Universidade de Lisboa

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Climate Change, new Metanarrative for Humanity: Climate Policy in the western Mediterranean

João Camargo Ribeiro Marques dos Santos

Orientadora: Profª. Doutora Maria Luísa de Carvalho de Albuquerque Schmidt

Tese especialmente elaborada para obtenção do grau de Doutor em Alterações Climáticas e Políticas de Desenvolvimento Sustentável, na especialidade de Ciências do Ambiente

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The comedy of man starts like this
Our brains are way too big for our mothers' hips
And so Nature, she devised this alternative
We emerged half-formed and hope that whoever greets us on the other end
Is kind enough to fill us in
And, babies, that's pretty much how it's been ever since

Now the miracle of birth leaves a few issues to address
Like, say, that half of us are periodically iron deficient
So somebody's got to go kill something while I look after the kids
I'd do it myself, but what, are you going to get this thing its milk?
He says as soon as he gets back from the hunt, we can switch
It's hard not to fall in love with something so helpless
Ladies, I hope we don't end up regretting this

Comedy, now that's what I call pure comedy
Just waiting until the part where they start to believe
They're at the center of everything
And some all powerful being endowed this horror show with meaning

Oh, their religions are the best
They worship themselves yet they're totally obsessed
With risen zombies, celestial virgins, magic tricks, these unbelievable outfits
And they get terribly upset
When you question their sacred texts
Written by woman-hating epileptics

Their languages just serve to confuse them
Their confusion somehow makes them more sure
They build fortunes poisoning their offspring
And hand out prizes when someone patents the cure
Where did they find these goons they elected to rule them?
What makes these clowns they idolize so remarkable?
These mammals are hell-bent on fashioning new gods
So they can go on being godless animals

Oh comedy, their illusions they have no choice but to believe
Their horizons that just forever recede
And how's this for irony, their idea of being free is a prison of beliefs
That they never ever have to leave

Oh comedy, oh it's like something that a madman would conceive!
The only thing that seems to make them feel alive is the struggle to survive
But the only thing that they request is something to numb the pain with
Until there's nothing human left
Just random matter suspended in the dark
I hate to say it, but each other's all we got

Pure Comedy, Father John Misty

ABSTRACT

“Why is there not an adequate and efficient answer to climate change?” is a question that has been haunting millions of people around the world for the last decades, and that is growingly being made by all publics. Despite the scientific consensus on climate change, the necessary measures to deter this phenomenon are still far from the speed and range necessary to effectively address it (when there are any measures at all). Metanarratives are the grand histories that humankind tells itself to guide its practices and actions. They either work towards solving this civilisational crisis or to stop any effective solutions. The current metanarrative of globalised capitalist positivism is one of the main obstacles to stopping the climate crisis, but there is a conflict of metanarratives in the world today, and new possibilities are coming into existence. Potential future metanarratives for a different climate will either be survival of the fittest or civilising tools when human civilisation is in its most dangerous moment. The current metanarrative underpins capitalist dominance and is perpetuated through capitalist ideology and hegemony, locking humanity into a path of irreversible climate change. The unavoidable systematic change needed to effectively tackle climate change will go as deep as the social construction of what “human nature” is and what relations humans have to each other and the environment.

Through an adaptation of Michael Burawoy’s extended case method a methodology has been developed to evaluate the appearance of a new climate change metanarrative articulated with social justice, a climate justice potential metanarrative. A historical study on the evolution of public policy and climate policy in particular for three countries in the western mediterranean - Portugal, Spain and Morocco - was conducted. A revision of information about each of the countries, focusing on the evolution of climate and future scenarios, as well as social, economical, political and industrial tendencies, was done. There were 1107 interviews conducted for this thesis, 46 of which were face-to-face and structured. A methodological tool was developed to quantify the difference between really existing climate policy and climate action that would achieve the affirmed goals of stopping climate collapse on the three countries.

Over the course of three years post-Paris Agreement enquiries were conducted in Portugal (in the ClimAdaPT.local project), in Spain and Morocco, focusing on national and local politicians, academia, social movements and private enterprises. From believing into climate change until supporting effective climate policies, there is a long path where world views, political affiliation and ideology, cultural values, perception of risks, experiencing climate change, notions of international and social justice, attribution of responsibilities and public participation play a very important role. The inquiries revealed that many personal and collective blocks are determinant in the path into reaching policies that effectively respond to the climate crisis, and that shifting world views and experiences that affect this path will be tested in the coming years. This is a qualitative expression of the current metanarrative of globalised capitalist positivism and the political clashes of the present moment open the door to new metanarratives, including a potential metanarrative of climate justice.

Together with other researchers 'climate policy gap' graphics were developed for Portugal, Spain and Morocco to help reveal this divide and quantify the under-reaction between diagnosis and action, through layers of political indecision, mis-communication, insufficient action and the power of the fossil fuels industries. The climate policy gaps for the three nations revealed overshoots on even the most ambitious levels of emissions reductions pledged when compared to trajectories compatible with 1.5ºC or 2ºC limits. This research suggests that there is a built-in feature of under-reaction in climate policy, which staves off any emission pathways compatible with stopping a temperature rise above 1.5ºC by 2100. The climate policy gap is a political and methodological tool that reveals systemic shortcomings of climate action, its visibility identifies benchmarks and sectors that should be activated to close these gaps in response to the growing popular demands for climate justice and it quantifies the gap between a metanarrative of globalised capitalist positivism and what is necessary to prevent reaching even the Paris Agreement's targets.

2018 and 2019 saw the emergence of a much stronger climate justice movement. The three most relevant components of this movement - Blockadia, Youth Climate Strikes (Fridays for Future) and Extinction Rebellion - have combined efforts in a global call for civil disobedience and insurgency on political lines that respond to the climate sci-

ence that calls for a 50% greenhouse gas global cuts by 2030. They have put in the forefront the issue of social justice. Growingly radical Green New Deals' versions and campaigns such as Climate Jobs are creating political programs for a social revolution in line with German jewish philosopher Walter Benjamin's idea of revolution as the emergency break when history moves in a catastrophic direction. An early critic of the dangers posed by the threats of progress and technological development led by capitalism, Benjamin proposed an alternative view of revolution: it is not inevitable or a natural result of the contradiction between productive forces and productive relations, but rather an interruption of an historical evolution that is leading to catastrophe. These movements and programs are not enough for the emergence of a new climate justice potential metanarrative, although they are necessary conditions for it.

In conclusion, there are signs of the emergence of a climate justice potential metanarrative, with a push for the creation of new institutions, adaptation of old ones, public perception of the dimension of the problem of climate change and effective legislative response to it. Some of the most expressive characteristics of this potential metanarrative were outlined: a human awakening full of impetus for social reordering; a redistribution of power, wellbeing and cooperation; a new notion of prosperity inside natural limits and just resource redistribution; reconnection of knowledges and sciences; the need for a public and participatory science to address human's and earth's needs; the teleology of humanity's collective survival; understanding and respecting life system's cycles, favouring life's diversity as an efficient tool against the current increase in entropy in the ecosphere; acknowledging and integrating the care economy into daily life, with the co-responsibilization of men and women for care and maintenance activities; recovering indigenous people's knowledge of biomimicry as a collective tool, promoting human beneficial effects on life cycles and ecosystems; understanding capitalist production's incompatibility with basic life system's principles.

A new potential metanarrative for climate change is a historical novelty, but only such a novel Grand History can give humanity a chance to overcome the biggest threat it has ever faced.

KEYWORDS: Metanarrative, Climate Change, Climate Justice, Climate Policy Gap, Portugal, Spain, Morocco, Blockadia, Fridays For Future, Extinction Rebellion

RESUMO

"Porque é que não há uma resposta adequada e eficiente às alterações climáticas?" é uma questão feita por milhões de pessoas por todo o mundo nas últimas décadas e crescentemente levantada por novos públicos. Apesar do consenso científico acerca da existência e da origem humana das alterações climáticas, as medidas necessárias para travar este fenómenos estão ainda longe da velocidade e da extensão necessárias (quando há sequer medidas). As metanarrativas são as grandes histórias que a humanidade conta a si mesma e que guiam as suas práticas e acções. Ou promovem soluções para esta crise civilizatória ou travam quaisquer soluções eficazes. A actual metanarrativa de positivismo globalizado capitalista é um dos principais obstáculos a travar a resolução da crise climática, mas há um conflito de metanarrativas no mundo hoje, e novas possibilidades surgem. As futuras potenciais metanarrativas para um clima diferente serão a sobrevivência do mais forte ou, pelo contrário, ferramentas civilizatórias quando a civilização humana vive o seu momento mais perigoso. A actual metanarrativa garante o domínio capitalista que se perpetua pela ideologia e hegemonia, prendendo a humanidade num percurso de alteração climática irreversível. A mudança sistémica inevitável para resolver eficazmente a crise climática irá tão fundo que necessita de mudar a construção social da chamada "natureza humana" e das relações que os seres humanos têm entre si e com o ambiente que os rodeia.

Através de uma adaptação do estudo de caso ampliado de Michael Burawoy, foi desenvolvida uma metodologia para avaliar o aparecimento de uma nova potencial metanarrativa de alterações climáticas, articulada com justiça social, uma metanarrativa de justiça climática. Foi feito um estudo histórico sobre a evolução das políticas públicas e das políticas climáticas em particular para três países no Mediterrâneo ocidental: Portugal, Espanha e Marrocos. Realizou-se um levantamento de informação acerca de cada um dos países, focando nos cenários climáticos do futuro, assim como nas suas características e tendências económicas, políticas e industriais. Foram utilizadas 1107 entrevistas nesta tese, 46 das quais de forma presencial e estruturada. Também foi desenvolvida uma ferramenta que permite quantificar a diferença entre as políticas climáticas real-

mente existentes e a acção climática que permitiria atingir as metas afirmadas para travar o colapso climático a nível deste três países, que quantifica o impacto da actual metanarrativa.

Ao longo dos três após a assinatura do Acordo de Paris, foram conduzidos inquéritos em Portugal, no âmbito do projecto de ClimAdaPT.local, e em Espanha e Marrocos, aplicados a políticos nacionais e locais, academia, movimentos sociais e empresas privadas. Desde acreditar em alterações climáticas até apoiar políticas climáticas eficazes há um longo percurso ao longo do qual as visões do mundo, a filiação política e a ideologia, os valores culturais, a percepção de riscos, a experiência de fenómenos climáticos extremos, as noções de justiça internacional e social, a atribuição de responsabilidades e a participação pública, têm um papel muito importante. Os inquéritos revelam que muitos bloqueios pessoais e colectivos são determinantes no percurso que permite chegar a políticas que respondam eficazmente à crise climática, e que as visões do mundo e experiências que afectam este percurso serão testadas e modificadas nos próximos anos. Esta é uma expressão qualitativa da actual metanarrativa do positivismo globalizado e capitalista e dos actuais choques políticos que abrem a porta, entre outras possibilidades, a uma potencial metanarrativa de justiça climática.

O relatório de 2018 do IPCC sobre o limite dos 1,5ºC informa da necessidade de cortar 50% das emissões globais de gases com efeito de estufa até 2030, mas há grandes lacunas entre o que é necessário para atingir este objectivo de manter o aumento da temperatura abaixo dos 1,5ºC até 2100, aquilo que os governos prometeram fazer e o que está a acontecer na realidade. Junto com outros investigadores foram desenvolvidos gráficos de "climate policy gap" para Portugal, Espanha e Marrocos, para ajudar a revelar estas lacunas e quantificar a sub-reacção entre diagnósticos e acções, por entre camadas de indecisão política, má comunicação, acção insuficiente e o poder das indústrias dos combustíveis fósseis. As "climate policy gaps" para os três países revelaram excesso de emissões até para o nível mais ambicioso de promessas de políticas climáticas, quando comparadas com as trajectórias de emissões compatíveis com os limites de 1,5ºC e 2ºC. Esta pesquisa sugere que há uma característica intrínseca de sub-reacção nas políticas climáticas, que trava o objectivo de atingir trajectórias de emissões compatíveis com manter o aumento da temperatura abaixo dos 1,5ºC até 2100. Os gráficos da "climate

policy gap" são uma ferramenta política e metodológica que revela as falhas sistémicas na acção climática governamental e a sua visualização identifica referências e sectores alvos que podem ser activados para fechar estas lacunas em resposta às crescentes exigências populares por justiça climática. Os gráficos quantificam ainda a diferença entre a metanarrativa do positivismo globalizado e capitalista e o que é necessário para atingir as metas do Acordo de Paris.

Finalmente, em 2018 e 2019 emergiu um forte movimento internacional pela justiça climática. Os três componentes mais relevantes deste movimento são "Blockadia", a ala mais radical do movimento pela justiça climática "tradicional", as massivas greves climáticas estudantis (Fridays For Future) e o Extinction Rebellion. Estas componentes têm tido acções conjuntas na chamada para a desobediência civil e insurgência em linhas políticas que respondem à ciência climática que apela à necessidade de cortes de 50% das emissões até 2030. Além disso, os movimentos têm assumido o tema da justiça social, muitas vezes em linhas políticas ecofeministas e ecossocialistas. Estes movimentos e versões crescentemente radicais de Green New Deals e campanhas como Empregos para o Clima estão a criar programas políticos para uma revolução social alinhada com a definição do filósofo Walter Benjamin. Um dos primeiros grandes críticos sistemáticos do progresso e desenvolvimento tecnológico sob o capitalismo, Benjamin propôs uma visão alternativa de revolução: esta não é inevitável nem o resultado natural da contradição entre forças produtivas e relações produtivas, mas antes a interrupção da evolução histórica que se encaminhe para a catástrofe. Estes movimentos e programas não são suficientes para uma nova metanarrativa de justiça climática, mas são condições necessárias para o seu aparecimento. Concluiu-se que há sinais da emergência de uma potencial metanarrativa de justiça climática, com a pressão para a criação de novas instituições, adaptação das anteriores, percepção pública da dimensão do problema das alterações climáticas e criação de respostas legislativas efectivas ao mesmo. Foram destacadas ainda as características mais expressivas que tal potencial metanarrativa assumiria: um "despertar" humano com ímpeto para uma reorganização social; uma redistribuição de poder, bem-estar e cooperação; uma nova noção de prosperidade dentro dos limites naturais e de uma redistribuição justa de recursos; a reconexão de conhecimentos e ciências; uma ciência pública e participativa para abordar as necessidades da hu-

manidade e da natureza; uma teleologia da sobrevivência colectiva da humanidade; o conhecimento e respeito pelos ciclos dos sistemas de vida, favorecendo a diversidade da vida como uma ferramenta eficiente contra o aumento de entropia na ecosfera; o reconhecimento e integração da economia dos cuidados no quotidiano, com a co-responsabilização dos géneros pelo cuidado e actividades de manutenção; a recuperação do conhecimento dos povos indígenas em termos de biomímica como um ferramenta colectiva, promovendo acções benéficos da humanidade nos ciclos de vida e ecossistemas; a percepção da incompatibilidade da produção capitalista com princípios básicos dos sistemas de vida; a percepção da economia como um subsistema do ambiente; a planificação democrática da produção baseada em necessidades reais; o reconhecimento da revolução social como travão de emergência contra evolução histórica catastrófica.
Uma potencial nova metanarrativa de justiça climática é uma novidade histórica, mas só uma nova Grande História pode dar à humanidade a possibilidade de ultrapassar a maior ameaça que alguma vez enfrentou.

PALAVRAS-CHAVE: Metanarrativa, Alterações Climáticas, Justiça Climática, Climate Policy Gap, Portugal, Espanha, Marrocos, Blockadia, Fridays for Future, Extinction Rebellion

DEDICATION

To Joana, Noa and Rosa, who deserve a new grand history and who deserve to live in a world where systemic suffering directly provoked by humans no longer exists. To them, I owe being able to rethink everything, being able to search for answers and help set up collective strategies for a new world in which we will all live. Now, when the dark is getting darker, when crises fester many aspects of life, when the cruelty, indifference, cynicism and hypocrisy that has pervaded human society for so long will face its final showdown, it is a joy to be by your side, to hope and trust that we will, in fact, challenge the monsters set up against us, heads held high, strong and loving. If we win it will be because we did it together, with tens, hundreds of millions more, recognising in each other the same thirst for justice, for peace, for future and to stomp on a rotten past. We will live eventful lives, full of life, and we will teach and learn from each other to be courageous, to be loving, to be full of care and to be full of intelligence, the collective intelligence which they try to deny us. We are a collective. Thank you for being my collective.

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To the teams of ClimAdaPT.local in Portugal for receiving me so warmly and providing me with all the support I asked for.

To all my companions at Climáximo.
To all the people currently engaged in climate struggles all around the world, be them about fossil fuel industries, environmental destruction, social justice or historical justice, and specially to the organisers that are pushing this movement forward everyday. You are the best chance for a future that humanity has.

