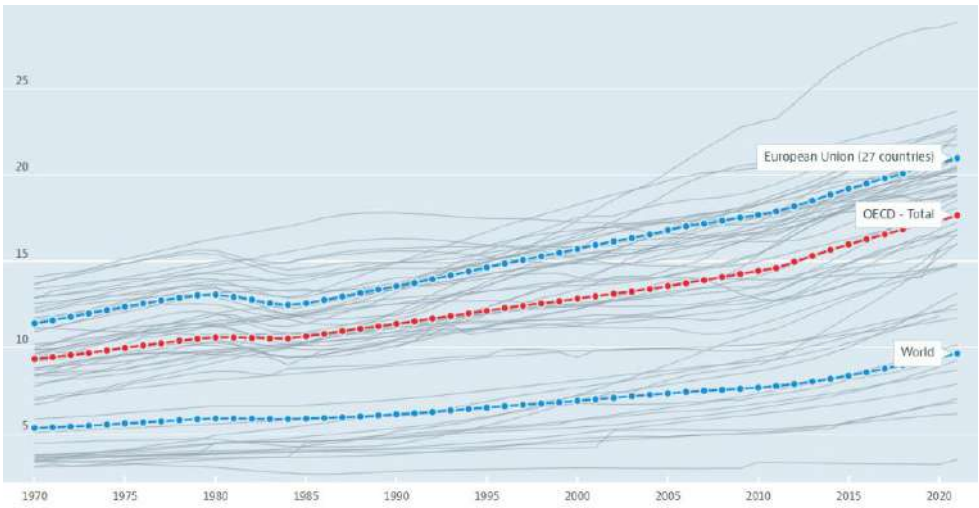
PROBLEM SETTING – STUDENTS DEVELOPMENTS

The seriousness and urgency of climate change should never serve as an excuse for disregarding the principles of democratic systems. However, it is essential to recognize that democratic systems, while inherently valuable, are not devoid of deficiencies, especially when addressing complex and long-term challenges like climate change. This concept note aims to shed light on two interconnected issues that potentially hinder the effective implementation of climate policies: the aging population and the global scalability of democracy.

IS DEMOCRACY TOO OLD FOR FACING CLIMATE CHANGE?

Democracy should be blind to demographic characteristics such as age, as its foundation rests on the 'one person, one vote' principle. Nevertheless, this principle does not imply that democratic systems should ignore the implications of majority rule on minority interests. Importantly, the aging process, driven by increasing life expectancy and sustained low fertility rates, is a phenomenon felt not only in developed countries but also in developing ones (OECD Data, Elderly Population, 2023). This demographic shift is creating a new political minority: the youth.

FIGURE 13: ELDERLY AS % OF THE POPULATION FROM 1970 TO 2021



SOURCE: VISION ON OECD DATA

The political marginalization of young people poses a threat to the unwritten rule of democracy. Historically, the majority of voters has primarily consisted of individuals most likely to be affected by the long-term consequences of the democratic process, primarily due to the pyramid-shaped age distribution (Berry, 2014). However, this demographic pyramid has gradually begun to shift.

It is crucial to emphasize that, as long as political preferences remain consistent across generations, the aging process does not necessarily lead to democratic distortions. While academic consensus on this

matter is lacking, several studies have confirmed the existence of a generational gap influencing various cases (Ahlfeldt G. M., Maennig W., and Mueller S. Q., 2022; Duffy B., 2021).
Given the long-term implications of climate change, the potential democratic distortion caused by an aging population becomes highly relevant. If a majority of older voters prioritize climate change less than the younger generation, the aging process could impede action against climate change. Nevertheless, it would be hasty to conclude that older individuals are inherently less concerned about climate change. Studies have yielded contradictory results on this matter (Duffy B., 2021; UNDP and University of Oxford, 2021), suggesting that there might not be a straightforward linear relationship between age and climate concerns. However, when confronted with radical climate policies, the principle of voters' utility maximization (Messner and Polborn, 2004) will inevitably prevail. This implies that in situations involving trade-offs between short-term and long-term policies, elderly and young voters may vote differently, primarily due to differences in their remaining lifetimes.

IS DEMOCRACY SCALABLE AT GLOBAL LEVEL?

The principle of international law grants each sovereign state political autonomy and supreme authority within its borders (Oxford Public International Law). Consequently, global policies rely on mutual consensus rather than command-and-control enforcement (Field B. & M., 2021). Multilateral Environmental Agreements (MEAs) serve as legally binding instruments commonly used in climate diplomacy. Among the others, the UNFCCC (United Nations Framework Convention on Climate Change) stands as the most impactful forum. States involved in the convention convene annually at the Conference of Parties (COP) to make decisions regarding climate commitments following extensive negotiations. Typically, formal voting is avoided, and decisions are reached through consensus.

MEAs often fall short of achieving desired results due to several barriers. Legal hurdles are among the primary obstacles, as effective enforcement mechanisms are challenging to establish when decisions rely on consensus. Additionally, numerous political barriers come into play, as countries may experience internal political conflicts when pursuing climate actions if national interests diverge. Historically, disagreements over responsibilities have arisen between negotiation blocs, with developing countries emphasizing the historical contributions of Western countries to climate change while becoming top emitters during their industrialization processes. Addressing climate change also involves financial and technological burdens, which developing countries may be unable or unwilling to sustain. Hence, the UNFCCC has adopted the principle of "common but differentiated responsibilities" to state the role of developed countries in driving the ecological transition.

Considering the often-unsatisfactory outcomes of MEAs, questions have been raised regarding their principles and voting mechanisms. In formal votes, the "one country, one vote" principle prevails to ensure that even the smallest nations have a say in decision-making. However, population density factors are not taken into account, potentially leading to distortions in the voting process. Advanced economies, such as the United States and China, often wield economic and soft power to influence decision outcomes. Alternative voting mechanisms based on population factors could render international agreements more democratic. In such a scenario, developing countries, often characterized by younger populations, could exert greater influence on decisions, potentially aligning MEAs more closely with the needs of the new generation. However, this system is not without its controversies. Many emerging economies and highly

populated countries are governed by non-democratic regimes and granting them greater voting power may exacerbate the divergence between population interests and MEA outcomes.

CAN WE SOLVE THESE PROBLEMS THROUGH YOUTH-FOCUSED GLOBAL REPRESENTATION?

Overall, a globally satisfactory level of coordinated climate action has not been consistently implemented. As discussed in the preceding sections, the lack of robust global action on climate change can be attributed to a combination of domestic political dynamics and the limitations of international enforcement mechanisms. These challenges raise significant concerns about the integrity of democratic institutions, as conventionally understood. A nation's governmental system cannot be deemed fully democratic without ensuring adequate representation for its youth population. With the progressive marginalization of young people and their limited influence in decision-making processes, we face a dual threat that affects both domestic policy-making and international agreements. Furthermore, these challenges are compounded by a changing political landscape characterized by a growing number of autocratic governments, which further complicates the prospects of establishing effective global democratic mechanisms. Therefore, a dual approach is essential: one at the national level and another focusing on the establishment of a global governance framework.

To enhance the representation of the younger generation, concrete policy measures may involve lowering the legal voting age to 16, along with comprehensive civic education initiatives. A more ambitious proposal, as discussed at the European Parliament level (Jacques Delors Centre, 2022), involves introducing youth quotas in both national and international legislatures. In pursuit of these national-level objectives, creating effective and democratic global infrastructure is paramount. This infrastructure should facilitate robust coordination with climate actions taken by countries where the younger generation holds political influence and representation, particularly concerning climate change and other long-term issues. The Climate Governance Commission (CGC) has itself put forward proposals in this context, advocating for the strengthening of international organizations like the International Court of Justice. Additionally, they have proposed the establishment of new capacity systems. Regarding climate action, they have proposed a Global Emergency Platform for addressing complex global crises and a Global Environment Agency equipped with legal enforcement mechanisms (Groff, M. 2022). These combined proposals could ensure a more democratic governance system. However, it is essential for such measures to gain broad acceptance, and achieving a strong consensus in this direction remains a challenge.

In conclusion, the intricacies of democracy, both on a national and international scale, should not impede the pursuit of ambitious solutions to address climate change. Instead, they can serve as the ideal "political laboratory" for younger generations as they work towards creating a safe and just future.