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Introduction

Meu caro amigo, me perdoe, por favor, se eu não lhe faço uma visita
Mas como agora apareceu um portador mando notícias nessa fita

Aqui na terra tão jogando futebol
Tem muito samba, muito choro e rock'n'roll
Uns dias chove, noutros dias bate o sol
Mas o que eu quero é lhe dizer que a coisa aqui tá preta
Muita mutreta pra levar a situação
Que a gente vai levando de teimoso e de pirraça
E a gente vai tomando que também sem a cachaça
Ninguém segura esse rojão

Meu caro amigo, eu não pretendo provocar nem atiçar suas saudades
Mas acontece que não posso me furtar a lhe contar as novidades

Aqui na terra tão jogando futebol
Tem muito samba, muito choro e rock'n'roll
Uns dias chove, noutros dias bate o sol
Mas o que eu quero é lhe dizer que a coisa aqui tá preta
É pirueta pra cavar o ganha-pão
Que a gente vai cavando só de birra, só de sarro
E a gente vai fumando que, também, sem um cigarro
Ninguém segura esse rojão

Meu caro amigo, eu quis até telefonar mas a tarifa não tem graça
Eu ando aflito pra fazer você ficar a par de tudo que se passa

Aqui na terra tão jogando futebol
Tem muito samba, muito choro e rock'n'roll
Uns dias chove, noutros dias bate o sol
Mas o que eu quero é lhe dizer que a coisa aqui tá preta
Muita careta pra engolir a transação
Que a gente tá engolindo cada sapo no caminho
E a gente vai se amando que, também, sem um carinho
Ninguém segura esse rojão

Meu caro amigo, eu bem queria lhe escrever mas o correio andou arisco
Se me permitem, vou tentar lhe remeter notícias frescas nesse disco

Aqui na terra tão jogando futebol
Tem muito samba, muito choro e rock'n'roll
Uns dias chove, noutros dias bate o sol
Mas o que eu quero é lhe dizer que a coisa aqui tá preta
A Marieta manda um beijo para os seus
Um beijo na família, na Cecília e nas crianças
O Francis aproveita pra também mandar lembranças
A todo o pessoal
Adeus!

Meu caro amigo, Chico Buarque

“Why is there not an adequate and efficient answer to climate change?” is a question that has been haunting millions of people around the world for the last decades, and that is growingly being made by all publics. If, such as climate science unequivocally states, the scenarios on climate change are the most dangerous ever faced by humanity, how is it possible that political leadership, economic elites, all institutions and figures of power, even scientists, have not in the least reached satisfactory ways to address this? This question has also been in my head since I first started studying environmental issues and climate change almost two decades ago. I dare say, it has become the question I’ve been trying to answer for most of my adult life. Setting aside the small minority of those elites that deny scientific evidence and the unparalleled scientific consensus on climate change and its human origin, how is it possible that the rest of these elites allow for what can only be described as an end-of-civilisations sequence of events to be triggered? The usual replies around resistance to change and conservation of wealth, privilege and power can respond up to some point, but even the solutions that, a few decades ago, might have allowed for the power structure to maintain itself in some degree, were not followed. In fact, there was an acceleration towards a point of no-return, that is set in the very near future. In this thesis I have looked for a possible explanation for the current situation embedded in a framework of metanarratives, the great stories we tell ourselves, and the clear perspective that we are telling ourselves, as civilisations and up to some point even as a species, an altogether wrong history as regards the maintenance of said civilisations and even humankind itself.

This thesis began being written in 2014/2015. In the early period of writing there was a mellow optimism regarding climate action on the international level. After the 2014 International Panel on Climate Change’s (IPCC) report’s blatant alarm cry and the 2014 People’s Climate March in New York, 2015 opened with good prospects: the United Nations Framework Convention on Climate Change’s (UNFCCC) Conference of Parties (COP-21) in Paris promised an agreement to tackle climate change on the scale and depth required to the challenge. Early in the same year, the British journal The Guardian launched the Keep It In The Ground’ campaign, together with 350.org: the campaign stated bluntly that, in order to keep temperature from rising more than 2ºC by the end of

the century (which would lead to catastrophic consequences worldwide), humanity could burn an extra 565 gigatons of CO2 into the atmosphere, out of the by then 2795 gigatons of known fossil fuel reserves. Only about 20% of all known fossil fuel reserves, belonging to the richest companies and to the richest countries in the world could be consumed, and about 80% of these assets should become stranded, unable to be extracted and burned. Also in 2014, Naomi Klein published her influential book "This Changes Everything: Capitalism vs The Planet", and Pope Francis released his encyclical "Laudato 'Si" (On the Care of Our Common Home) about climate change and environmental degradation. The terrorist attacks in France, days before the COP 21 in 2015, prevented the planned massive popular protests to demand an agreement that cut enough emissions to keep global temperatures from rising above 1,5-2ºC by the end of the century. Exposed only to institutional and economic pressures, the convened parties delivered not a Treaty, but rather an Accord or Agreement, the only formula through which the president of the United States of America could approve it by executive order, as the Republican-led congress would have blocked other efforts. The direct effect of these events was the creation of a non-binding agreement. The submission by all countries of their Nationally Determined Contributions (NDC), lauded by some as an important step forward, exposed the frailty of the Paris Agreement: the sum of all countries NDCs would lead to an expected temperature rise above 3ºC by 2100.

Since this thesis began being written, many things have changed: just one year after the COP-21, while I was doing field work in the Marrakesh COP-22 in 2016, the news of the election of Donald Trump to the presidency of the USA turned international climate negotiations into disarray. Less than one year after that, Trump, a known climate denialist, would declare that the USA, the biggest oil and gas producer in the world, would leave the Paris Agreement. During his term of office, the Trump administration has promoted the expansion of oil, gas and coal production and consumption in the country and worldwide. This American administration has also tried to institutionalise denialism in the federal government, namely in the departments responsible and connected to climate science: the Environmental Protection Agency, the Department of Energy and NASA. Orders were given to omit climate change in reports, climate change denialists

were named senior officials in the most relevant departments, governmental scientists were forbidden of raising issues related to climate change. The ripple effects were felt throughout the world. 2014, 2015 and 2016 had seen a stabilisation in emissions that was shattered in 2017 and again in 2018, which saw the fastest rise in emissions since 2011. Coal production, which had plummeted in 2015 and 2016, started rising and has grown steadily in 2018, and gas, which was promoted as a "transition fuel" during the last five years, has seen more than double its growth from 2017 to 2018. At the same time, installation of new renewable energy infrastructure has plateaued since 2015.

The last five years were the hottest years on record globally (2016 being the first, 2015 the second, 2017 the third, 2018 the fourth and 2014 the fifth). 2019 will likely become the warmest ever. The concentration of CO2 in the atmosphere has grown from 407.05 ppm on January 2018 to 409.92 in January 2019, the fourth highest annual growth in the concentration of atmospheric carbon dioxide. According to the National Oceanic and Atmospheric Administration (NOAA), three of the four highest annual atmospheric CO2 concentration increases have occurred in the past four years - 2016 saw a jump of 3.01 ppm and 2015 a jump of 2.98 ppm. According to Willeit, Ganopolski, Calov and Brovkin (2019), "the current CO2 concentration is unprecedented over the past 3 million years".

Climate-change related catastrophes have ravaged the world in the last four years: wildfires raging for months in California and Portugal, killing hundreds of people, fires in peatland moors or above the Arctic Circle, Mediterranean "Hurricanes", record highest minimum and maximum temperatures, heat waves, record rainfall and mudslides in Asia, flooding in India, Pakistan, Bangladesh and Nepal leading to thousands of deaths and displacements, successions of hurricanes in the Caribbean and American coasts - Florence, Michael, Irma, Maria -, typhoons in the Philippines and Hong Kong, as well as tropical cyclones sand and dust storms in Somalia, Djibouti or Yemen, to the now "normalised" permanent droughts in countries all around the world. In 2019, record heat waves have shattered all historical records in Europe, while in Mozambique cyclone Idai has destroyed the city of Beira, followed by cyclone Kenneth which, though not as

destructive as Idai, heavily fustigated the city of Pemba. The direct impact of climate change is being directly felt by populations all around the world, although poorer communities and countries are the most vulnerable.

Current data on temperature rise and impacts on weather patterns around the world suggests we are already in the midst of dramatic changes that will impact strongly in agriculture in the next twenty years. “Food System Shock: The insurance impacts of acute disruption to global food supply”, a study commissioned by Lloyd’s of London in 2015 on food security, reveals that shocks to the global food system would generate “major economic and political impacts”. The worst predictions of climate scientists in the 1990’s are happening as we speak. The non-linear changes predicted for climate change - what is usually called “runaway climate change” - may already be happening, with the slowing down of oceanic currents, massive wildfires in Boreal forests and the Amazon (these mostly provoked by direct human action), an accelerated loss of Arctic and Greenland ice and exponential extreme weather phenomena such as hurricanes, typhoons and droughts.

Tipping points such as the defrost of permafrost and Arctic Ocean warming with the massive release of methane in the form of clathrate or frozen hydrates seem to be approaching rapidly, with reports of a thinned Eastern Siberian sea shelf and record temperatures in the Arctic.

There is growing evidence and growing experience of catastrophic impacts in livelihoods and societies across all levels of income, caused by climate change. The softening of this information is not useful, but deceitful. It happens due to many constraints which we will explore, but climate change, or growingly the “climate crisis” can now be directly connected to starvation, destruction, migration, disease and war.

The accelerated shift in climatic patterns in the past decade is such that we may never, in the history of civilisation, have lived in such a turbulent world like it is today. The 3 million year old record of global methane and carbon dioxide concentrations, together

with the record temperatures of the three last decades (comparable only to the Eemian Interglacial period, 130 to 115 000 years ago) have propelled us into forcibly experiencing the unprecedented.

In 2018, prior to the COP-24 held in Poland's Katowice coal region, the new 1,5ºC IPCC report outlined its direst warning ever: to prevent temperature rises above 1,5ºC until the end of the century, a radical 50% cut on greenhouse emissions until 2030 is needed. In this very COP, a speech by 15-year Swedish activist Greta Thunberg roused millions into action:

"Until you start focusing on what needs to be done rather than what is politically possible, there is no hope.
We can't solve a crisis without treating it as a crisis.
We need to keep the fossil fuels in the ground, and we need to focus on equity.
And if solutions within the system are so impossible to find, maybe we should change the system itself.
We have not come here to beg world leaders to care. You have ignored us in the past and you will ignore us again.
You have run out of excuses and we are running out of time.
We have come here to let you know that change is coming, whether you like it or not.
The real power belongs to the people.".

Thunberg had been on a school strike every Friday to demand government action on climate change. She would go on to launch the international movement Fridays For Future and global school strikes that have mobilised millions of students, specially on the 15th of march and the 24th of may 2019, as well as the global strike for climate on the 20th and 27th of September 2019.

Meanwhile, on the 31st October 2018, in London, a "Declaration of Rebellion" was issued by the recently formed movement "Extinction Rebellion", giving way to two weeks of non-violent direct action and blockade of public buildings and spaces in so-called "rebellion days", which led to over 100 arrests and the blocking of five bridges over the river Thames in London. In April and October 2019 there were international

Rebellion Weeks, with direct actions and blockades around the world. The Extinction Rebellion's website called for three basic demands on governments:
"01.Tell the Truth - Government must tell the truth by declaring a climate and ecological emergency, working with other institutions to communicate the urgency for change.
02. Act Now - Government must act now to halt biodiversity loss and reduce greenhouse gas emissions by net zero by 2025.
03 Beyond Politics - Government must create and be led by the decisions of a Citizen's Assembly on Climate and Ecological Justice.".

Also since 2019, in the United States there is a public debate over a Green New Deal (Ocasio-Cortez and Markey, 2019) that would purportedly create millions of jobs in the decarbonisation of the American economy "to achieve net-zero greenhouse gas emissions through a fair and just transition for all communities and workers"; "accomplished through a 10-year national mobilisation" for, among others:

- "meeting 100 percent of the power demand in the United States through clean, renewable, and zero-emission energy sources, including by dramatically expanding and upgrading renewable power sources; and by deploying new capacity";
- "spurring massive growth in clean manufacturing in the United States and removing pollution and greenhouse gas emissions from manufacturing and industry as much as is technologically feasible, including by expanding renewable energy manufacturing and investing in existing manufacturing and industry";
- "overhauling transportation systems in the United States to remove pollution and greenhouse gas emissions from the transportation sector as much as is technologically feasible, including through investment in—(i) zero-emission vehicle infrastructure and manufacturing;(ii) clean, affordable, and accessible 23 public transit; and (iii) high-speed rail".

By the end of the writing of this thesis, dozens of countries have declared climate emergency - among them the United Kingdom, France, Canada and Ireland - while others such as Portugal have passed resolutions in Parliament demanding the government declares emergency. Meanwhile, large hundreds of jurisdictions in dozens of countries

have declared a climate emergencies, ranging from burroughs to major cities such as New York or Sidney. These jurisdictions cover a population of over 100 million citizens. The issue of climate change has finally arrived in the forefront of politics, disputing a space among the media frenzy with issues such as migrations, violence and the rise in extreme far-right politics (many of which are directly and indirectly connected to climate change). By the end of the writing of this thesis, the situation is clearly very different from when it was conceived, adding extra layers of complexity and of information on the very research questions of this academic work: I set up to analyse how public policy on climate change could be reflecting a shift in terms of the grand narratives humanity uses, and if there was an adequate acceleration of these policies, opening space for and reflecting new metanarratives. Other issues have changed, many of which were detected during interviews with different stakeholders for this thesis, namely the lack of social and political body to sustain different policies as a way of world making and worldview. Such is the nature of the time period in which we are living: many of the questions, though large in scope, become overpassed by reality. This does not remove the importance of the questions asked initially, but rather confirms their pertinence to begin with.

I question the appearance of a new grand narrative, a metanarrative, for humanity as a way to deal with the unparalleled climatic conditions we are living in today, and how climate is evolving in connection with our global economy. To try and respond to the mismatch between the dire scenarios identified by climate scientists, specially those assembled in the IPCC, and the climate policy developed in the world, I have used an adaptation of Michael Burawoy's Extended Case Method, to evaluate public policy on climate change for three different countries - Portugal, Spain and Morocco - and try to extract macro processes out of micro forces, through a combination of reflexive science and positive science that accepts and embraces the intersubjectivity of scientist and subject of study to allow for theory reconstruction, applying reflexive science to ethnography to extract the general from the unique.

Many research results informed this thesis, including many scientific presentations, grey literature and press publications (a full list of these may be found in the CV annexed to the thesis).

Chapter 2 discusses the theoretical framework for metanarratives, drawing clear lines (as well as bridges) between metanarrative, ideology, hegemony and worldview. I outline the current dominant metanarrative of globalised capitalist positivist globalism, and challenge different postmodernist, modernist, positivist and globalised perspectives' adequacy of the current global hegemony to guaranteeing the survival of civilisation.

Chapter 3 discusses the emergence of a climate justice metanarrative in a shifting world, descending from older metanarratives, competing with present metanarratives but also with other emergent climate change metanarratives, evaluating the history of the competition between grand stories and the social psychology around denial and hope.

Chapter 4 defines the methodological choices made during this thesis and the way in which I tried to evaluate the evolution of the climate change metanarratives and conflicts, through a method that expresses a double model of science - reflexive as well as positive - to approach, analyse and reformulate theory. My focus will be on public policy on climate, as a tool to express both scientific knowledge and social bodies and programs.

Chapter 5 outlines a roadmap for the long and sinuous pathway between the belief in the existence of climate change and the concrete support for radical effective public policy on climate change, with the ever lurking presence of metanarrative, ideology and worldview each step of the way. In this chapter I provide analysis for the over 1100 enquiries made in Portugal in the ClimAdaPT.local about perceptions, responsibilities, institutions, importance and participation in climate change issues and particularly in climate policies. Afterwards I analyse the 46 interviews I conducted in Spain and Morocco, providing qualitative analysis on the issues of perceptions, responsibilities, effecti-

veness, participation and worldview regarding climate change and public policy on climate change.

Chapter 6 presents a broad study on the chosen countries and a quantification of the emission gaps between what climate policy actually provides in contrast with public discourse and international pledges, a “climate policy gap” that reveals a built-in feature of climate policy under-reaction connected to structures of power and metanarrative, calling for a closing of these paths with climate policy that actually achieves 1.5º or 2ºC compatible emission pathways. The climate policy gap, a tool created with other authors, is a political and methodological tool that reveals systemic shortcomings of climate action, and its visibility identifies benchmarks and sectors that should be activated to close these gaps. It further quantifies the gap between a metanarrative of globalised capitalist positivism and a metanarrative of climate justice.

Chapter 7 analyses a further aspect of metanarrative, namely the existence of a social and political body. Here I present the social and political bodies that can sustain the metanarrative of climate justice - Blockadia, Extinction Rebellion and Youth Climate Strikes . I further analyse the currently existing political programs that can embody many aspects of these potential metanarratives, such as the Green New Deal or Climate Jobs.

Chapter 8 finally presents a clearer definition of what basis a climate justice metanarrative should stand on, based on reflections from field work and analysis of the political and social body. Understanding systems of life, the care economy, learning from indigenous peoples and more established ideologies such as ecosocialism and ecofeminism are at the basis of this, as well as the pre-eminent revolutionary character of this possible metanarrative.

Chapter 2

On metanarratives, ideology, hegemony and worldview

"Morpheus: The Matrix is everywhere. It is all around us. Even now, in this very room. You can see it when you look out your window or when you turn on your television. You can feel it when you go to work... When you go to church... When you pay your taxes. It is the world that has been pulled over your eyes to blind you from the truth.
Neo: What truth?
Morpheus: That you are a slave, Neo. Like everyone else you were born into bondage. Into a prison that you cannot taste or see or touch. A prison for your mind."

The Matrix, Wachovski Brothers

2.1 On Metanarratives

In 1979 French philosopher Jean-François Lyotard announced that we now lived in Post-Modernity, a new age characterised by "incredulity toward metanarratives" (Lyotard, 1979). This philosopher brought the term metanarrative into prominence, to declare the death of "grand narratives", the great stories humans tell themselves about who they are, how they should act and how they value things, on both a conscious and subconscious level. "The narrative function is losing its functors, its great hero, its great dangers, its great voyages, its great goal", claimed Lyotard, asking "Where, after the metanarratives, can legitimacy reside?". A world in great turmoil deprived of great references or aspirations.

According to a reading of different postmodernist thinkers, metanarratives would give way to smaller, localized narratives that brought into focus singular events, specific local contexts and the diversity of human experience. Although here I bundle postmodernists into a single position, they are not absolutely coincidental in their view of the role of metanarratives, although the collective identity frequently attributed to them (by them we usually refer to some of the most known - Lyotard, Foucault, Rorty and Baudrillard) regards their anti-positivist and anti-humanist views of the world, their very critical analysis of "truth", "history" and "progress".

Will Marsh's "Nothingness, Metanarrative and Possibility" (Marsh, 2009) does a thorough examination of metanarratives' role in human history and some of what may be their most defining characteristics. According to Marsh, more than just larger narratives, metanarratives give context, provide meaning, direction and attribute value to human experience, whether it be real or fictionalised, with a strong connection to History. This author views metanarrative as a framework in which several values are grasped and experienced, from very simple ones such as the assumptions of time and space up to very complex ones such as "chosen people" or "humanity's destiny": metanarrative is the bigger picture of apprehended reality. It is a filter or a pair of glasses through which we observe the world, distorting or clarifying the image.

In his attempted definition of metanarrative, Marsh defines it as "the unintended, yet implicitly existentially overview of meaning", that

> "has coursed through the human experience for centuries. Ranging from the Polynesian tale of the lost land of Lemuria, which appeared once more in the story of the continent of Atlantis; Plato's idea of the perfect state which can only be ruled by the philosopher king, as set forth in his Republic; Augustine's City of God, his lengthy portrait of a world caught in the history of two kingdoms, one invested and undergirded by God, the other rifled with the follies of humanity, and the ultimate end of both (God's kingdom emerges triumphant); Hegel's grand schemata of the flow of world history, beginning with the world of the Orient, continuing to that of the Greeks and Romans, and culminating in that of the German, the modern nation state in which the *Weltgeist*, in this construction of the final metanarrative, emerges, fully developed, evolved and constantly containing, in history, the apex of human religion; the communist state of Karl Marx, the utopian and classless society entered in the *shibboleth*, "From each according to his abilities, to each according to his needs" and economic and class struggle as the driving force of history; and, more recently, Francis Fukuyamas's much debated thesis on the inevitability of democracy as the world's final and terminal political system, the grand climax of all human struggle."

Stephens and McCallum (1998), define metanarrative as "a global or totalising cultural narrative schema which orders and explains knowledge and experience", and Sadalge (2013) defends metanarratives "are the entire philosophies of history, which form the ethical and political guidelines for society and generally have power over what is considered as truth".

Nissen (2017), on the other hand, uses four elements to define a metanarrative:

1. That it is overarching in time as well as space, extending beyond descriptions of any particular era;
2. That it is not an ideology or relative to particular cultural contexts, but represents a transcendence of the limitations of other interpretations of social purpose and cooperation (it is an uber-ideology);
3. That rather than having a cultural construction that begins elsewhere, the metanarrative is not part of an arbitrary sequence, but a trigger of sequences;
4. That it circumvents the theorists' interpretations in favour of its own self-determining role.

In essence, Nissen's view is that metanarrative is set within its own intellectual prison walls, but contrary to his view, in Sociology, metanarrative is often referred to as ideology. I intend to make clear that metanarratives, ideology and hegemony are intertwined, but they are not the same.

Lyotard himself, after presenting the death of metanarratives, defined his own three practical elements for the 'status of metanarrative' (Lyotard, 1984):

- A scientific history interconnected with political institutions;
- A participation in the media circus and;
- A strong moral character.

Richard Rorty defines metanarrative as a "sort of philosophical discourse that grounds its claims in an unchanging universal logic of spirit, nature, or language." (Klein, 1995, p.90).

Table 1. Definitions of metanarrative

Author	Definitions of metanarrative
Marsh (2009)	"metanarratives give context, provide meaning, direction and attribute value to human experience, whether it be real or fictionalised, with a strong connection to History" "the unintended, yet implicitly existentially overview of meaning"
Stephens and McCallum (1998)	"a global or totalising cultural narrative schema which orders and explains knowledge and experience"
Sadalge (2013)	"the entire philosophies of history, which form the ethical and political guidelines for society and generally have power over what is considered as truth"
Nissen (2017)	1. That it is overarching in time as well as space, extending beyond descriptions of any particular era; 2. That it is not an ideology or relative to particular cultural contexts, but represents a transcendence of the limitations of other interpretations of social purpose and cooperation; 3. That rather than having a cultural construction that begins elsewhere, the metanarrative is not part of an arbitrary sequence, but a trigger of sequences; 4. That it circumvents the theorists' interpretations in favour of its own self-determining role.
Lyotard (1984)	- A scientific history interconnected with political institutions; - A participation in the media circus and; - A strong moral character.
Rorty (1995)	"a sort of philosophical discourse that grounds its claims in an unchanging universal logic of spirit, nature, or language."

Metanarratives are the narratives that hold positions of dominance. Some groups are more effective in gaining dominance for their histories, through mechanisms of storytelling, information control and institutions, forcing them upon other groups. They are on the highest fields in the struggle for power, and when knowledge is mediated and reported by a metanarrative, it enables its own validity, legitimising what historically may have been considered illegitimate expressions of the power or the State. A metanarrative can be a tool for maintaining the control of knowledge in the hands of few, removed from the people, rendering knowledge and information as a possible tool of oppression, but it can also be a tool for liberation and promotion of mass participation.

It is rare (although not inexistent) for a metanarrative to be given individual authorship. Rather, the lack of author is decisive in the process of naturalisation and incorporation of metanarratives into less ample narratives, which does not mean that it has no intention or that it serves no purpose: intentionality is central in metanarrative, and this intentionality is lent to it by those who consciously invest in the metanarrative, and those who do not actively question it (if it is acknowledged at all). It can be the expression of "the attitude or sensibility of an entire ethos, era, or a paradigm of human thought, a paradigm to which many thinkers have contributed, a paradigm into which many years, even centuries of human pondering have been poured.". The role of intellectuality here is relevant, as the process of naturalising a metanarrative is often done through intellectuals in all manners of mass expression: arts, culture, media, historical narrative, science, technology and, finally, State and organisations' apparatuses.

As we have now seen, there are different definitions of what metanarratives are and can be. To reach a critical definition of metanarrative, I continue onto important critiques and defences of metanarrative and different elements associated to it, namely truth, history and teleology.

2.1.1 Critiques of metanarrative, philosophy of history and teleology

The reasons behind the declaration of "death" of metanarratives are manyfold, but they are certainly grounded in the profound critiques that arose from the barbarous events of two world wars, a genocide in Europe, and great transformations such as the decolonisation of most of the imperial European powers' colonies and the emancipation of women. The critique of metanarratives had begun before postmodernists, though.

German philosopher Georg Wilhelm Friedrich Hegel, in his Lectures on the Philosophy of History (Hegel, 1981 [1837]) claimed that Europeans had become imbued with destiny and that peoples such as indigenous Americans and Africans, without writing, had remained "peoples without history". This drew important criticism on Hegel and, due to his undeniable influence in modern thinking, drew many to critique other thinkers iden-

tified with modernity as sharing this reductionist view. French philosopher Jean Baudrillard took his aim at Karl Marx: "Science, technique, progress, history — in these words we have an entire civilisation that comprehends itself as producing its own development and takes its dialectical force toward completing humanity in terms of totality and happiness." (Baudrillard, 1975, p.33).

Theodor Adorno denied the validity of metanarrative as its positivist views, namely Hegel's mythological idea of a closed end to history, presupposed deterministic teleology, a fixed objective and destiny for history and humanity. Some marxist interpretations that it was the destiny of the working class to overcome capitalism and build a classless civilisation earned critic under the same prism. Adorno called for the denial of universal history: "After the catastrophes that have happened, and in view of the catastrophes to come, it would be cynical to say that a plan for a better world is manifested in history and unites it. Not to be denied for that reason, however, is the unity that cements the discontinuous, chaotically splintered moments and phases of history—the unity of the control of nature, progressing to rule over men's inner nature." (Adorno, 1981, p. 320).

According to historian Kerwin Klein (1995), western culture and civilisation have 'used' metanarratives or master narratives as a way to assimilate different cultures into a described single course of history eventually dominated by the West: Universal History and Philosophy of History. This is one of the most important critiques of global metanarratives: the fact that they fabricate a reality of exclusion, an exceptionality of the West over all other cultures and histories, reinforcing domination, colonialism, racism and patriarchy, thus perpetuating existing power relations from the past. For Verovsek (2013), the idea of progress was imbued in the philosophies of history produced after the Enlightenment and during Modernity by Kant, Hegel, and Marx, which in turn led to the historical sociology of Max Weber. Horkheimer and Adorno criticised the thinking of the Enlightenment period that gave rise to the present metanarratives as mythological, giving themselves absolute status over all peoples and objects, reframing ancient repressions and violences it supposedly tried to overcome: "myth is already en-

lightenment and enlightenment reverts to mythology" (Horkheimer and Adorno, 1976). When the Nazis experimented on Jews, Gypsies and homosexuals in the name of science, all critiques of science, technology and instrumental reason are valid. Hence the statement that "For Enlightenment whatever does not conform to the rule of calculability and utility is suspect . . . Enlightenment is totalitarian." (Horkheimer and Adorno, 1976, p.12). They proposed collective memory as an alternative to philosophies of history.

Jürgen Habermas, on the other hand, shared the critique of Eurocentric notions of development arising from the Enlightenment, namely rejecting modernisation, that now appeared "to be the actual deviation" (Habermas, 2008, p. 116). But Habermas's critiques never went as far as other critiques of philosophy of history, reason why he himself faced important criticism by postcolonial thinkers. Habermas, Horkheimer and Adorno, from the Frankfurt School, had experienced the horrors of World War II and their critiques of philosophies of history, namely the questioning of progress and teleology (implicitly metanarrative) were very much derived from this experience and memory, nurtured in this school of philosophical thought, that didn't lead to a complete denial of metanarrative, but to a sharp critique of it. Postcolonial thinker Aimé Césaire (1972, p. 3), argued that despite the trauma of experiencing full scale war and the atrocities of nazism, it was quite insufficient to blame nazis for all European barbarism, as "before they were its victims, [Europeans] were its accomplices... they tolerated that Nazism before it was inflicted on them.", in the whole colonial period.

Much like Lyotard, American philosopher Richard Rorty explained postmodernity's politics as denouncing metanarratives, while applauding "the proliferation of local narratives" which mean "to resist totalitarian universal history and political oppression." (Rorty, 1995). Rorty defined Modernity's metanarratives as modelled in Judeo-Christian theology, be them the Hegelian Spirit, Marxist emancipation or technical progress. Once modernity was pressed by the diversity of the twentieth century, they were "fractured beyond repair" and hence, in postmodernity, "the grand narrative lost its credibility".

Lyotard may have given the sharpest rebuttal on metanarratives, attacking the "white terror of truth," the "grip of the unity-totality," and "the chill of the clear and distinct" (Lyotard, 1993, p.242). He defended that context was everything, and that as such, metanarrative was strictly an issue of language, confining everything into it: history, truth, justice. As such, he called on humanity to "wage war on totality; let us be witness to the unpresentable; let us activate the differences and save the honour of the name" (Lyotard, 1984 p.81–82). He believed that western capitalism's destruction of peoples was also the destruction of local narratives and cultures, that could only be opposed by radical differentiation. The philosophies of history that inspired Romantics, Victorians and other idealists of the Enlightenment had collapsed: "Auschwitz" refuted Kant and Hegel, "Budapest 1956" refuted Marx and "May 1968" refuted parliamentary liberalism. Rorty, also identified as a postmodernist, defended context's centrality as well: "We have come to see that the main lesson of both history and anthropology is our extraordinary malleability. We are coming to think of ourselves as the flexible, protean, self-shaping animal rather than as the rational animal or the cruel animal" (Rorty, 1998 p. 169–170). Without a directed history, a purpose, teleology, humans can be seen as blank slates waiting for culture and context. In psychological terms, this meant that the self was a sole product of socialisation.

History is always present in the critique of metanarrative, and Klein (1995) exposed the exemplary assimilationist story of the incorporation of native and indigenous peoples into white society, described as the happy march of progress, and the local cultural resistance as an example of non-white people's backwardness, with their factionalising and undemocratic claims for tribalism, quotas and separatism. Also according to Aylesworth (2015), modern philosophy legitimised narratives of Science, distinguishing them from tribal wisdom communicated through myths and legends, although it "plays the language game of denotation to the exclusion of all others, and in this respect it displaces narrative knowledge, including the metanarratives of philosophy." This led to a dissolution of epistemic coherence and compartmentalisation of knowledge, that is, "loss of meaning".

According to Given (2014), modernity's metanarratives, such as Enlightenment's metanarrative that rational thought grounded on empiricism leads to human progress or Marxism's metanarrative that class struggle is the engine of history and that the revolution of the underclasses is the solution for poverty, inequality and injustice, should be opposed by free market libertarians. Given identifies the State as the depository of metanarratives, as it allows for the exertion of control over populations, comparing postmodernists's analysis to Friedrich Hayek's view that governmental power was at odds with a emergent social order, and that the deconstruction of metanarratives was something libertarians could learn from, stating that "Liberal economics and postmodern philosophy, then, can be seen as two sides of the same coin. Both call us to expose the problems with the ways the State justifies its existence and perpetuates its own power" (Given, 2014). Since the claim of the end of metanarratives, they gained an important relevance and drew many different thinkers, but the debate remained: "From Levi-Strauss to Lyotard, from Clifford to Fukuyama, we remain haunted by history, returning ever and again to the big story even as we anxiously affirm our clean break with the evils of narrative mastery." (Klein, 1995).

2.1.2 In defence of metanarratives

In Walter Benjamin's "Theses on the Philosophy of History" (Benjamin, 1977) he claims that historical breaks or ruptures make narratives collapse, delegitimising progressive philosophies of history. These events free individuals from established understandings, from previous metanarratives, allowing for the creation of new ways to behold the world and oneself, reconstructing the past. Benjamin is not calling for or proclaiming the end of metanarratives, but rather the creation of new metanarratives. Habermas called for a reflection on "the better traditions of our history, a history that is not unexamined but instead appropriated critically" (Habermas, 1989, p. 234). A reformation of metanarratives, out from disaster and engaging with the tragic past should be a solution, rather than silencing or repressing metanarratives as a whole. Habermas called for justice to the dead through remembrance and a "consciousness of atonement", bin-

ding communities not through birth, nationality or ethnicity, but by "anamnestic solidarity", a collective task of ensuring that they do not repeat their past crimes.

Although there is a general critique of metanarratives (both in general and specifically the ones most easily recognisable in modernity), many thinkers refuse the postmodern notions of the end of metanarratives, seen as throwing the baby out with the bathwater. The need for shifts of the modernist metanarratives that came out of the Enlightenment and their somewhat non-critic (or not critic enough) view of the past (ancient and recent) is absolutely clear, but metanarratives continue to exist, whether their most vehement critics declare their death or not. There are bigger and competing frameworks to describe value, that shape our understanding of the world in space and time, that ascribe meaning to the narratives in which humans invest their lives.

Humans always assume metanarrative, namely that they live in material reality, and that they will always move in a limited space and time. "Boundary and parameter are intrinsic to the human experience, an assertion which in itself ensures that metanarrative is real. In a finite world, metanarrative in inevitable." (Marsh, 2009). But religions as metanarratives provide us other insights: when a metanarrative reflects the metaphysical, we must understand how it does so, because connecting reality with a metaphysical metanarrative its to give physical form and historical credibility to ideas that exist beyond the reality of space and time, that is, creating reality out of metaphysical thought. And we understand that religions have indeed been by far the most important metanarratives to humanity thus far.

History can hardly exist without metanarrative, as British historian Eric Hobsbawm put it in his interview to Hanagan: "I don't care what you call it—metanarrative or metahistorical, whatever—there are, it seems to me, two things—one thing history must do, and there are other things I want do in history. The thing that history must do is to explain how humanity got from the cavemen to where it is today. (…) If history doesn't deal with this, what is it in aid of?" (Hanagan *et al.*, 2013).

Marsh goes back to Friedrich Nietzsche's efforts to remove boundaries in epistemology to assert that even this thinker acknowledged the need for a quest for humanity, a goal to

be able to go anywhere, as knowledge is very difficult without metanarrative. Absolute freedom, freedom from all beginnings, and from any notion of paths cannot suffice to develop or determine knowledge. “Although humans may well "rise above” their vision, without the assumption of boundaries or beginning, they will never rise above themselves.” (Marsh, 2009, p.196). The very notion of freedom needs structure in order to exist, otherwise what will it be free from? This is Marsh’s paradox of human history: “the ineluctable truth of metanarrative is that truth, even the most relative conception of it, cannot be without it.”.