3. NEUTRAL CITIES? FINE TUNE THE EXPERIMENTATIONS TO ACHIEVE ZERO EMISSION/

ZERO WASTE IN THE LAST MILE DELIVERY OF FOOD

Cities currently[60] produce more than 70% of global CO2 emissions and consume over 65% of the world's energy. The global goal of staying below the 1.5°C threshold implies a massive decarbonization of cities, which will require specific programs to reduce urban sprawl, investments in low-carbon energy/transport systems, nature-based solutions to disaster risk management and urban cooling. Future projections make it even more urgent to implement a massive urban decarbonization: the world's population is expected to reach 8,5 billion by 2030 and 60% of it[61] will likely live in cities, according to the UN[62]. The growth of cities is, however, not to be considered unstoppable and, in fact, history teaches that many of the great capitals of the Past now only exist in the memories of students and archeologists[63]. As a matter of fact, the growth of cities appears to follow the same law that economic geographers (Krugman and Venables, 1995) envisaged: they first grow expand to the advantage of having talents to meet, compete, partner with each other; they then shrink when the congestion costs exceed the benefits of proximity.

The growth of the urban population risks to have a significant environmental impact (in terms of energy consumption, CO2 emissions, increased waste etc.): among the other things, it will be translated into a growing demand for fast delivery services[64] and, therefore, into increased traffic congestion and higher emissions. The World Economic Forum forecasts[65] that demand for last mile delivery (the transportation of merchandise from the nearest distribution hub to the ultimate destination) could grow by 78% by 2030 and, consequently, emissions from delivery services will increase by 32% and traffic congestion by 21%.

A large portion of delivery services is represented by food delivery services: the food delivery market grew exponentially in the past years – especially during the Covid-19 pandemic - becoming a global market worth more than $150 billion[66].

A bottom-up approach based on the experimentation of new last mile delivery solutions led by cities/specific regions seems to be the most effective, to test solutions tailored to the needs of a city that could then be replicated elsewhere, on a larger scale.

The public sector has already started to test some pilot solutions on a city basis, even though systemic change and regulatory frameworks would still be required to reduce the environmental impact of last mile delivery, given its growing demand worldwide. Cities have been steering last mile transitions, for instance with the creation of zero-emission delivery zones, testing the use of automated vehicles for goods delivery, adapting their infrastructures to allow the use of electric vehicles and much more.

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[60] Dasgupta, S., Lall, S., Wheeler, D., Cutting global carbon emissions: where do cities stand? World Bank Blogs, January 5, 2022

[61] It would be almost 5.1 billion people.

[62] United Nations, Department of Economic and Social Affairs, Policies on spatial distribution and urbanization have broad impacts on sustainable development, 2020(2), https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undes_pd_2020_popfacts_urbanization_policies.pdf

[63] The list of great capitals which are now lost ranges from BABYLON to Persepolis. Amongst more recent notable examples we have Detroit which has less than half of the population it used to have in the fifties when it was the capital of car-making; and Venice which has been for one thousand years the center of one of wealthiest dominion in history and lost two thirds of the population since WW2 (today it has got a little bit more than 50,000 inhabitants).

[64] The Covid-19 pandemic revolutionized the entire supply chain, forcing companies to rethink their last-mile delivery strategies and minimize contagion. Customers resorted much more on e-commerce and this pushed demand for last-mile delivery services. Such changes, however, are very likely to persist even after the pandemic. See: World Economic Forum in collaboration with McKinsey & Company, Pandemic, Parcels and Public Vaccination. Envisioning the Next Normal for the Last-Mile Ecosystem, Insight Report, April 2021

[65] World Economic Forum, The Future of the Last-Mile Ecosystem, January 2020, https://www3.weforum.org/docs/WEF_Future_of_the_last_mile_ecosystem.pdf

[66] Ahuja, K., Chandra, V., Lord, V., Peens, C., Ordering in: the rapid evolution of food delivery, McKinsey & Company, 22 September 2021

Innovations and experimentations are flourishing in different directions and will hopefully be the solution to many issues of both present and future cities – where the population growth will put more pressure on the existing urban environments. Many studies and experimentations are focusing on solutions that will be able to reduce noise pollution, CO2 emissions and traffic congestion while optimizing delivery costs for stakeholders.

However, innovating the last mile delivery sector raises important questions too, as some innovations might also have notable negative impacts that need to be mitigated[67]. For instance, introducing autonomous vehicles for the delivery of goods might lead to more traffic congestion in the short term, if they operate alongside with human-driven vehicles, which move faster. Some solutions may be convenient for some stakeholders but not pleasing to others with different priorities[68] – e.g., cutting emissions and reducing traffic congestion/noise are priorities for cities, while businesses will prioritize interventions that reduce their delivery costs with minimal disruptions in their business models. The ideal transition roadmap for last mile delivery solutions puts together different priorities, finding balance and involving the various stakeholders. Given the wide scope of the last mile delivery area in general, any strategy should start from narrowing down the focus.