Faced with an apparently all-triumphant capitalism, Lyotard must have found it difficult to use any current perspective to change or overthrow capitalism, and rather than analysing capitalism as a destructive force, focused on identifying its seductions and its capture of our desires (real or fabricated). Postmodernists seem to have focused on surviving capitalism - the proclamation of the death of metanarratives may well have been nihilism disguised as radicalism - rather than trying to overthrow it. Simon Choat points out to Lyotard’s critique of teleology, as an attack on Marx’s ontology and teleology based on an analysis that Marx was nostalgic of the past (primitive communism) and that his critique of capitalism and the present derived from such a nostalgia, which might be incorrect.

Here I introduce Erich Fromm, German Jewish psychologist. He was an outspoken critic of relativist denial of universal humanity, and in particular of the idea of humans as blank sheets of paper in which culture writes its texts. In psychology, he denies the claim that the “self” is wholly a product of socialisation, something that was later reaffirmed by neurobiologist António Damásio (2010), that identified a pre-linguistic developmental sense of self, which is then independent of language and therefore of narrative. Daniel Dennett (1992) identified the self as the “center of narrative gravity”, the self which can’t be isolated or touched by our narratives, memories and stories, but around which they all revolve.

Fromm was an unashamed defender of the continuity of the humanist themes of the Renaissance and the Enlightenment, although he reserved some reproach for historical and

geographical disconnection, as well as the disconnection between theory and practice, which rendered him an admirer of Karl Marx as an upgraded heir of that humanism. Fromm's support for the Renaissance and the Enlightenment arose from their concern with the idea of "the dignity of man". Eric Hobsbawm would say "we all belong to the family of the great sentimental verities like life, liberty, the pursuit of happiness, and equality, fraternity, and liberty." (Hanagan *et al.*, 2013). Fromm recognised a double legacy from modernity's metanarratives, though: out of them had arisen the dignity of humans and a reign of profound indifference to humans, masked as illusory individualism in modern capitalism (Durkin, 2014).

The periods of Renaissance and Enlightenment coexisted and were materially fed by the European imperial expansion, slavery and colonialism, with metanarratives of progress and development often used to legitimise connected atrocities overseas and in the poorer quarters. It can be argued that these crimes were committed in absolute opposition to the central principles of humanist thinking. Fromm defends that there is a permanent tension between authoritarianism and humanism, and that the coexistence of these ideas with barbaric practices does not invalidate the ideas: this distinction is important as it gives a different accounting for the reality of history from those who would "totalise the legacy in a unidirectional or one-dimensional focus on rationalisation and instrumentalism." (Durkin, 2014). The same argument can be used for the "scientific experimentation" by the Nazis: "To engage in mass extermination it was necessary [for Nazis] to believe that the objects of that policy were less than human . . . to say that it was a rationally conceived plan is to elevate the prejudices of the Third Reich to the status of scientific knowledge."(Malik, 1997, p. 127).

Duality is an integral part of Fromm's defence of humanism and human history as metanarratives: "we are adherents both of Augustine *and* Pelagius, of Luther *and* Pico della Mirandola, of Hobbes *and* Jefferson. We consciously believe in man's power and dignity, but—often unconsciously—we also believe in man's—and particularly our own—powerlessness and badness and explain it by pointing to 'human nature'" (Fromm, 2003 [1947], p.159). Schulman (2011) frames the same point in a different historical moment, connecting to a capitalist superstructure: "It was not the *ideas* of the classical political

economists that led to colonialism. Their theories were generated *after* colonialism was already a long-established fact. Colonialism sprang from capitalism's expansionary dynamic, its need to force all nations, on pain of extinction, to adopt the bourgeois mode of production.". Eric Hobsbawm explains that there is an excessive attempt at direct correlation between historical periods and phenomenons and the development of ideas, as well as the intended and unintended consequences of those ideas: "I think the Enlightenment can't be entirely identified with either the historic period in which it flourished or indeed with capitalism (…) I think, for instance, the atomised individual is to a great extent the consequence of the development by capitalism of a consumer society and indeed the logic of capitalism" (Hanagan *et al.* 2013).

Fromm attacked social theoretical circles for being satisfied with holding back from making any significant discernment at all, as he would not settle for impotence in face of life and history: "Since any improvement of the human situation will depend on the simultaneous change in the economic, political and in the human characterological spheres, no theory can be radical which takes a nihilistic attitude toward man" (Fromm, 1955, p. 349). In his "social psychology", he would identify alienation as the main source of relativism and anti-humanism: "(…) we have lost the sense of the significance and uniqueness of the individual, that we have made ourselves into instruments for purposes outside ourselves, that we experience and treat ourselves as commodities, and that our powers have become alienated from ourselves. We have become things and our neighbours have become things. The result is that we feel powerless and despise ourselves for our impotence. Since we do not trust our own power, we have no faith in man, no faith in ourselves or in what our powers can create." (Fromm, 2003 [1947]: 185). As knowledge is synonymous to power, the metanarratives that produce power and knowledge awake the fear of tyranny when we don't trust our own power.

As metanarratives are power, those in power who would not yield and inch of it, also defend it fiercely: Francis Fukuyama defended that History had direction, purpose and end, no matter how many future local battles continue on into the future. The collapse of the Soviet empire was the final destination of the ideological evolution of mankind: his

book “The End of History and the Last Man” is the epitome of the positivist metanarrative, with the absolute victory of global capitalism.

Even some postmodernists call for a reformation of metanarratives: "One does not have to be particularly cheerful or optimistic . . . about the likelihood of a final victory of persuasion over force, to think that such a victory is the only plausible political goal we have managed to envisage - or to see ever more inclusive universal histories as useful instruments for the achievement of that goal.” (Rorty, 1995). I add that the argument raised against postmodernists that the end of metanarratives is in itself a metanarrative is a straw man argument and that unwanted travel companions such as free market libertarians are unavoidable in a world of metanarratives. Ideas coexist with people, systems and institutions and much as many of modernity's metanarratives were used against its own ideas, postmodernity’s are just as vulnerable.

I finish with a Kieran Durkin’s defence of Eric Fromm’s radical humanism: “To speak of utopianism, even less to speak of the “goal of history,” in today’s intellectual climate is to speak unfashionably, if not illicitly. Wary of notions of “teleology” and “progress,” which tend to reflect back to theological absolutism or rigid organicist pan-logicism, on the one hand, or to myopic and self-congratulatory Whiggism on the other, this kind of talk is viewed as wishful at best, embarrassing at worst. But to speak of a “goal” here is not to give over to naïve progressivist thought; it is only to recognize the human capacity to realise at least part of our potential for reason, love, justice and, ultimately, solidarity; that when stripped of the unhelpful baggage of theological absolutism, talk of the “goal of history” can reduce to, as it does in Fromm, the recognition that the fact of human existence poses a problem, which must be resolved and whose resolution is best affected through the development of our love, reason, and justice and the concomitant creation of a peaceful and harmonious (or at least as far is possible) society.” (Durkin, 2014, p.205).

2.1.3 Ideology and hegemony - stepping stones for metanarrative and world views

As metanarratives are grounded in ideology, they need political and social bodies, movements and parties that are able to develop hegemonies. We need to delve deeper into ideology and hegemony's connection to finally produce metanarratives.

On ideology, I refer to the marxist thinker Antonio Gramsci, who challenged two dominant ideas of his time: epiphenomenalism and class reductionism. Gramsci questioned the direct (even mechanical) correlation between ideological superstructure and economic infrastructure, previously assumed almost as a 'natural law', denying the idea that capitalist society would inevitably collapse as a result of its own economic laws and contradictions that lead to pauperisation of the working glass and to environmental collapse. The question of consent as a part of power, rather than pure coercion by the class in power is central, as it leads to the question of hegemony in society. Gramsci divided the "integral state" in Political Society (or dictatorship, or coercive apparatus to conform the popular masses according to the type of production and economy at any given moment) and Civil Society (the hegemony of a social group over the entirety of society exercised through private organisations - the church, the unions, the schools) (Gramsci, 1971).

Refusing class reductionism in ideology, Gramsci denied that there were pure and class ideologies, but rather defined "ideology as a 'terrain' of practices, principles, and dogmas having a material and institutional nature constituting individual subjects once these were 'inserted' into such a terrain" (Ramos, 1982). Ideology was still a system of class rule and hegemony, but it was brought together not only by coercion, economic structure or class, but through an organic arrangement that tried to assemble a unified system, an "organic ideology". This organic ideology expresses the hegemony of an economic class through economic supremacy and the ability to articulate essential elements in the ideological discourses of the subordinate classes in civil society through

institutions: families, churches, media, schools, courts, police, trade unions and economic associations.

Michel Foucault (1975) analysed institutional punishment and surveillance as means for conforming this subtle power, particularly in prisons, but also in schools, hospitals and the military:

"[the prison] had already been constituted outside the legal apparatus when, throughout the social body, procedures were being elaborated for distributing individuals, fixing them in space, classifying them, extracting from them the maximum in time and forces, training their bodies, coding their continuous behaviour, maintaining them in perfect visibility, forming around them an apparatus of observation, registration and recording, constituting on them a body of knowledge that is accumulated and centralized.".

Here we observe the reinforcing strength of institutional control where all of the apparatus of management operates to regenerate its authority.

Gramsci's concept of hegemony made it clear that the stability of a regime or system depended on its ability to manage and preserve power, namely through a strategy he named "passive revolution", that could keep alternative hegemonies from developing. He didn't reduce individuals or groups to "victims" though, as the basis for hegemony implies some form of acceptance of the relationship, usually through a trade-off: "collusion in the success of a strategy of passive revolution, which responds to pressures from below by incorporating popular demands. Such a strategy can succeed in improving the lives of enough of the population to legitimate hegemonic claims as long as economic conditions permit." (Sassoon, 2001, p. 11). Passive revolution is a transformation of the political and institutional structures without strong social processes, without significant disruption and usually providing some improvements in people's lives, even if oppression worsens for some groups or society as a whole.

Herman and Chomsky (1988) focused their attention on media as a system to "inculcate individuals with the values, beliefs and codes of behaviour that will integrate them into the institutional structures of larger society". Foucault (1975) described modern sover-

eignty as the set of mechanisms - discourses, disciplinary structures and surveillance - dedicated to the biopolitical imperative of shaping life. On another lens, Agamben (1998, p.2) defended that in modern societies life and death are connected and that biopolitics can be reversed into necropolitics, a politics of death. Agamben expanded on Nazi jurist Carl Schmitt's claim that sovereignty resided in the power to establish "states of exception" that allow for the construction of a friend / foe distinction (Schmitt, 2005 [1922]). Through these mechanisms that produce hegemony, ideology can become what Gramsci finally called "organic ideology".

Laws are often the most direct first-step mechanisms of formally normalising ideologies into organic ideologies and finally into metanarratives. The set of rules that defines what are acceptable practices, standards and structures is often coded into legislation and law to produce hegemony. According to Litowitz (2000), hegemony is

> "a silent phenomenon lurking below consciousness, imbricated within the deep structure of a society, when people are stuck inside institutions and practices that have become so naturalised that they appear immune to any criticism. Such is the case with law: it is a monopoly of the state and as such of the power of the state, it exists and is imposed regardless of opinion or acceptance, without clauses for escape by inaction or opting-out. The production of legislation is a "way of world-making", "criminalising 'undesirable' behaviours and legitimating 'approved' activities."

The "law" is self-referential, guaranteeing hegemony through the framing of all disputes strictly within its own parameters, always justifying itself. And so, the legal system that extends from international agreements down to national legislation, although at times contradictory, exerts a "deep structure that perpetuates the existing power relation".

Through many different and complementary mechanisms - discourses, institutions, cultures, media and laws, ideologies struggle to produce hegemonic tools to become organic ideologies.

The permanent clash between competing narratives and metanarratives produces dominant and alternative world views, with shifts in hegemony and social, political and

physical events such as revolutions, crises and catastrophes produce shifts in power - either furthering the control of dominant classes or taking it away from them, creating shifting dominant world views.

2.1.4 A critical definition of metanarrative

After discussing definitions, critiques and defences of metanarrative, I present a critical definition of metanarrative.

Metanarrative is the bigger story, the often unspoken story we rarely think of, but rather simply assume, it is the naturalised idea or set of ideas that are no longer ideas in that we do not use them to question issues, but rather use them to reply to questions about most issues.

A metanarrative does not need to be grounded on reality and it is obviously not universal or truth, but it has to ground itself in some universality of understanding or perception of truth by large groups or very well organised groups. They allow for us to collectively act permanently both for our interests and against our interests, in the short term and the long term, as our willingness to comply and conform is often stronger than our need to exert our own freedom.

It is often forgotten, and that is the most important strength of metanarrative: not to be remembered of spoken of at all. The more it is self-referential, the strongest it will be.

Metanarratives reside in the fact that we are social animals: we take comfort in sharing either explicit or implicit world views. When metanarratives achieve a mature level of naturalisation, they can simply be forgotten and become assumed as “human nature” - in fact they are the closest we can get to human nature, in that it is a collective idea that is naturalised but may not have any grounds on nature or reality. Even the promoters of a metanarrative can and often do become engulfed by it - and this is one of the most relevant characteristics for climate change. A metanarrative goes beyond what Antonio Gramsci called organic ideology, as it is not only a tool through which a ruling class dominates the productive system and articulates the ideological discourse of the subor-

dinate classes, but by becoming naturalised, it articulates the ideological discourses of all classes (including the ruling classes, fixing them into a worldview that can damage even these very classes).

The effort to reach the questioning of a metanarrative is much higher than for lower levels of narrative, ideology, stories, ideas, although there are breaks or ruptures such as catastrophes and crises than can make them waver or even collapse. Metanarratives are the default mode: if societies, groups and events are relatively stable, a metanarrative holds.

Ideologies exist to become metanarratives, but few achieve it. The competing ideologies permanently strive for naturalisation, for becoming the norm, unquestioned and unmentioned, simply being and meshing their ideas into everyday life through culture and institutions, annulling authorship and vindication. The strength of metanarratives also pushes inside other ideas, and even competing ideologies, as reality is comprised of a permanent clash between narratives, affected by shifts in hegemony, and by social compromises, either explicit or implicit, of acceptance.

Ideologies use different tools to produce hegemony and to prevail. These occupy a place of power directly and through the interpretation of knowledge, meaning and value. In the end, metanarratives are world builders and world changers, as their naturalisation into collective action effects physical changes into the very world we live in (in us as individuals, in society and in nature), and ideas become historically tangible.

2.2 Current metanarrative

We are now living in a global capitalist metanarrative that has normalised different sets of ideas into invisibility. I further add that this metanarrative has many different components beyond capitalism and globalisation, the most influential being, in my view, positivism (technology, science and progress). I compose this "metanarrative of globalised capitalist positivism" as the most relevant lens through which the world is now seen and as the metanarrative that wields the most power in most countries, constructing a fairly stable worldview (at least in most places and positions of power). It is also the metanarrative through which we have arrived at a catastrophic situation in our planet, namely through the climate crisis. I return to Erich Fromm: this metanarrative is the definition of "pathology of normalcy", as it provides for a "normal" functioning of society that is pathological, providing a "socially patterned defect", a defect that shared en masse prevents it from leading to neurosis (Durkin, 2014, p.166).

To be able to clearly define why we now live in a “metanarrative of globalised capitalist positivism”, I will decompose it in its three parts: capitalist, positivist and globalised.

2.2.1 Capitalist

According to Merriam-Webster, capitalism is “an economic system characterised by private or corporate ownership of capital goods, by investments that are determined by private decision and by prices, production and the distribution of goods that are determined mainly by competition in a free market.”. Capitalism is a system of production and a fluid and successful ideological project. We currently live in a global capitalist system of trade of goods and services based on capital flowing through hands between capitalists, in which individual rights of property are the basis for morality. Capitalism’s reiterated objective is to allow sales of products or commodities above their price of production so as the extraction of surplus can produce an excess that is appropriated by the owner of the means of production - the capitalist - in what we call profit. With time, there has been a extensive commodification of almost all aspects of life on earth - be them people, objects, buildings or natural elements. The diffusion of the capitalist morality of the rights of property led to an increasing private appropriation of what was not considered property or that was considered “common” property. This is also an appropriation of power, through the commodification of all aspects and values of non-monetised life and nature. As Karl Polanyi (1944) put it in The Great Transformation, “The commodity fiction, therefore, supplies a vital organising principle in regard to the whole of society affecting almost all its institutions in the most varied ways, namely, the principle according to which no arrangement or behaviour should be allowed to exist that might prevent the actual functioning of the market mechanism on the lines of the commodity fiction”. It is not just a economic, system: “a market economy [capitalism], can exist only in a market society”.

Capitalism is the main component of the metanarrative that dominates global society today. There are only a few countries in the world that nominally claim they are not capitalist, namely Cuba, Vietnam, China and North Korea, although the first three have

important capitalist components. The historical challenge to capitalism by socialism and communism is now, since the collapse of the Soviet Union, mostly used to stress the triumph of capitalism when faced with any alternatives, although the history of depressions, recessions and revolutions in the last two centuries tells different stories. In China the government directly dominates property rights in a capitalist system in all but name, whereas in other countries the government only partially dominates these rights through regulations and laws.