The stakeholders involved should ask themselves: how long is the last mile they would like to focus on with their innovations? Does it cover business to business (B2B) deliveries, business to consumer (B2C), peer-to-peer deliveries (P2P), reverse-logistics (meaning, the return of the goods from the consumer to the business), same-day deliveries (especially for food delivery services, courier services, and retailers that offer this option), scheduled deliveries? Do the last mile delivery solutions have to cover the whole city area, just one/some neighborhoods or specific areas (e.g. from city to external logistic hub, from city to the countryside…)? What kind of goods does the innovation plan to involve (e.g. food, consumer goods, medicines…)?

When it comes to the specific area of food delivery, stakeholders should also understand what trade-offs are involved (in terms of costs, sustainability and client satisfaction) and how they could be balanced; how can innovation involve different stakeholders (cities, logistics providers, local shops…), what are the preferences and needs of consumers and how will the results be measurable?

PROBLEM SETTING – STUDENTS DEVELOPMENT

The rise of e-commerce has seen remarkable growth worldwide, and Italy is no exception. In the US, the market share of online shopping has increased from about 3.7% in 2008 to 9.5% in 2018 and 13.5% in 2021 (Giuliano, 2023). In Italy, e-commerce in 2018 was at 6,5% of products sold, in 2022 it grew to 12% (Osservatorio eCommerce B2c, 2023).

This increased demand for e-commerce has given rise to a twofold challenge, presenting itself in different forms and spaces. On one hand, logistics and large-scale distribution have a great responsibility in terms of soil land-use outside the cities' borders. In the last three years, in Lombardy, logistics nodes occupied 140 hectares (Osservatorio eCommerce B2c, 2023).

[67] Sharma, V.P.; Prakash, S.; Singh, R. What Prevents Sustainable Last-Mile Delivery in Industry 4.0? An Analysis and Decision Framework. Sustainability 2022, *14*, 16423. https://doi.org/10.3390/su142416423

[68] Lauenstein, S.; Schank, C. Design of a Sustainable Last Mile in Urban Logistics—A Systematic Literature Review. Sustainability 2022, *14*,5501. https://doi.org/10.3390/ su14095501

On the other hand, the last-mile delivery is responsible for many environmental and social issues in the city centres as outlined in table 1 and table 2.
One can witness the presence of trends that pertain to city logistics. For instance, the number of last-mile deliveries is expected to rise significantly globally due to urbanization, a growing customer base and new categories of products shifting to digital distribution (World Economic Forum, 2020). Moreover, parcels are increasingly expected to be delivered faster with the growth of instant and same day deliveries (World Economic Forum, 2020). On the other hand, some trends such as decarbonization and zero-waste movement seek to tackle environmental issues and can seem to be in contradiction with the trends previously considered.
Addressing the challenges of last-mile delivery requires the implementation of effective solutions. Based on the current literature review, we have identified several possible strategies, ranked in order of maturity, to optimize last-mile delivery, particularly in the B2C context:

- **Electric vehicles and cargo bikes**: Both technologies are low-emission delivery options offering different advantages. Indeed, e-cargo bikes have smaller capacities and can deliver smaller parcels compared to electric vehicles but have shown to be particularly effective in areas with dense traffic (Llorca & Moeckel, 2021; Caggiani et al, 2021).
- **Parcel lockers**: Implementing secure and automated parcel lockers with QR code access can reduce failed deliveries and improve customer convenience (Wang et al., 2014; Giuffrida et al., 2012; Wen & Li, 2016; Chen et al., 2018).
- **Pickup points**: Utilizing existing stores or designated locations as pickup points can streamline deliveries (Wang et al., 2014).
- **Crowdsourcing logistics**: Involving common people that would have to drive anyway to a certain location to bring some parcels with them, under compensation (Carbone et al., 2017; Wang et al., 2016; Devari et al., 2017).
- **Drones:** Leveraging drone technology can overcome obstacles in dense urban areas and enable faster and more efficient deliveries (Murray & Chu, 2015).
- **Dynamic pricing**: Introducing dynamic pricing models that incentivize greener and slower deliveries, optimizing delivery routes to reduce emissions and costs (Asdemir et al., 2009; Klein et al., 2017; Yang et al., 2014).
- **Mapping customer behavior**: Using electricity data to understand customer availability at home can reduce failed delivery attempts (Pan et al., 2017).
- **Robotization of delivery**: Introducing automated delivery systems can improve delivery efficiency and reduce labor-related challenges (Slabinac, 2015; Boysen et al., 2015).
- **Underground deliveries**: A futuristic concept involving dedicated underground channels for efficient delivery operations (Slabinac, 2015).