The level of normalisation of capitalism is nearly absolute in many countries, most relevant of which is the United States of America. In the normalisation process, the word capitalism is substituted for "the economy", capitalists are substituted for "markets", accumulation and appropriation are substituted for "wealth". Inside a capitalist system you can identify yourself as being liberal, social-democrat, conservative, socialist, communist, anarchist, even as a fascist, and you will be mostly left to your own devises, as long as no open challenge to the basis from capital accumulation is made: production, growth, appropriation of surplus value, despise for environmental impacts. It is difficult to establish clearly when this system started, possibly 200 years ago in the Industrial Revolution (with the introduction of permanently shifting modes of production and destruction of non-competitive ones), but it resulted from the the fusion with different political forms and ideological programs and bodies existent in the last 500 years, since the beginning of intercontinental trade, the banking system and European imperial expansion. It has assimilated and reproduced its culture through all countries. Its plasticity also resides in the adoption of components from its opponents - welfare states, public services, representative democracies and parliamentarianism are some. Before the collapse of the Soviet Union, in the 30 "Golden Years" of capitalism (1945-1973), its plasticity was even clearer: "everyone wanted a world of growing production and external trade, full employment, industrialisation and modernisation, and were prepared to achieve it, if necessary, by means of a systemic governmental control and administration of mixed economies, and cooperation with organised labour movements, as long as they weren't communists." (Hobsbawm, 1994, p. 268).

As mechanisms of personal naturalisation of the capitalist metanarrative, Erich Fromm identifies three main phenomena: “marketing orientation”, “automaton conformity,” and “having mode of existence”, all of which are extensions of commodification into the personal realm and naturalisation of capitalist characteristics.

Marketing orientation can be seen in the “personality market” for employment, presenting human values as exchange values, with the qualities of a person that are valued being those that fulfil the condition of being in demand. A usual orientation is “emptiness, the lack of any specific quality which could not be subject to change, since any persistent trait of character might conflict some day with requirements of the market” (Fromm, 2003 [1947], p.57). The expression of passions that are not saleable, the inability of requirement meeting for roles, preoccupations with life and happiness are obstacles to one’s adequate commodification and therefore unsuited for society or at least employment - the stimulation of such characteristics is typically an issue in formation and education worldwide.

The “having mode of existence” is the expression of the reification of property rights. It is human functioning in a proprietary mode in relation to things, people and themselves, guiding existence into possession. “If my *self* is constituted by what I *have*, then I am immortal if the things I have are indestructible” (Fromm, 2009 [1976], p. 67).

“Automaton conformity”, though not exclusive of capitalism, is a state in which “the individual ceases to be himself[,] adopts entirely the kind of personality offered to him by cultural patterns[,] and… therefore becomes theoretically as all others are and as they expect him to be” (Fromm, 1969 [1941], p. 184). The mechanism of conformity was important in the introduction of the capitalist mode of production, for quick adaptation to machines, disciplined mass behaviour and obedience without the need to use force. This conformity often collides with the spirit of individualism and individuality promoted for diversified consumerism and ultra-liberalism.

These phenomena are described by Fromm in an expansion of marxist terms: the “alienation in the process of living”. They expand into the political systems and render them growingly powerless: the short decision-making power, restricted to the establish boundaries of property rights and the maintenance of economic growth, extraction and accumulation are written into constitutions, international treaties and transnational organisations. Political participation is mostly restricted to voting followed by four or five year periods of powerlessness and the observation of a political spectacle where political ideas and leaders are as commodified and market oriented as the general population.

Finally, as property rights are limited as to allow accumulation, the sense of merit in “achieving" them individually, no matter how small they might be, is very highly considered in moral terms (and growingly valued with growing accumulation and possession). Liberty to possess individually is highly valued, leading to the flourishing of narcissism, separateness and antagonism between individuals, promoting the search for competitive advantages over others and restricting concern and sympathy for them (Fromm, 1982 [1980]). “Modern man desperately clings to the notion of individuality; he wants to be “different,” and he has no greater recommendation of anything than that “it is different”… All this indicates the hunger for “difference” and yet these are almost the last vestiges of individuality that are left.” (Durkin, 2014, p. 178)

2.2.2 Positivist

Positivism was developed in the early 19th century, and it is usually attributed to French philosopher Auguste Comte, with his course on Positive Philosophy being one of its first documents. Comte introduced a “positive” vision to explain phenomena, human and natural, through observation and elaboration of immutable laws. Deeply rooted in science, positivism’s clear teleology was progress. Progress to try and solve the political instability arisen from the French Revolution and from the Industrial Revolution without resorting back to god and the church, but rather resorting to science as the new rock for human thought. Positivism is a secular, anti-theological and anti-metaphysical

ideology, based on the notion that there are three states of human development: first the theological state, where humanity searched for answers in the supernatural (gods, saints), second the metaphysical state where philosophy substitutes theological explanations for rational and logical arguments, and finally the positive state where science based on method and observation searches for answers in nature itself.

The denial of the theological and the metaphysical for the material implied a rejection of speculation in the understanding and interpreting of society and nature, with a search for clear causal explanations for events and activities. Comte thought it would be possible to study human behaviour through the scientific methods of natural sciences, leading to the creation of Sociology, originally "Social Physics", which would substitute metaphysics and reveal the "natural laws" of society. Its purpose would be to understand constant and immutable conditions in society (order) and the laws that guided the development of society (progress). The long run political project would be to have a society managed by sages and scientists.

Some of positivism's most important characteristics were the search for human emancipation though education to achieve social autonomy in which humanity would morally evolve through intellectual progress. Social order would be connected to moral and scientific development, personal and collective discipline. Sociology would produce order and progress out of chaos, fusing science and ideology into one. Verifiability would be the sole criterion of meaningfulness and a clear and established hierarchy of sciences would be the support of government.

With its focus on 19th century science, positivism produced criteria of verifiability and objectivity that divided the world into two separate spheres: one occupied by the producers of objective knowledge and the other occupied by the objects of said knowledge. The disregard for discontinuity and revolution in scientific theories and methods (including forgery of verification and criteria), as well as the inevitability of reflection, abstraction and ideology in any formulation of scientific theory, and critiques of reductionism are some of its most well known weaknesses as an ideology. Positivism (and an

important part of today's science as well) is still very much rooted in Newtonian physics - objective, revealed through observation, unambiguous, with universal laws and a cause-and-effect nature, deterministic and often linear. This means that positivism remains in the 19th century, disregarding revolutionary work in physics by Planck and Einstein, by Heisenberg's principle of uncertainty, by unseen and probabilistic forces and by the break in causality produced by the theory of chaos. Chains of historic or evolutionary development are perfectly coherent and capable of explaining phenomena *after* the facts (Hobsbawm, 1994). In the 19th century, improvement and progress, continuity and gradualism dominated the paradigms of science, and so it dominated positivism.

This ideology of science had and still has an enormous echo as a modern metanarrative of overcoming backwardness as represented by religions and traditions, but positivism is rooted in what is now backward science, being particularly vulnerable due to its lack of abstract critique and fascination with novelty and innovation in technology: "once the principle is accepted that something ought to be done because it is technically possible to do it, all other values are dethroned and technological development becomes the foundation of ethics" (Fromm, 1970 [1968], p. 32-33).

Positivism set technology and science in the center, with technological development seen as the key element to push humanity forward. The capitalist boom in the second half of the 20th century and from then on was very much led by this view, although capitalism applied science without understanding it and scientists stopped understanding (or simply disregarded) the consequences of their work. Science progressed in the 20th century, even in a background of rising fear and distrust led by four main feelings: that science was incomprehensible, that the practical and moral consequences of scientific development were unpredictable and possibly catastrophic, that it aggravated individual impotence and that it overthrew authority (Hobsbawm, 1994, p. 511-512).

The limitations to the idea of science as an ideology are now quite clear, but the combination of science as an ideology with the capitalist ideology put it into an unquestionably subservient position. "(…) the generous sponsorship of governments and big com-

panies stimulated a breed of researchers that had the politics of their payers as a peaceful issue, and that preferred not to think about the broader implications of their works, specially when these were military." (Hobsbawm, 1994, p.527) Scientists are pushed into working for what is socially useful or economically profitable, or, at best, for the prestige of winning international scientific prizes. Governments are not interested in the ultimate truth, but rather in the instrumental truth (Hobsbawm, 1994, p. 536).

In his work "One-Dimensional Men", Marcuse links science-centred positivism to the domination of nature and of humans by humans: "Science, *by virtue of its own method* and concepts, has projected and promoted a universe in which the domination of nature has remained linked to domination of man—a link which tends to be fatal to this universe as a whole. Nature, scientifically comprehended and mastered, reappears in the technical apparatus of production and destruction which sustains and improves the life of individuals while subordinating them to the masters of the apparatus." (Marcuse, 1964, p. 166).

Thomas Kuhn, in a 1991 interview (Horgan, 2012) would say, referring to his notion of paradigm, that it is a "collection of procedures or ideas that instruct scientists, implicitly, what to believe and how to work. Most scientists never question the paradigm. They solve 'puzzles', problems whose solutions reinforce and extend the scope of the paradigm, rather than challenging it". The paradigm is the "normal science", which is currently overwhelmingly positivist.

The main legacies of this positivist part of the current metanarrative are unequivocal support for science, progress, a strict division of knowledges and sciences, an outdated notion of methodological variability and a teleology of human progress.

2.2.3 Globalised

The 20th century saw the final push to occupy all territories and establish a network of trade and circulation of goods and capital through them. The "global village" has been a

reality for some decades, and we saw two world wars in the last century, one global Great Depression in 1929 and many global Financial Crisis leading up do the one in 2008. Political events now have ripple effects at a global scale, and capitalism is present in a dominant position in the entire globe for at least four decades. The basic units of politics, territorial Nation States, sovereign and independent, inclusively the oldest and more stable, are now dependant on and subservient to global markets, be them financial, of energy, food and others. "The globe is now the basic operational unit and older units such as "national economies" defined by the policies of territorial States are reduced to complications in transnational activities." (Hobsbawm, 1994, p. 24).

Since the 1970's the transnational economy became an effective global power, a capitalist system of trade and circulation operating outside the basic national schemes. The main objective of these transnational companies is to "internalise markets ignoring national borders", becoming independent from the states and their territories (and their people's democratic decisions). The ideal world for these multinationals is a world of dwarf states, of "night guard" states or of no states at all. International institutions such as the World Trade Organisation and international trade agreements, by depleting states' powers through the introduction of "independent" arbitral trade courts and rules, are creating the background for this.

There is an enormous confrontation between the process of globalisation and the utter incapacity of public institutions, states and human behaviour of adapting to it, which leads to a disintegration of patterns of relations between communities and countries and a break of bonds between generations. Despite this, there has been a continuous (although at times irregular) growth in the process of globalisation, with an ever more elaborate network of labour and an ever bigger flow of trade connecting all parts of the world's economy. The new international division of labour created an integrated system of manufacturing that requires cheap available workforces through a simultaneous revolution in transport, communication, infrastructures and energy.

One of the most important consequences of globalisation, which produced the sharpest demographic cut with the past, was the death of the world peasantry in the West, through global industrialisation and urbanisation. Models of mass production, as well as ecological degradation, are now global.

The long process of globalisation and integration of all countries into the capitalist system was long and painful, with most countries' economic elites imitating the model pio-

neered by the West, seen as societies that generate progress, and the form of power and culture of wealth, with techno-scientific “development” (although during the 20th century this could be either in a capitalist or in a socialist variation). There was no other operational model except “westernisation" or “modernisation” (Hobsbawm, 1994, p. 199). "The operational model of “development” could be combined with other sets of beliefs and ideologies, as long as they didn’t interfere with it” (Hobsbawm, 1994, p. 199). The inhabitants of poorer countries often opposed this integration into the globalised economy as they thought that the shift in their lives would be for the worst.

The “globalised” part of the current dominant metanarrative is clearly the least normalised part of it, as the institutional, collective and individual indefinition in terms of local/national/global identities and integration of societies is pervasive throughout the globe (the example of the European Union being quite illustrative). Despite this, the globalised nature of problems, of networks and solutions, and the geostrategical and geopolitical aspects of decision-making are pervasive in today’s thinking.

This overall metanarrative of globalised capitalist positivism is made ever more pervasive as it is present through different names and definitions. I find the most relevant are Modernity, Post-Modernity, Risk Society and Anthropocene.

2.2.4 Modernity, Post-Modernity, Risk Society and Anthropocene

Jean François Lyotard set the challenging proposition that we now lived in post-modernity, accompanied by the weakening of the practices, standards and structures which until then had given meaning to the human experience. He witnessed the emergence of triumphant global capitalism, the collapse of the Soviet Union, the beginning of deindustrialization of Europe, and a spike in technological novelties such as the microprocessor and the computer, events which tended to confirm his diagnosis and thesis. Globalisation as an overwhelming phenomenon seemed to be pushing western, and subsequently non-western, society from modernity into something new and potentially unmanageable.

At about the same time, Ulrich Beck was addressing a "second age of modernity based on nation-state societies, with most social relations set on a territorial sense and with relatively well established patterns of controllability, employment and exploitation of nature" (Beck and Lau, 2005). Beck argued for the emergence of "unforeseen consequences" of capitalist globalisation. These "unforeseen consequences" which formed the basis of what he termed the "Risk Society", also shared by Anthony Giddens (1984), included many global technological dangers, such as the threat of nuclear warfare that had been seen during the Cold War and the nuclear power accidents in Three Mile Island and Chernobyl. Today we witness the emergence of artificial intelligence, extreme automatisation, cyber attacks and climate change as further danger. This narrative of global, collective and catastrophic danger highlighted the impotence of society in general and alarmingly the marginalisation of the individual. This was characterised as the second age of modernity, faced with global conflicts and threats in a multipolar world - terrorism, climate change, ecological disintegration, conflict and mass migration.

During the financial crisis of 2007 and 2008, Beck (2008) signalled the breakdown of the barrier between risk and catastrophe, with the emergency of the "irony of risk", manifested in the repeated public and political promise of safety in a world where the conversion of risk into catastrophe is constant and pervasive. What is of significance here is the perception that the political and business and academic elites are seemingly unable to grasp the full impact of their loss of control. They scurry around forming meaningless crisis committees and remedial action plans which are either at best inconsequential or at worst self-serving. The outcome is to reinforce the very structures and ways of analysing which produced the festering crises and producing authoritarian leaderships that promise security and a return to a past of safety and meaning.

Lyotard portrayed an emerging vacuum of meaning and structure that progressively favoured the absolute victory of global neoliberal capitalism. Once again, this can be seen in Fukuyama's "The End of History and the last Man" (Fukuyama, 1992). Their disbelief in coherent, collaborative meaning, and social structure was also brought on by

the disconnected and somewhat chaotic clashes of value, aspiration and perspectives within the sciences, cultures, social theories and moral practices. Yet the triumph of capitalist neoliberal globalisation was virtually uncontested in the West, creating a void of social perspective that extended at least into the 2007-2008 financial crisis, encompassing the stock market crash and the big economic depression that followed it into the Global Financial Crisis, the Arab Spring, the European Debt Crisis and the rise of the far-right in western countries, terrorism and mass population movements in Africa, Asia and the Middle East. This disruption of the established order created a void of incomprehensible social realisation.

The more recent notion of "Anthropocene" (Crutzen and Stoermer, 2000) claims that we now live in a new geological epoch dominated by the actions of humankind, aligning itself as an updated version of Beck's Risk Society. Here, the most important risks are not exterior (from nature), but incubated in human institutions: "The internal risks are generated by the modernisation process that tries to control them" (Beck, 1998). The narrative of Anthropocene signifies a new role for humankind, shifting from a species that had to adapt itself to its natural environment into a species that acts as a key driver in shaping earth system changes. Neyrat (2015) argues that the "Anthropocene" was a conscious choice made by global capitalism, through its expansive decisions on policy, economics and technology. Humanity was aware of the lurking dangers, but large parts of it were silenced or subdued. Those who sought to protest were politically marginalised, deconstructed by culture and media, or imprisoned/eradicated. Throughout the entire period of modernity, social and popular resistance to the destruction of nature was a constant. This resistance was oppressed, repressed, diminished, deemed anti-progress and anti-development, and often erased from history. This is the power of the capitalist drive, ideology and metanarrative. Given the support of the capital classes, the scope for any transformational social self-reflection is kept well under control.

The notion of the appearance of "unforeseen consequences" in the process of capitalist globalisation is disingenuous. The consequences of modernisation and "progress" were always present and were constantly despised in a theoretical trade-off between the

present and the future. There is no division between a naive modernity unaware of the consequences of its acts, and a reflexive modernity suddenly conscious of its risks. Modernity and the last 250 years of history were a divergent process, geographically differentiated with absolute winners and absolute losers. There are currently many alternative notions to that of Anthropocene, expressing the history, complexity, geography and ethnicity of this new time: Capitalocene (Moore, 2017), Falocene (LaDanta Lascanta, 2017), Plantacionocene (Haraway, 2015), Anglocene (Bonneuil and Fressoz, 2016), among others.

On the other hand, today's notion of Anthropocene as "The Age of Man" seeks a further deepening of the supposed "mastery" of nature, accompanied by such ideas as geoconstructivism, geoengineering and general environmental and biological manipulation by humans. The philosopher Bruno Latour (2007) claims, "Love your Monsters" in support of these ideas, but the threats are manyfold and it is feared to be a recipe for the acceleration of collapse. The alternative notion of Anthropocene as the "End of Times" produces, on the other hand, conformity, inaction and impotence, mimicking the worse aspects of Risk Society.