To realize the above, it seems evident that there is a strong need for an integrated delivery ecosystem moving forward, which will yield many benefits, but which also needs a concerted, multi-stakeholder effort to be achieved. Indeed, reducing emissions and traffic congestion are top priorities for municipalities, whereas interventions that decrease delivery costs and minimize disruptions in current business models are more appealing to logistics players. Additionally, customers play a pivotal role in shaping the demand for specific delivery options and technologies. Factors such as technology acceptance, delivery locations and delivery timeframes significantly influence customer preferences. Thus, a compromise must be

reached among all parties involved, namely policymakers, delivery companies, retailers and consumers (Accenture, 2021; BCG, 2021). The successful implementation of the technologies would require careful consideration of the following aspects: governance, financing mechanisms, existing infrastructure (e.g. lack of charging stations), public acceptance and behavioural change. The latter two can be addressed by engaging communities, which can be aided by awareness campaigns (Tummers, 2019). Avoiding a one-size-fits-all approach to implementation is equally important, building on the idea that actions and policies must be tailor-made for specific contexts, cultures and cities.

We have identified the following questions, that require discussion among stakeholders to create a **sustainable, efficient, and customer-centric last-mile delivery ecosystem**:

- How to decouple the increasing number of deliveries and the resulting carbon emissions?
- How to manage the different trade-offs (cost, environmental and social impact, customer convenience and preference)?
- How to organise the different stakeholders to support the development and implementation of solutions?

FIGURE 14. MAIN ENVIRONMENTAL ISSUES RELATED TO LAST-MILE DELIVERY

Environmental Issue	*Description*	*Main references*
Climate change	Climate change can be described as long-term alterations in temperatures and weather patterns driven by human activities generating greenhouse gases. Transport means still heavily rely on fossil fuels and thus generate a big share of global greenhouse gases. Indeed, transport transformation was described as a critical element to address climate change by the UN.	(United Nations, n.d; Yinuo, 2021)
Air pollution	Air pollution represents a significant contributor to environmental degradation and harms both human health and ecosystems. It is a major issue for cities. Transport, including urban freight transport, is the main source of air pollution in a city.	(OECD, 2023; Mesjasz-Lech, 2016)
Waste generation	Around 2 billion tonnes of municipal solid waste are generated every year and at least one third of this amount is not handled in a proper and environmentally safe way. Poorly managed waste poses both environmental and health problems. Moreover, the increasing share of online retail is expected to worsen the situation as a study found that e-commerce generated about 4.8 times more packaging waste than physical stores.	(The World Bank, n.d.; Chun at al., 2022)

FIGURE 15. MAIN SOCIAL ISSUES RELATED TO LAST-MILE DELIVERY

Social issue	*Description*	*Main references*
Poor working conditions	The work environment of employees along the last-mile delivery supply chain is far from optimal. Indeed, the sector is characterized by low wages, lack of transparency, and high rate of worker turnover. More importantly, these working conditions have a direct impact on employees' physical safety due to high-risk exposure and on their mental health due to work-induced stress. Furthermore, the situation is aggravated by managerial silencing of worker voice which is amplified by the online apps and algorithms typically used by food delivery companies.	(Verheyen et al., 2022; Shapiro, 2017; Chen, 2022; Kougiannou, 2021)
Food waste paradox	This paradox denotes the fact that huge quantities of food are wasted every day while many individuals are experiencing food insecurity. Indeed, about 30% of food produced in the world is wasted every year while almost 10% of the global population was affected by hunger in 2021. Online food delivery is aggravating the issue of food waste.	(UNEP, n.d.; WHO, 2022; Zhang et al., 2022)

4. ENERGY TRANSITION AS A LEVER OF SOCIAL JUSTICE: HOW CAN WE MAKE THE CLIMATE CHANGE/ ENERGY TRANSITION AN AGENDA FOR ALL?

The past years have been marked by extreme weather events: 2022 recorded unprecedented droughts, forest fires, heat waves and a drastic lowering of the level of the Antarctic Sea ice; in 2022, Europe was hit by a drought that might be the worst in 500 years. the World Health Organization[69] estimated that in 2021 climate events resulted in hundreds of fatalities and affected almost half a million people. The war in Ukraine and the energy crisis that followed raised even more awareness on how human/national security, sustainable energy sources and climate change are closely intertwined issues.

Climate change is affecting more and more people and the urgency of the issue is becoming increasingly clear[70]. Nevertheless, studies and worldwide surveys prove that climate change and the energy transition are still not on top of the agenda, either for politicians or the world's public opinion. A survey conducted by Ipsos in 2021[71] shows that the issue is certainly not neglected by the global public opinion – but it is not a priority either: it was ranked fifth in the list of issues that respondents saw as priorities, after the cost of living, coronavirus, poverty and inequality and the healthcare system.

50% of respondents thought that priority should be given to the environment, even though it might cause job losses or slow down the economic growth, while 35% of them claimed that economic growth and jobs should have the priority even though it might be harmful for the environment. The missing piece of the puzzle is: how can social justice and energy transition be put together[72]? Does it have to be a zero-sum game, or can we eliminate the trade-off between sustainable growth and social justice?

Climate change and social justice are strongly interconnected issues and the global debate on the energy

[69] Climate change is already killing us, but strong action now can prevent more deaths, Statement by WHO Regional Director for Europe Dr Hans Henri P. Kluge, 7 November 2022, www.who.int

[70] IPCC, The evidence is clear: the time for action is now. We can halve emissions by 2030., April 4, 2022

[71] Ipsos & EDF, Mobilization, concern or indifference: how do the citizens of 30 countries view climate change?, December 2021

[72] Agyeman, J., & Schlosberg, D. (2014). Toward an intersectional environmental justice framework. In D. Schlosberg, J. Carruthers, & A. Cole (Eds.), The Routledge handbook of environmental justice (pp. 66-78). Routledge.

transition should be focusing on that equation. Some specific groups of the world's population are more vulnerable than others to the impact of climate change – older people, low-income groups, tenants, among the others[73]*. Lower-income groups within countries suffer higher losses than the wealthier groups: the income losses caused by climate change of the bottom 40% are almost 70% larger than the average in low- and middle-income countries.*

Usually, climate change policies are developed and implemented separately to policies that tackle social inequality, poverty and disadvantage[74]*. How can social justice be integrated within the energy transition and climate change action? Climate justice issues must be more aligned with government agendas, with cross-sectoral policies based on a broader definition of "vulnerability". Moreover, the short-sighted, emergency approach needs to be abandoned in favor of a long-term approach that aims at building the infrastructure and institutions needed to enhance climate resilience among all social groups*[75]*. The green transition should be seen as an opportunity to go beyond the trade-off between climate action and economic growth, creating new job opportunities in fields such as renewable energy, energy efficiency, and sustainable transportation. Governments and businesses can prioritize training and hiring workers from marginalized communities to ensure that these jobs are accessible to everyone*[76]*. Moreover, in order to involve everyone in the green transition, energy democracy (meaning that everyone should have a say in how their energy is produced and used) should be promoted. This can be achieved through community-owned renewable energy projects, energy cooperatives, and other democratic energy models that give people more control over their energy choices.*

Climate injustice[77] *is reflected not only in the different exposure of different social groups to the impact of climate change within the same country but also in the different contribution and exposure of entire countries to these disastrous effects.*

Countries that are only recently experiencing economic growth or that have always been considered economically "less developed" are more exposed to the impact of climate disasters and have had a weaker cumulative impact on environmental pollution, compared to today's richer countries. Even though the international decision to establish a Loss and Damage Fund – made at Sharm El-Sheikh's COP 27 in 2022 – is good news, it still leaves much unsolved and raises many doubts (e.g., who benefits? Who pays?).

How can the energy transition take these inequalities into account, making the green transition a true occasion to tackle social justice?

PROBLEM SETTING – STUDENTS DEVELOPMENT

According to Williams et al. (2019)[78], energy justice is defined as "**the distribution of benefits and burdens of energy systems and their impacts across different social groups, and the recognition of the need for democratic participation in energy decision-making**". The idea of energy justice is rooted in the recognition that **access to energy is a fundamental human right**, and that energy systems should be designed and managed in a fair and equitable way for all (Huhta, 2023)[79]. In this context, justice is

[73] Climate Change and social justice: an evidence review, Joseph Rowntree Foundation, 2014

[74] Newell, P., Srivastava, S., Naess, L.O., Torres Contreras, G.A., Price, R., Roz Price, Toward transformative climate justice: An emerging research agenda, August 2021, https://doi.org/10.1002/wcc.733