Although the exceptionality of our times is undeniable, any new metanarrative on climate change will be a descendent of the previous tidal currents of western political thought (table 2), but also of other ideas (namely indigenous and non-western). The political division between left and right is permeated by the struggle for climate justice, as will be seen later. It is very difficult to evaluate the possibility of a new metanarrative outside the historical tidal currents of political thought, although the clear division between political ideas behind the right and behind the left is deeply impacted by the postmodern dispersion of narratives. It is impossible to frame any new metanarrative by disregarding the history of political thought and the struggle between tidal currents of political thought: redistribution, social justice and internationalism are connected to left-wing political thought and the struggle against free trade, hierarchy and nationalism connected to right-wing political thought. The battle for metanarrative will also happen on the lines of historical political struggles.

Table 2. Tidal currents of western political thought and main ideas associated with them

<table>
<tr><th colspan="3">Pre-Modern</th><th colspan="2">Modern</th><th>Post-Modern</th></tr>
<tr><td rowspan="2">Classical
Republic, Justice, Virtue, Rational deliberation</td><td rowspan="4">Medieval
Feudalism, corporatism, conservatism, divine rights, order, monarchy, sovereignty, church</td><td rowspan="2">Renaissance
Humanism, realism, separation of church and state</td><td rowspan="2">Enlightenment
Science, progress, reason, education, opposition to tradition, hierarchy and conservatism</td><td>Anarchism
Humanism, emancipation, liberty, egalitarianism, communitarianism, localism</td><td rowspan="2">Postmodernity
relativism, anti-humanism, end of metanarratives, nihilism</td></tr>
<tr><td rowspan="2">Marxism
Social emancipation, redistribution, class struggle, social justice, technical progress, development, humanism, industrialisation, positivism, democracy, revolution</td></tr>
<tr><td rowspan="3">Judeo-Christian
Old + New Testament, god, order</td><td rowspan="3">Reformation
Equality, liberty of religion, god and bible, communitarianism</td><td rowspan="2">Imperialism/ colonialism
domination, exceptionalism, race, development, growth</td><td>Anticapitalist / Altermondialist
Class struggle, humanism, social emancipation, democracy, environmentalism, climate justice</td></tr>
<tr><td>Idealism
Humanism, emancipation, teleology</td><td rowspan="3">Left-wing / Progressive / Social Justice
Redistribution, progress, development, humanism, democracy, justice, welfare, Risk Society, Anthropocene</td></tr>
<tr><td rowspan="3">Conservatism
Order, tradition, nation, god and church, communitarianism, localism</td><td>Feminism
Humanism, emancipation, justice</td></tr>
<tr><td>Keynesianism
Development, welfare, positivism, democracy</td></tr>
<tr><td>Capitalism / Liberalism
Individualism, free trade, industrialisation, positivism, progress, parliamentarianism</td><td>Center / Neoliberalism
globalism, capitalism, free trade, commodification, financialisation, privatisation, austerity development/growth, End of History, Anthropocene</td></tr>
<tr><td>Authoritarianism
Order and progress, nation</td><td>Right-wing Neoconservatism (illiberal democracies)
order, nation, necropolitics</td></tr>
<tr><td>Fascism
Industrialisation, positivism, hierarchy, autocracy, nation, race</td><td>Far-right / Ultra-reactionary
conservatism, religion, free trade, race, nation necropolitics</td></tr>
</table>

Chapter 3

Climate change, new metanarrative for humanity

L'avi Siset em parlava
de bon matí al portal
mentre el sol esperàvem
i els carros vèiem passar.

Siset, que no veus l'estaca
on estem tots lligats?
Si no podem desfer-nos-en
mai no podrem caminar!

Si estirem tots, ella caurà
i molt de temps no pot durar,
segur que tomba, tomba, tomba
ben corcada deu ser ja.

Si jo l'estiro fort per aquí
i tu l'estires fort per allà,
segur que tomba, tomba, tomba,
i ens podrem alliberar.

Però, Siset, fa molt temps ja,
les mans se'm van escorxant,
i quan la força se me'n va
ella és més ampla i més gran.

Ben cert sé que està podrida
però és que, Siset, pesa tant,
que a cops la força m'oblida.
Torna'm a dir el teu cant:

Si estirem tots, ella caurà
i molt de temps no pot durar,
segur que tomba, tomba, tomba
ben corcada deu ser ja.

Si jo l'estiro fort per aquí
i tu l'estires fort per allà,
segur que tomba, tomba, tomba,
i ens podrem alliberar.

Luis Llach, L'Estaca

As I concluded in the previous chapter, the Modernity, Post-Modernity, Risk Society and Anthropocene intermingle and are permeated by the metanarrative of globalised capitalist positivism, and dominates thinking and power during the acutest environmen-

tal and social crises human civilisation has ever faced: global climate change. The conflict has arrived. Here I evaluate the emergence of an alternative metanarrative being established to respond to climate change through fresh perspectives of realisation based on ideology and interpretation.

I divide the evolution of a new metanarrative on climate change in three different periods: from the Rio Summit in 1992 to the financial crisis in 2008; from 2008 to the Paris Summit (COP-21) in 2015; and the period after this, up to the IPCC 1.5ºC Special Report and the emergence of the Youth Climate Strike and Extinction Rebellion movements. This possible change in metanarrative is emerging at a time when climate change is manifestly intensifying conflict, scarcity, vulnerability and social struggle. Indeed I believe that the key ingredients for any fundamental shift in human perspective has to contest with other huge political and economic issues such as displacement of peoples, trade wars, all manner of hazard, geopolitical and regional conflict, and tidal forces of social re-examination of race, gender and vulnerability. I argue, therefore, for the construction of a new metanarrative around climate justice, focusing on new sets of relations amongst humans facing a changing climate, and a changing nature. The climate change convulsion is coinciding with other social critiques and imperatives which are converging into a genuine revolution for reinterpreting humanity, at the same time as ultra-reactionary politics come into action in some of the most relevant countries in the world.

In the previous chapter I have described a set of social relations and institutions for both self regarding and for particular forms of control of the levers of social conformity and subversive transformation. No form of control is absolute, and circumstances can conspire to redefine the grand stories we tell ourselves. This zone is where we have now arrived. The current metanarrative of globalised capitalist positivism, with the many hegemonic tools it deploys to self-perpetuate and to be naturalised, is an overarching obstacle to solve the many issues around climate change. Both by negating the existence of climate change and restricting any solutions to the climate crisis into its own narrow path of choices, the current metanarrative, the great story that tells us who we are, and

what we can or cannot do, is the biggest barrier. By framing all answers into either economicist, technological and business-as-usual questions and answers, it is restricting us from reaching any real solutions, in a time where, according to the 1.5ºC IPCC Report, we have 11 years to cut greenhouse gas emissions by around 50%. This is why previous attempts strictly in the framework of this metanarrative, such as UNEP's Global Environmental Outlooks, the Millennium Ecosystem Assessments, the Global Scenario Group and even the IPCC's scenarios have not been able to produce any significant change in the ever-increasing crisis and why institutionalised "green" movements and parties have contributed to maintaining this *status quo*. At the same time its unflinching faith in "progress" and "technology" pushes us away from the urgency needed to address the time we are living in. Some attempts at counter-hegemony, such as the degrowth movement (Latouche, 2007; D'Alisa, Demaria and Kallis, 2014), have provided an important dimension to the issue of the incompatibility of economic growth with a finite planet, providing counter-hegemonic arguments, particularly in economic theory, but have thus far failed to provide a strong enough integral response an alternative worldview and a social and political body.

To evaluate a contending potential metanarrative, I've developed an operational definition based on Lyotard's three criteria, on Marsh's connection to history and in the tools to produce hegemony: the power to produce legislation and social and political bodies that create ideology and hegemony (or counter-hegemony). A potential metanarrative needs:

- A scientific history connected with political institutions;
- Participation in the media circus;
- Strong moral character;
- Strong connection to History;
- Power to produce laws;
- A social and political body.

3.1 Climate change as a metanarrative: the first period

In this new epoch, climate change is the most pressing "grand fear" humanity faces collectively. It represents a moment of reversion of the political practices of Modernity. Between 1992 and 2007 the formation of narratives on climate change was growing, from diagnosis to general acknowledgment. In 2000, Dutch chemist Paul Crutzen coined the term Anthropocene connected to environmental degradation produced by human economic activity, and climate change in particular, proposing the existence of a new historical age, not only in human terms, but in geological ones. By 2007 the science of climate change and popular culture were interconnected and were producing a moral tone, evoking the need to support poorer countries as well as the need for solidarity of current generations towards younger/unborn generations. Climate change was emerging as a potential metanarrative. In 2006 the documentary "An Inconvenient Truth" projected climate change further into the media circus, which was reinforced in 2007 by the joint attribution of the Nobel Peace Prize to the IPCC and Al Gore. But this metanarrative on climate change was strictly in a subordinate position to the general metanarrative of progress, infinite technological solutions and sustainable development, the metanarrative of globalised capitalist positivism.

The Brundtland Report (Brundtland, 1987) and the first Stern Report (Stern, 2007) recognised the existence of environmental limits, but diluted them in neoclassical economics, in the growing resource to technology, displaying a positivist faith in economic growth and the expansion of natural limits, implying that from that expansion there would exist an increase in the availability of wealth and materials for current and future distribution. The official perspective of "sustainable development" produced a confusing melee between the economic, social and environmental pillars of sustainability. Daly (1992), on the other hand, said that to assure environmental sustainability, there must exist priorities: first scale (environmental pillar), followed by distribution (social pillar) and finally allocation (economic pillar).

Environmental degradation in general was widely acknowledged as a massive threat. OECD (2011) called for a focus in “green growth”, an offshoot of sustainable development, as “the impacts of economic activity on environmental systems are creating imbalances which are putting economic growth and development at risk". The issue, though, were not the risks to the environment or the climate which sustain humanity, but rather to the economic growth that sustains accumulation.

The 2008 financial crisis exploded in a moment when a shortage of raw materials began to be felt, when the competition for agricultural soils, water resources and energy sources provoked price oscillations, upon which the highly artificial finance structures ended up cracking. The Arab Spring followed a spike in food prices due to crop failures in different countries and the competition for agro-fuels, highly subsidised by the EU and the USA supposedly to substitute fossil fuels. These crises became the overwhelming narrative and buried a climate change metanarrative beneath the rubble of economic recession and austerity, with the need for economic growth, coupled with greenhouse gas emissions, taking precedence over any other aspects. For almost half a decade negotiations were useless, as emissions stalled due to economic recession and then jump started to all time highs with the painful economic recovery.

Lyotard claims that in science there are various discourses in permanent collision. For one of them to become dominant it needs a “history” that goes beyond its scientific community to be truly understood by politicians and publics. The narrative must be “profoundly connected with the narrative of scientific thinking” so that it can be legitimised by political institutions. Once it is legitimised, the narrative gains the power to dissipate any senses of ambiguity, imposing an interpretation as the form of an irrepressible scientific movement (Lyotard 1993). Climate change has scientific hegemony. This is has been crescently clear in the IPCC reports, culminating in the last IPCC 1.5 degree Special Report, where there was virtually no dissent from the fundamental scientific assessments in the political review processes and the most radical political proposal made by this international body: to halve emissions in little over one decade.

There are clear contradictions between the metanarrative of globalised capitalist positivism and an emerging social realisation on climate change. By claiming that climate change was "The biggest market failure the world has ever seen", Nicholas Stern acknowledged that climate change is evidence of a troubling contradiction inside global capitalism, while still providing the same incomplete (with regards to tackling climate change) measures, presenting an expansion of business areas in climate.

The last decades have seen only proposals for the governance of climate change through market tools: from biotechnology to carbon markets, from biodiversity credits to the umbrella of natural capital, from geoengineering to catastrophe bonds. Neyrat identifies neoliberal capitalism with geoconstructivism, and geoengineering as the technological continuation of the idea of Anthropocene, while recalling that Crutzen himself proposed geoengineering projects on a grand scale to artificially "optimise" the climate. The metanarrative of globalised capitalist positivism will say and propose anything to prevent any shift in capitalism, whilst weakly acknowledging how much humanity depends on the climate. In this context it is interesting to see that both the IPCC authors and some of the non-governmental organisations are advocating advanced research and implementation of negative emission technologies and practices as a "last resort" measure, in what Carton (2019) calls the "Political Economy of Delay", pushing the idea of a carbon loan, as if there was any negotiation possible with carbon dioxide and methane molecules in the atmosphere. As Kaijser and Krondell (2014) put it, "For climate issues, political and societal institutions that regulate and create demands for transport, energy, and consumption are particularly relevant. Such institutions both build on and take part in the construction and reinforcement of injustices and intersectional categorisations.". This is the character of the metanarrative which the climate change paradigm will have to address, both globally and in the many different social realisations of cultures nationally and regionally.

3.2. Climate change as a metanarrative: the second period

The crisis that followed the crash of 2008 saw a small temporary drop in carbon dioxide emissions, followed by the highest increase in emissions since the Industrial Revolution. Freed from most of the constraints that threatened to torment business as usual via the emergence of a climate change metanarrative in contradiction with global capitalism, the debate between the discourses in collision regarding climate was suddenly silenced.

In 2014, the scenarios of 5th Assessment Report on climate change by the IPCC (2014) portrayed the gravest challenges in the history of humanity, but the proposed solutions were the same untested technological fixes, in which there is no agreement, except that they are very dangerous. Hegemony stopped any serious questioning of capitalism beyond a small push for energy efficiency.

Kevin Anderson (2015) points to contradictions in science itself:

"To avoid exceeding 650 Gt [the carbon budget to stop a 2ºC temperature rise by 2100), global mitigation must rapidly ratchet up to around 10% per year by 2025, continuing at such a rate towards the virtual elimination of CO2 from the energy system by 2050",.... Yet, as we evoke a *deus ex machina* (such as speculative negative emissions or changing the past) to ensure our analyses conform with today's political and economic hegemony, we do society a grave disservice — the repercussions of which will be irreversible.".

In 2014/2015, the negotiations for the Paris Conference of Parties brought climate change back into the forefront. Important documents were released prior to the COP-21, namely the new Stern Report (Caldéron and Stern, 2015), Naomi Klein's book This Changes Everything (Klein, 2014) and Pope Francis Encyclical Laudato si' (Papa Francisco, 2015), that once again launched hegemonic tools into confrontation. The new Stern Report defined the next few years as decisive: "the most important investments in the next 15 years in cities, soils and energy make it the critical moment to define the economical trajectories of countries". Although it immediately identifies the likely inef-

ficiency of its suggestions, making it clear that there are choices to be made, it waves a possible future diversified growth: “Climate policies are not beneficial for all”. They further recognise their attempt at departure from the dominant metanarrative of globalised capitalist positivism, pointing to a different growth model with “advantages that are important to populations, but largely invisible to GDP” such as redistribution and stability.

Naomi Klein went much further, claiming that “our economic system and our planetary system are now at war. Or, more accurately, our economy is at war with many forms of life on Earth, including human life.”(Klein, 2014, p. 21). “The only kind of contraction our current system can manage is a brutal crash, in which the most vulnerable will suffer most of all” (Klein, 2014, p.21). Foreseeing possible futures is a clear worry for the author of “This Changes Everything: Capitalism vs The Climate”, as she expresses the main dichotomy between a climate change metanarrative and a neoliberal capitalist metanarrative, wondering “Why isn’t climate change at the center of the progressive agenda, the burning basis for demanding a robust and reinvented commons, rather than an often forgotten footnote?” (Klein, 2014, p. 61-62). Klein helps to identify some of the actors that have contributed to the subjugation of a climate change metanarrative to the metanarrative of globalised capitalist positivism: “large parts of the climate movement wasted precious decades attempting to make the square peg of the climate crisis fit into the round hole of deregulated capitalism, forever touting ways for the problem to be solved by the market itself” (Klein, 2014, p. 20).

But there are important opportunities, according to Klein: “Climate change detonates the ideological scaffolding on which contemporary conservatism rests” and “the existential crisis that is climate change has the power to release these suppressed values on a global and sustained scale, to provide us with a chance for a mass jailbreak from the house that their [neoliberal capitalism] ideology built” (Klein, 2014, p. 63). In the same tone of opportunity, the 2015 papal encyclical Laudato si’, from 2015, the leader of the catholic church says that “Hope invites us to recognise that there is always a way out, we can always shift course, we can always do something to solve problems. None-

theless there appear to be symptoms of a rupture point, due to the high speed of changes and degradation, that manifest as much in regional natural catastrophes as in social and even financial crisis (Papa Francisco, 2015, p. 44). Considering the particularly dangerous moment, the Pope openly appeals to "the urgency of advancing to a brave cultural revolution".

Clearer than many more outspoken authors, the Pope presents in its encyclical the need to split with capitalist neoliberal development models, attacking the very sense of today's economy "For the appearance of new models of progress, we need to convert the global development model, and this implies to responsibly reflect on the sense of the economy and its objectives, to correct its dysfunctions and deturpations (…) Halfway measures simply delay the inevitable disaster." (Pope Francis, 2015, p.129).

These documents were the living expression of an apparent balance shift that seemed to be occurring during the early writing of this thesis. The mounting environmental crisis and the utter failure of market tools to stop increasing emissions and the extractive model of development had only exacerbated since the financial crisis. Could there be a rise in a climate change metanarrative, alternative to - and in some ways even contrary to - the metanarrative of globalised capitalist positivism?