[75] Chancel, L., Bothe, P., Voituriez, T., Climate Inequality Report 2023, World Inequality Lab, January 30, 2023, https://wid.world/wp-content/uploads/2023/01/CBV2023-ClimateInequalityReport-3.pdf

[76] Joint Research Center, Caramizaru, A., Uihlein, A., Energy communities: an overview of energy and social innovation, 2020

[77] Simmons, D., What is 'climate justice'? Yale Climate Connections, July 29, 2020

[78] Williams, S. et al. (2019). Justice in energy transitions. Environmental Innovation and Societal Transitions. Volume 31, 144-153. https://doi.org/10.1016/j.eist.2018.12.001

[79] Huhta, K. (2023). Conceptualizing energy justice in the context of human rights law. Nordic Journal of Human Rights.

understood as the fair distribution of benefits and burdens across different social groups and generations. Therefore, the end goal of energy justice is to improve social, economic, and health burdens on individuals historically impacted by the energy system, commonly referred to as "frontline communities" (Williams et al., 2019). The concept of is closely related to the idea of a just energy transition, which refers to the move from a fossil fuel-based energy system to one based on renewable energy that is equitable and benefits all members of society so to lessen to lessen climate change and cut greenhouse gas emissions.

The notion of energy justice is intricate and multifaceted, demanding a comprehensive, multidisciplinary approach. This is due to the strong correlation between the energy transition and social justice, which will be elaborated upon through the following crucial points:
Firstly, it is crucial to recognize that the **consequences of climate change are not evenly distributed across the globe**. Instead, they disproportionately affect marginalized communities and vulnerable populations in various regions around the world. For instance, countries like Bangladesh, Nigeria, and Yemen are grappling with the severe impacts of climate change, including water shortages, extreme weather events, and rising sea levels, which significantly disrupt the lives and livelihoods of their inhabitants.
Secondly, one of the main solutions today to reduce climate change is through the usage of clean energy sources. However, a key challenge lies in the affordability of these clean energy options, particularly for some communities that may already be economically disadvantaged. The initial costs associated with installing renewable energy infrastructure and implementing new technologies can be substantial, making it difficult for certain communities to access and benefit from these solutions.

Finally, prominently featured in government initiatives around the world, particularly those focusing on 'green recovery' and 'building back better,' the topic of job creation/destruction is crucial to distributive justice. Issues such as reductions in poverty, empowerment of vulnerable groups, skills diversification, and the provision of high-quality jobs become relevant in the just distribution of the costs and benefits of energy infrastructure among the whole population. As Sovacool et al. (2022)[80] argue, the extent of job creation or destruction can shape the social acceptance and desirability of different low-carbon pathways and lead to social mobilization to support or oppose future energy transitions.

- How can we effectively address the climate change challenge and promote energy transition as a global agenda? Specifically, how do we navigate the dilemma between implementing radical improvements or changes that yield immediate positive effects but might have negative long-term consequences, versus pursuing incremental changes that guarantee only positive outcomes but require more time to be effective? How can we balance the urgency to act quickly with the need for sustainable, long-term solutions?
- How to mitigate the disparities of the burden of climate change that marginalized populations are already facing and will face more and more?
- How to enhance engagement and participation of frontline communities on a global scale?

https://doi.org/10.1080/18918131.2023.2210443

[80] Sovacool et al. (2022). Conflicted transitions: Exploring the actors, tactics, and outcomes of social opposition against energy infrastructure. *Global Environmental Change*, *73*, 102473. https://doi.org/10.1016/j.gloenvcha.2022.102473

- How to make decision making processes inclusive of underrepresented populations and indigenous communities?
- How can the issue of affordability of clean energy be addressed?
- How to make the energy transition pro-poor and just in the job creation?

BOLZANO - *GLOBAL GOVERNANCE OF CLIMATE CHANGE: THE DOLOMITES AS CASE STUDY*

PLENARY 9. TOWARDS A ZERO EMISSION PRIMARY SECTOR/ AGRIFOOD *(ORGANIZED BY BOLZANO UNIVERSITY)* (Saturday 7th)

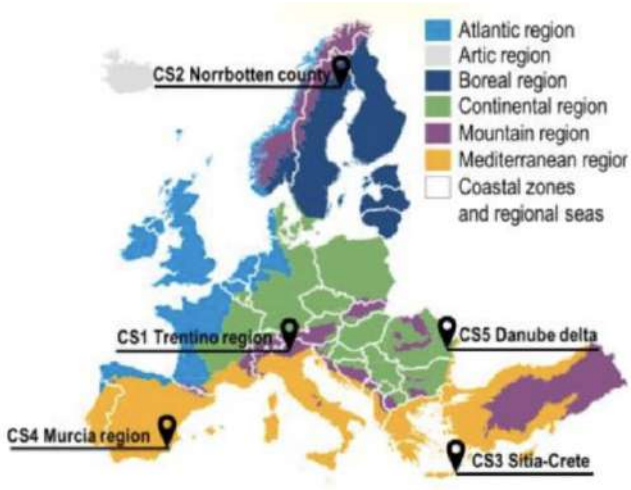
The first Dolomite Conference introduced agriculture as one of the sectors requiring more innovation in terms of technologies and organization to lower the GHS emissions. The primary sector is, indeed, both one of the largest contributors to climate change and one the most hit by its consequences. What can be learned from local initiatives aimed at lowering the carbon footprint?

PLENARY 10. CLIMATE CHANGE AND TOURISM. HOW A MOUNTAIN REGION TRIES TO TACKLE A CRUCIAL CHALLENGE FOR ITS FUTURE. (Saturday 7th, 16.00-17.00)

With a presentation of NEVERMORE – Horizon Europe Project of the Autonomous Province of Trento with Bruno Kessler Foundation and other partners.

NEVERMORE (*New Enabling Visions and tools for End-useRs and stakeholders thanks to a common MOdeling appRoach towards a climatE neutral and resilient society)* is a European research project funded by the European Union's Horizon Europe program. The project, officially started last June 1st, 2022 with a duration of four years, is coordinated by the Bruno Kessler Foundation (FBK). It involves 16 partners from 8 European countries, including several of the most active institutes in Europe on climate change issues. The project aims to develop integrated models and tools for the simulation and assessment of climate change impacts and risks, as well as to implement new interactive digital tools for citizens and policy makers. Objective: to make scientific knowledge on climate change more usable for decision making, to deploy relevant actions, shared among policy makers, citizens and other stakeholders, and to create resilient societies that are capable of both co-existing with and facing the challenges raised by climate change. NEVERMORE consists of 5 case studies, supporting the validation of the tools and models developed in the research project, investigating geographic areas sensitive to climate change and with totally different characteristics: an island, a wetland, a boreal region, a Mediterranean area, and a mountain region. These areas are representative of different socio-ecological contexts in the EU and hotspots of climate change.

FIGURE 16:



Trentino represents the case study related to the mountain area and has the specific task of investigating issues related to two key sectors for the area: tourism and energy. The Tourism and Sport Service (Servizio turismo e sport) of the Autonomous Province of Trento is coordinating the Trentino case study which involves in a Local Council the main local stakeholders related to the examined topics, including, for example, the APTs (local tourism agencies), ski lifts, mountain professionals, hoteliers, companies producing, distributing and selling electricity, and local associations. By integrating the different skills and knowledge in the territory, the Local Council fosters a participatory and interdisciplinary approach.

CONTENTS OF THE PRESENTATION

Part 1 - Brief outline on:

- importance of tourism for mountain communities - Alps as a climate change hotspot

Part 2 - What the territory is doing:

- Developing a strategy for climate change mitigation and adaptation

- as far as the tourism sector is concerned, the development of the adaptation strategy is supported by the contribution of the European research project Nevermore: brief mention of project goals and activities.

Part 3 - Discussion with 2-3 speakers.

Addressing the challenge posed by climate change, in a transversal sector such as tourism, affects, more broadly, local development models and mountain lifestyles.

In fact, the changes are interrelated and influencing each other. They must be addressed through the continuous search for a dynamic and multidisciplinary balance.

The areas to work on are, at least, the following: *science - technology and data – community - territory governance.*

PLENARY 11. THE CHALLENGES FOR WATER *(WITH UNIVERSITY OF TRENTO)* **(Saturday 7th)**

The “clean water and sanitation” is one of the UN sustainable development goals which is more dramatically far away from being achieved. By 2030 we should achieve world universal access to affordable drinking water and sanitation. In 2022, 2.2 billion people were still lacking access to drinking water in 25 countries and 3.5 billion could not afford basic sanitation. The progress in terms of efficiency was almost swept away by climate change that is producing drought. Water scarcity is not even limited to less developed countries: the Middle East and parts of Europe are also exposed to that, and cities may be the epicenter of a new crisis. What can the experience of the Dolomite teach to similar and less similar areas of the world? In terms of technologies, urban planning, and social innovation?