The signing of the Paris Agreement, ratified in record time, was accompanied by a return of the media circus on climate change, and the re-examination of the spectrum of a metanarrative of climate change. The mobilisation on climate action and climate justice, all around the world in specific struggles but focusing on pressure for an effective deal coming out of Paris, provided a visible social and political coalition, not uniform or unified for sure, but nonetheless in existence. The target of restricting the temperature increase to 2ºC by 2100 gave rise to a science-based demand by the social and political body of climate justice: Keep It In The Ground.

Despite these challenges, Wanner (2015) argues that "the emergent green economy/ green growth discourse can be seen as another 'passive revolution' where neoliberal

capitalism adjusts to crises arising from contradictions within itself.". When faced with counter-hegemonic ideology in civil society, and specially when this counter-hegemony wins a war of position, a new hegemonic bloc can be established. According to Gramsci, a passive revolution occurs during an organic crisis in response to counter-hegemonic challenges to the dominant narrative: green economy / green growth / sustainable development are narrative discourses used to co-opt and neutralise challenges, through "absorption of the antithesis" (Gramsci, 1971, p.110), through concessions that aim at re-establishing order. But other reactions were at hand.

In June 2017, Trump pulled the United States, the biggest historical contributor to greenhouse gas emissions, the second biggest current greenhouse gas emitter, and the biggest producer of gas and oil in the world, out of the Paris Agreement. Although a setback, Trump's decision contributed to the media circus, as well as to the strengthening of the political and social body for a climate change metanarrative. This does not happen it the vacuum. If the Paris Agreement were to effectively block irreversible climate change, that would imply a death sentence to many fossil-fuel based companies, which are the richest and most influent in the world, as well as the debacle of many "petrostates" such as the Russian Federation or Saudi Arabia. But the United States represent the most important opponent to climate action, embodying the metanarrative of globalised capitalist positivism in the fullest. Bill McKibben (2019) argues that a reason why there is such a failure do effectively address climate change is that it happened during the most ideologically extreme version of capitalism since the *laissez-faire* robber barons, with government-hating market absolutism riding politics and climate policies for decades: 'It was precisely America, in precisely those decades, that may have decided the planet's geological and technological future.'. It was also there that a once fringe movement rose into prominence: the conservative think tanks that have produced environmental scepticism as "and elite-driven reaction to global environmentalism" (Jacques, Dunlap and Freeman, 2008), undermining "the environmental movement's efforts to legitimise its claims via science", portraying themselves as "unbiased analysts exposing the myths and scare tactics", and as marginalised "Davids" battling Goliaths of powerful environmentalists and scientists. These authors call this a charade, "as sceptics are sup-

ported by politically powerful CTTs (conservative think tanks) funded by wealthy foundations and corporations.". These tactics were exported worldwide in an effort to produce a new hegemony.

Gramsci observed: "The old world is dying. The new world is struggling to be born: now is the time of monsters". "In this interregnum a great variety of morbid symptoms appear". In the time of biggest environmental crisis humanity as ever experienced, but also partly because of it, we see a steeper rise of extremism, of conservatism and of unrestrained capitalist savagery. A "new world" is being born, but there is a "permanent collision" in discourses as a symbol of this very crisis. Donald Trump, Vladimir Putin, Jair Bolsonaro and other far-right politicians may be what Wainwright and Mann (2013) identified as Capitalist Climate Behemoth, a political-economic order ruled by reactionary conservatives opposing the global sovereignty proposed by global capitalism to "address" climate change. They instrumentally support conspiracist climate denialism in an ideological structure impervious to reason and science through a combination of beliefs in the justice of god and the efficiency of the markets. This is the first big challenge to the previous political-economic order, the Climate Leviathan that represents business-as-usual and can now be personified in European Union, Angela Merkel or Emmanuel Macron, and in the majority of the Democratic Party in the US. It is also a symbol of the organic crisis in neoliberal capitalism, when "the traditional parties in that particular organisational form, with the particular men who constitute, represent, and lead them, are no longer recognised by their class (or fraction of a class) as its expression. When such crises occur, the immediate situation becomes delicate and dangerous, because the field is open for violent solutions, for the activities of unknown forces, represented by charismatic "men of destiny"." (Gramsci, 1999, p. 450).

Economist Thomas Piketty has tried to respond theoretically to the organic crisis of neoliberal capitalism, first in Capital in the 21st century (Piketty, 2014) and then in Capitalism and Ideology (Piketty, 2019). As a member of the neoclassical economic elite, he attempted to reframe capitalism, first by challenging dogma on accumulation of capital by stating that the return to wealth was higher than the growth rate, and finally delving

into the history of inequality to research how capitalism has refined its ideological apparatus to reinforce and solidify inequality. His radical proposals on corporate governance (pushing workers into companies boards and granting them a stake in companies' production), tax reform on wealth (introducing highly progressive property tax, inheritance tax an income tax), unconditional basic income, individualised carbon tax and the mandatory insertion of fiscal and ecological objectives in trade agreements and international treaties would have been very interesting if implemented 30 years ago. His approach to the climate crisis as relevant but not central in neoliberal capitalism's crisis is possibly the biggest weakness of his approach (whose center is not the climate crisis). I believe Piketty's response to inequality and accumulation is similar to Lord Stern's response to climate change, a radical reply from inside the system, that would change some part of it to be able to maintain its core, making them the vanguard of the Climate Leviathan.

This is where we are today. Wainwright and Mann identify two more alternative political-economic orders: Climate Mao (an authoritarian non-capitalist regime loosely based on Mao Zedong's China and focused on massive global emissions reduction - although China's Belt and Road Initiative puts it much closer to Climate Leviathan these days) and Climate X, transcending capitalism, authoritarianism and the compulsion for planetary sovereignty.

The ruling elites are overwhelmed by a metanarrative of globalised positivist capitalism, that is, they articulate the ideological discourses onto other classes and onto themselves, blocking any meaningful action and articulating, at most, political-economic orders such as Climate Leviathan, Climate Behemoth or Climate Mao.

3.3. A climate justice metanarrative? The third period

The current metanarrative of globalised capitalist positivism has created, through many hegemonic tools, the biggest obstacles to the emergence of a climate change metanarrative, and especially of a climate justice metanarrative. Confronting the critique of apoc-

alypticism, which is relevant in green and environmental political debates, what matters is if this idea of crisis or "apocalypse" emphasises more on the endings or in new beginnings (McNeish, 2017), in doomsday or revolution.

Some important obstacles raised against alternatives and consequently against the emergence of the metanarrative of climate justice are simplifications regarding human nature, knowledge and the objectives of economy and society, directly connected to the metanarrative of globalised capitalist positivism. Most of these simplifications can be undone:

- *There is no such thing as "Human Nature". We are an intelligent species, able of solving small and big problems, whether practical or theoretical*. Humankind, from its very extended and fragile infancy into its adulthood lacks any real speed, ability to bite or scratch, it has always relied on community to provide safety, shelter and survival. '*Homo economicus*' or other cultural fabrications, are a wish list that can, at the most, apply to specific social groups in specific geographical locations in a short period of time. As individuals, we are capable of challenging hegemony, but remain somewhat imprisoned in imagining alternatives. What exists are socio-metabolical regimes, corresponding to economic systems that explain human interaction with nature, materials and other humans: this is not human nature. It is not hardwired into *Homo sapiens* and often it is not even beneficial to the large parts or the majority of humanity.

- *The division of knowledge and the specialisation of sciences has contributed to the general loss of any "big pictures"*. Today we have more specialised knowledge in different areas than ever existed before, and yet our "collective intelligence" tends to ignore basic principles that were once more or less common knowledge. Society needs regular food, to grow food in the long term, society needs healthy soils and water, as well as a regular climate. There are strict divisions and hierarchies between practical knowledge and theoretical knowledge, between knowledge from the global south and from the global north, between social sciences and physical sciences, between "pure" science and applied science, between natural history and human history, between technology and

knowledge. This would amount to a paradigm shift, and Kuhn (1962) explains that when anomalies contradict "normal" science up to a point, they may accumulate enough to provoque a "scientific revolution".

- *The announced objective of the economy has been growth and that of society has been development.* In time, economy and society have been confused with each other, while growth and development have become synonyms. The notion of development as become strictly entangled with that of growth and, to allow continuous accumulation and concentration of goods, services and capital, this growth needs to be theoretically infinite in a finite planet. There is a clash between economics and physics.

The metanarrative of globalised capitalist positivism has deprived humankind of essential tools to prepare societies for the different climate in which we are already living, and to mitigate emissions in order to avoid runaway climate change (exceeding the theoretical 1.5ºC barrier). The current metanarrative puts an ever expanding capitalist agency in the forefront of all other considerations, the need to maintain infinite economic growth, short-term rising profit rates, repaying mercantile transactions at the speed of supercomputer connections. But natural metabolism and social metabolism do not function at this speed, and trying to push the rhythm of financial transactions into the natural system is pushing it towards collapse. Keucheyan (2016) links systemic connections: unchecked climate change, multiplication of natural disasters, erratic weather, fall in agricultural production, increased poverty, migration to urban areas and increased pressure on states, reduction of economic productivity and taxation, decreased ability to face increasing demands, which will, under certain conditions, encourage collective violence, until collapse. Wallace-Wells (2019) further says that 'The assaults will not be discrete – this is another climate delusion. Instead, they will produce a new kind of cascading violence, waterfalls and avalanches of devastation, the planet pummelled again and again, with increasing intensity and in ways that build on each other and undermine our ability to respond, uprooting much of the landscape we have taken for granted, for centuries".

As environmental degradation outweighs strictly the climate, the latest report by the Intergovernmental Science-Policy on Biodiversity and Ecosystem Services points out that any goals for conservation and sustainable use of nature can't be met by the current trajectories and that goals can only be achieved through transformative changes, a "fundamental, system-wide reorganisation across technological, economic and social factors, including paradigms, goals and values." (IPBES, 2019).

The historian Mark Levene (2013) interprets biosphere's feedbacks as the antithesis of the globalised carbon economy. If this economic system maintains its ascending trajectory, the synthesis of this argument will not be the fulfilment of humanity, but its demise, an anti-teleology. Levene proposes a realignment of human and natural history, because *Homo sapiens* has depended and still depends on a benign climate and a permanently replacing and evolving biosphere to flourish. This realignment would also imply the reconnection with peoples that have been repeatedly pushed into history's margins or into invisibility, Hegel's "peoples without history". McIntosh (2008) goes further: "The big question is sorting the human condition. It is the question of how we can deepen our humanity to cope with possible waves of war, famine, disease and refugees without such outer wounds festering to inner destruction.".

On a new climate justice metanarrative, the urgency of our times in face of critical alarming information and a very short time frame for action can be "deployed critically as a revelation about both the rapacious unsustainable nature of capitalist modernity and the positive utopian potentials existing within the here and now for the type of social–ecological revolution that global warming necessitates." (McNeish, 2017). This is happening now.

The appearance of a figure such as the teen militant Greta Thunberg in the world stage, inspiring millions of young students to take action on counter-hegemonic climate justice protests is revealing: the fact that the explosion of this movement for climate justice happened most expressively with teens, less conformed to hegemony and metanarrative, and that Greta herself suffers from Asperger syndrome that literally provides her with a

less socially and politically filtered worldview, has been described by her as a “gift” that helps her “see things from outside the box”.

The Youth Climate Strikes and the Extinction Rebellion movement in late 2018, connecting many dots in the previous climate justice movements, definitely mark a shift towards a potential new metanarrative by creating a counter-hegemonic social and political body. As George Monbiot (2018) put it “Softer aims might be politically realistic, but they are physically unrealistic. Only shifts commensurate with the scale of our existential crises have any prospect of averting them. Hopeless realism, tinkering at the edges of the problem, got us into this mess. It will not get us out.”. These movements are still taking their first steps, yet they are an advance regarding previous mobilisations, achieving massive participation and radical demands (as well as symbolic ones, such as the demand of governments to “Tell the Truth” and declare “Climate Emergencies”). There is nonetheless a clear escalation of confrontation with the current metanarrative and its institutional apparatus (namely the courts and the governments). The call for an Earth Strike, a Climate General Strike and the By 2020 We Rise Up initiative are further tests of how deep this political and social body can go on and how strong counter-hegemony can become in the short term, as they will challenge not only the institutional apparatus, but also reluctant adults, unions and businesses (after the “political society”, the “civil society”). One early and very timid institutional rearrangement of this (mere months after the appearance of these movements) has been a rise in electoral expression of traditional “green parties” in European elections. Critically, these parties are still very much based in the West and have political programs that strictly fit the metanarrative of globalised capitalist positivism.

Passive revolution maintains its presence through special summits, “greener” political, declarations of extreme apprehension, “hopes and prayers” and media coverage of ever increasing climate catastrophes (forest fires, heat waves, deadly hurricanes, typhoons and cyclones whose acceleration by climate change is seldom mentioned). Academia does its part, with the effort to push for the idea of decoupling economic growth from emissions growth, which us until now unverified. The attribution of the Nobel in Eco-

nomics to neoclassical economist William Nordhaus is paradigmatic of the strict attachment to the metanarrative of globalised capitalist positivism: this economist recommended moderating Global Warming to stabilise Earth's temperature at 4ºC above pre-industrial levels in his Nobel Peace Prize lecture. Nordhaus claims that "Including all factors, the final estimate is that the damages are 2.1% of global income at a 3 °C warming, and 8.5% of income at a 6 °C warming." (Nordhaus 2017, p. 1519), ignoring the existence of tipping points in the climate system, that many of them happen between 1 and 3 degrees Celsius and that all of them happen beyond 5 degrees, estimating that the collapse of all ice sheets, the Amazon and the boreal forests, the Jet Stream and the Thermohaline circulation would only reduce world GDP by 8,5%. This was announced as an approach of Economics to Climate Science.

3.4 Psychologies of fear, of denial and of hope

A further obstacle to effective action are individual and social psychological patterns, that feed and are fed by metanarratives. In the field of Social Psychology, Dickinson (2009) defends that people's unconscious defences, identified in Terror Management Theory (Pyszczynski *et al.*, 1999) may block and promote irrational responses to climate change on a global level. According to Becker (1971) human beings are constantly looking for meaning that requires opportunities for heroism and draw meaning through their identification with world views which are provided by relationships, religions, society, politics or art. There is a paradox: today's metanarrative reduce our possibilities of survival. Fear of death is central in this theory, with our proximal and distal responses to this fear conditioning individual and collective action.

When regarding climate change, proximal defenses to think about mortality manifest typically in three ways:

1) Climate change denial;
2) Denial that climate change is man made and;

3) Tendency to minimise the issue or project the impacts of climate change into the distant future, where they no longer represent a personal danger.

Distal defenses, on the other hand, are symbolic and occur in the absence of physiological excitement or stress, being triggered as a response to verbal indicators and death writings or subliminal *stimuli*, which supports the idea that they are unconsciously triggered. They are also counterintuitive: if indicators connected to climate change increase the access to death thoughts, the exposition to such indicators should lead to:

1) bolstering self-esteem (which could mean counterintuitive increases in status-driven consumerism, materialism, and other behaviours that increase carbon emissions);
2) extreme defence of one's own worldview;
3) antagonism towards outgroups (be them environmentalists or political opponents, but also religious groups or foreigners);
4) idealisation of lovers and leaders (the charismatic and/or strong leader, that provides reassurance in a world of threats and uncertainties - coinciding with Beck's Irony of Risk).

Terror Management Theory does not predict that individuals will choose the strategy that will most likely avoid death or danger. People's behaviours are not necessarily those that reduce their death risk and they may in fact increase it by feeding the symbolic self and the complex system of the "immortal hero". People that feed their self-esteem through materialism and an ideology of appropriation will likely buy cars that pollute more and become antagonists of environmental causes and environmental points of view. In contrast, people that feed their self-esteem through humanist or environmentalist ideologies will more easily become more militant and express their convictions more resolutely. This collision between ideologies has the potential to further create greater splits in society.

The assumptions that climate change will be solved in the end by technological advances also associate with ideologies of immortality that, despite being connected to materialism, have a metaphysical component and a belief that new tools and innovations provide solutions both to small daily problems and to the big issues of human happiness and mortality. The setback is that in practice technology leads to an increase in the use of natural resources, and so the belief in technological salvation will finally produce negative impacts in the conservation of natural resources and the capacity to reduce greenhouse gas emissions (as in the case of the massification of renewable energy and integral substitution of a fossil-driven apparatus of production by a solar or wind-power driven equal apparatus).

From another perspective, soil preservation, species rescue and large shifts to fight climate change may provide deep opportunities for symbolic immortality. If Terror Management Theory is connected with resilience, it can increase our perception of the potential for social learning, visioning, scenario building and support for ideological and physical communities (Folke, 2006).

As Erich Fromm put it, a society can be sick, being structured and operating with values contrary to the healthy functioning of its individual members, as well as for the environment that sustains it. There are good values, the ones who promote life, spontaneity, individuality and mental health, and bad ones that produce regressions in the self, producing narcissistic an indifferent lives, that lead to dysfunction and pathology. Even purely hedonist values are questioned, as immediate gratification does not necessarily correlate to health and well-being.

The ability to develop adequate emotional responses to very different and shifting realities, such as the one we live in today, is paramount, and at odds with the metanarrative of globalised capitalist positivism. There is a sense in which we seem to be "overcome by a profound feeling of powerlessness which makes [us] gaze toward approaching catastrophes as though [we] were paralysed" (1969 [1941]: 254). Powerlessness and hope-

lessness are psychological responses conditioned by the strength of metanarrative, but they are not fate or unsurmountable:

"If it were not possible today to transcend the dominant personality pattern, it would never have been possible, and human progress could hardly have occurred . . . The development of personality can and does take place in the most adverse circumstances; in fact, it is stimulated by their very existence. But this holds true only for a minority who, for a number of reasons, can free themselves to some extent from the social mode of thought and experience, and react against it… As for the attempt to achieve some of the experience of the "new man" "prematurely," as it were, it is difficult but not impossible. And it must be tried precisely by those who are opposed to present-day society and are fighting for a world fit for man to live in. Political radicalism without genuine human radicalism will only lead to disaster." (Fromm, 1992 p.127). A hope is needed, that is pragmatic and courageous, not waiting passively nor forcing impossible circumstances, neither reformism nor pseudo-radical adventurism, but to be ready to recognise the signs of what needs to happen: "Those whose hope is weak settle down for comfort or for violence; those whose hope is strong see and cherish all signs of new life and are ready every moment to help the birth of that which is ready to be born." (Fromm, 1970 [1968], p. 9).

3.5 Navigating a climate tragedy

Historians Butzer and Endfield (2012) analysed millennial societal uproars and collapses: the case studies of the Old and the New Kingdom of Egypt register how economic decline, corruption, insecurity or war predisposed States for a sequence of drop of productivity, recession and climate destabilising. With low social resilience, feedbacks succeeded and destabilised the system through hunger, internal conflict and simplification of politics, eventually leading to crisis of subsistence, collapse of social order and civil wars. In other cases, though, alternative outcomes happened out of high resilience societies, in which the feedbacks could be delayed or stopped, leading to the emergency of military leadership, support by new elites, reaffirmation of the cosmic order and ideological changes that allowed for the reconstruction of the state and society. Butzer and

Endfield affirm that optimal solutions are cognitive and cooperative and cannot be elaborated based of stereotypical assumptions on human behaviour.

The societies that have avoided collapse did so by revitalising a common will to surpass adversity, recuperating old experiences and new informations to review or develop collective strategies for survival.

Voluntary transformation may be painful, but it offers hope in reconstitution and recuperation. Yet, the inertia of power systems can not be dismissed. Currently in many developing countries, sovereignty has been so compromised by international trade and support for development that the nation state has lost its monopoly over the "right to kill". Achille Mbembe (2003) says that the necropolitics of "taking lives" is now being led by rental military, often by multinationals, including the ones that are trying to divert pollution from developed countries into developing countries. The threat of militarisation of climate change is clear and a certain fixture in military reports. In states where sovereignty has for example been compromised by international debts "there is a real danger that climate policy from the developed west can be the push into the world of exception, semi-life and death zones" (McCarthy, 2010).

This is a particularly alarming perspective when there is a growing disempowerment of nation states, of unchecked power exerted by multinationals, intercontinental free trade agreements and environmental degradation of poorer areas. The rise in far-right extremist governments has put necropolitics in the forefront in dealing with problems arisen from climate change, namely mass migration, resource scarcity and depletion.

There is an emerging field of analysis and literature about the clear possibility of not being able to solve or cope with climate change, one of whose most important examples is Jem Bendell's "Deep Adaptation" paper (Bendell, 2018). An important opposition to even considering this possibility comes from experts, namely with the argument that to discuss the likelihood of a climatic collapse that leads to a social collapse triggers hopelessness in the general public. This is in some ways a paternalistic way to look at people

regarded as the general public, a perspective in line with non-popular anti-politics environmentalists that "frames the challenges as one of encouraging people to try harder to be nicer and better rather than coming together in solidarity to either undermine or overthrow a system that demands we participate in environmental degradation" (Bendell, 2018). This also produces a paradoxical hope that has much to do with terror management on a psychological level, that interprets facts in a way that makes them safe for self preservation, in a form of "interpretative denial", avoiding thoughts that go against the social norms, that disregard what makes us give full attention to information that reminds us of our fear of death. Even many of those that recognise the implications of climate change often busy themselves on activities that do not arise from a full assessment of the situation - implicative denial - and create perspectives that natural or spiritual reconnections will magically save us from catastrophe. This is of course connected to metanarrative, even in people critically informed: there's hope, a faith in progress, as connected to progress and growth. This faith is particularly problematic when entering a period where material "progress" may not be possible at all.

Other realities, such as the loss of a family member or someone cherished, usually create a new way to look at oneself and at the world, with despair being only a step in a long process: hope is not always good to maintain, but should be a stepping stone for opening space for alternative hopes and worldviews. Bendell looks at the history of colonised communities as a clear example: when Native American Indians were faced with the European apocalyptic invasion that destroyed livelihoods, communities, that eliminated the majority of entire populations and ways of life, finally confining (in the case of the United States) the surviving populations to reserves, the world that had existed in America previous to European arrival, ended. But in some way some of the tribes and civilisations struggled, not only against the invaders, but also for cultural continuity. Many communities were forced, in few generations, to transition from nomadic hunter-warriors into submissive farmers and proletarians, which produced an absolute loss of hope and meaning. In "Radical Hope", Jonathan Lear (2008) points to the example of chieftain Plenty Coups of the Crow nation (Apsáalooke) in the US, which was responsible for leading this community through this forced transition, and which was

able to create a meaningful and hopeful way forward, seeking new “good forms of living” by resorting to older traditions, such as the “chickadee”.

Today humanity faces the destruction of its conceptual reality, under a common “blind spot”: the inability to conceive of its own destruction and possible extinction. This is a reality for modern metanarratives.

In a 2017 interview Noam Chomsky stressed that the world is “facing potential environmental catastrophe and not in the distant future,” and that Indigenous communities are the frontline and best hope for humanity. “All over the world, it’s the Indigenous communities trying to hold us back: First Nations in Canada, Indigenous people in Bolivia, Aborigines in Australia, tribal people in India. It’s phenomenal all over the world that those who we call ‘primitive’ are trying to save those of us who we call ‘enlightened’ from total disaster,” (Chomsky, 2017).

Besides the standard alternatives of death or glory, Bendell calls for another way, creative deep adaptation. It is conceived as a societal capacity of adaptation to shifting circumstances through the valuation of certain norms and behaviours and relinquishing certain assets and beliefs whose maintenance worsens the situation. It includes leaving coastlines, shutting down environmental facilities and giving up certain types of consumption, re-wilding landscapes, changing diets back to match the seasons, rediscovering non-electronically powered forms of play and increased community productivity, support and interconnection.

Looking back into indigenous genocide and the end of that age, Scranton (2019) points to the contradiction between western lifestyles and the new climate reality "Our lives are built around concepts and values that are existentially threatened by a stark dilemma: either we radically transform human collective life by abandoning the use of fossil fuels or, more likely, climate change will bring about the end of global fossil-fuelled capitalist civilisation. Revolution or collapse - in either case, the good life as we know it is no longer viable.” (Scranton, 2019).

3.6 Climate justice, a metanarrative for a grand future

Climate and nature are impervious to flattering, offerings, worship or negotiation. A metanarrative to address what is happening, to cope with climate change, while giving fresh meaning to humanity, is a possibility and a necessity. The possibility of the appearance of a contending metanarrative of climate and ecological justice, a new great future for humanity focusing on cooperative relationships of humans with a changing global climate, with a degraded nature and with other humans, in direct contrast with today's metanarrative of globalised capitalist positivism, is the question I intend to research. The happenstance of impending social and economic breakdown, coupled to a wider human awakening that there is indeed no escape from a threatening climate, is a half-open door for a fresh educational impetus and social reordering in favour of redistribution of power, towards wellbeing and cooperation fashioned into a new metanarrative that extols justice, decency and the progressive banishment of fear.

Such a metanarrative will encompass a new idea of prosperity, respecting both natural limits and the need for just resource redistribution. Well-being based on sharing has always been a common feature of social justice movements through history and geographies, but the need to add an invaluable vision on natural equilibriums is new(ish). These features are ambitions that have been in the forefront of previous historical tidal currents, ideas and metanarratives, they are direct descents of humanism, marxism and social democracy, with ideals such as socialist redistribution and just transition. The battleground of climate change is a battleground of worldviews, with a sharp divide between the traditional right and left, between capital and social, between change and *status quo* (although the strength of the overwhelming and triumphant capitalist metanarrative has greatly influenced and pushed the left-wing social historical currents into the normalisation of capitalism).

The idea of social justice is particularly important for mobilising communities that are more and more marginalised (in more recent years known as the "99%" (Gould-Wartofsky, 2015; Maharawal, 2013)) or the precariat (Standing, 2011; Braga, 2017) in the

West, but also for poorer communities in Latin America, in Africa, in Southeast Asia. This idea is particularly relevant in the need to break from a very insidious “choice" artificially created to stop climate action that blocks many workers organisations and progressive political forces: the one that says that we have to choose between jobs and a stable climate. Campaigns such as Climate Jobs or the Green New Deal are some of the first interpreters of this. “Fundamental considerations of what is just, especially what is equitable, must be considered alongside planetary boundaries on what is safe” (O’Riordan and Lenton, 2012).

In the medium run, for a climate justice metanarrative to gain strength, there is a need to reconnect different knowledges and sciences, the rise of a participatory public science, acknowledging and dismantling the hierarchies of exclusion and subordination that have let science be driven to giving support to a destructive idea of development with no explicit idea of teleology. This public science should be a science for the many, aimed at solving and knowing how to address humanity’s and the Earth’s biggest problems, by doing away with using science and technology exclusively to increase profits, whether or not what is produced or invented has any real advantage to society as a whole.

A new metanarrative of climate justice would seek meaning for humanity as a collective. We have had, as a species, survival as an individual meaning, or at most the survival of groups, whether they be ethnic, cultural, religious, class or national as meaning. There is the possibility of creating a teleology of humanity’s survival as a whole, achieved by our most effective tool: flexible cooperation in massive numbers. This can be achieved by a new metanarrative.

For a potential progressive humanist climate justice metanarrative, there is the need of progressive politics of survival and humanism, that can be provided by a social and political body of movements, parties, unions, climate justice activists, environmentalists, scientists and other progressive forces. The need for the flourishing of a public science also calls for an engaged science, not only observing and criticising, but rather acting

and cooperating. There is no neutrality in science - that is only more ideology and metanarrative.

Social movements have in the past successfully challenged and fundamentally modified institutions and economic structures. The task at hand is comparable only to the rise in the workers movement and socialist ideology in the 19th and 20th century, that changed geopolitics, the nature of the State, of democracy and forced an unprecedented distribution of power and wealth through direct action and political revolution. As happened in that time, the facts about the past and the present need to be allied with “visions of alternative futures that capture the public imagination” (McNeish, 2017).

The ideas of Climate Leviathan, Climate Behemoth and Climate Mao as described by Wainwright and Mann (2013), are the three most likely alternatives if a climate justice metanarrative does not emerge clearly: these are social monstrosities, based on climate collapse, repression and violence. For a climate justice potential metanarrative, and the social-political order called by them “Climate X”, humanity needs “a movement of the community of the excluded that affirms climate justice and popular freedoms against capital and planetary sovereignty”. There is little historical experience for this. A new potential metanarrative of climate justice would be a historical novelty, based on previous tidal currents of political thought that would be reformulated, rearranged and mixed with knowledge that has been left mostly out of western political thought in the last centuries. Only a bold novel grand history can give humanity the chance to overcome the biggest threat it has ever faced.

Chapter 4
Methodology

4.1 Why the Extended Case Method?

I've chosen to use Michael Burawoy's extended case method (Burawoy, 2009) for personal as well as political reasons. I've been politicised by the study of environmental sciences in general, and climate change in particular, which firmly changed my worldview and my ideological perspectives on almost all subjects, including science. I do not believe in the rejection of scientific method but in its great need for improvement, with the inclusion of usually disregarded components. One of my greatest critiques of scientific positivism is the reduction of scientific "truths" to procedural objectivity, and to the notion of the absence of ideology in scientific thought or in scientific method, creating an often a-critical model of science. The extended case method provides a theoretical as well as a procedural view on how to advance beyond a positivist approach to science and scientific method, without rejecting it, as some would argue, but rather adding a much needed reflexive component. In a time of overwhelming physical shifts in our climate and environment, and consequently in human societies, a reflexive approach to science, that takes context as a point of departure rather than point of conclusion, is crucial.

All scientists and researchers have tacit theories on how the world operates, all have ideological tendencies, all are under metanarratives which mold the way we look at the world. We need to assume them unequivocally. The idea of an impartial science and impartial methods is part of the metanarrative of globalised capitalist positivism.

Almost all scientists are part of the world they study, and are not isolated from the issues that occur in them. This is particularly true for climate change. A defensive system for this contradiction is constraining science to simply collecting data, detaching ourselves from the "real world", digging into archives or researching in simulated realities (be

them laboratories or computers) and failing to reach necessary diagnosis. Participant observers leave these ivory towers in search of deeper reflection about studied communities and realities. This jump out of safety also increases perception of responsibilities towards what is studied and towards the academic community. I am a climate justice activist, and a political militant in the last decade, having the simultaneous role of thinking theory, practice and putting them into action. I make no claims of impartiality, and there may be unintended consequences of what I write, as it circulates well outside my comfort zone. This leads me to an acute perception of methodological contradictions and theoretical constraints: I myself could be the subject of my studies, and that in fact is inextricably connected to the method chosen, the theories approached and the conclusions I arrive at. The extended case method is, for me, the possibility of not excluding this information, but rather assuming it and using it to enrich the research plan. I don't need to hide that I'm partial on the issue studied: I guarantee it.

Burawoy's method contends that great transformations are not only historical, but also societal, involving the transformations between economic forces, states and civil society, and the processes that articulate them. To study a great transformation, we need to consider not only history, but to extend beyond the strict traditional survey and research and to look into institutions that allow us to go from microprocesses into the macro forces that shape them.

Because we have important theoretical gaps to answer such questions as "why aren't we doing everything we can to avoid the collapse of human civilisations", this research needs to be connected to a theoretical outcome, which the extended case method does. We need to test theories to perfect them, as science advances more due to the correction of inaccuracies than to brilliant moments of discoveries of truths. As such, I took a huge bite at a macroprocess such as the formation and maintenance of potential metanarratives, and specially of a new potential metanarrative, and have tried to reconstruct my theory through a research program, surveys and an embedded participatory observation that is disseminated in all the text.

This work, I hope, will provide a new theory for the moment we live in, having two main targets: academia and social movements.

4.1.1 A critique of positivism

By producing theories and facts, scientists destabilise the world they seek to comprehend and need methods that help anchor theoretical advancement, while moving in fast shifting fields of thought and research. Usually this is done by data collecting that assures a distant procedure, which is by definition a positive approach to science. The survey research is a definition of this, intending to stop the researcher's participation in the world studied. To help this, there is a standardisation of data collection, of external conditions and all attempts to make samples representative. But immediately there are context effects from both the connection between interviewer and interviewee, and from the interview itself in a field of social relations.

The positive approach of ignoring contexts is embedded, despite many attempts to close the gap between what positive principles state and what they achieve, context (like metanarrative) doesn't disappear. Burawoy proposes the formulation of an alternative model of science that bases itself in context, in the world we live in, a reflexive model of science, that is typically much more connected to the techniques of participant observation.

The positive model of science distinguishes itself from the reflexive model of science in the belief that there is an external world, separating those who study it from those who live it. According to Rorty (1979), the purpose of positive science is to produce the most accurate map of the workings of the external world, to mirror the world. One of the clearest ways to enforce this vision of detachment is through procedure. Jack Katz (1983), in is work on analytical fieldwork, outlined the four perscripted Rs required to adequately implement a positive science:

- Reactivity: scientists must avoid affecting and distorting the world they study;
- Reliability: the world is infinite, so criteria is needed for selecting data;

- Replicability: selection must be formulated unambiguously so that any other scientist studying the same subject can produce the same results;
- Representativeness: guarantee that the sample studied is representative of the whole universe in study.

According to Burawoy, the extended case method violates the 4Rs, but so does survey research. According to him, the positive model of science tries to create survey researches in which the 4Rs are guaranteed by the 4Ss:

- Stimulus: interviews are constructed as uniform and neutral, with the interviewee supposedly reacting only to the question and not to the interviewee, the context or the medium of the interview;
- Standardised: to achieve a consistent set of criteria for the selection of data, the interviews are all equal;
- Stabilised: the external conditions of the interviews must be controlled or the interview may be deemed irrelevant;
- Sample: the interviewees must be a carefully selected group to represent a broader target population.

These impossibly ambitious goals to achieve in "positive science" are a denial of reality, of social context, of physical context, which may change the meaning and pretence objectivity of the questionnaires. Among others, there are clearly identified:

- interview effects: in which the interviewer's characteristic (race, gender, age, clothing), and the interview's sequence of questions affects responses;
- respondent effects: when the meaning of questions is ambiguous, depending on the interviewees background;
- field effects: the physical, political, social and economic context in which the interviews take place affect the answers and stop replication;
- situation effects: meaning, attitudes and even knowledge may not reside in individuals but rather in social situations, the sample should address the social situations and not the population.

A usual tool to avoid such issues as identified above is to allow for narrative interviews, in which the interviewer allows for the interviewer too construct their own stories, but this dialogue immediately sacrifices the 4Rs.

The 4Rs principles of positive science try to define procedural objectivity, a process of gathering knowledge - Burawoy calls it an "industrial mode", in which the process guarantees the product. Conception is separated from execution as theory is separated from research practice, which is carried out according to clearly predefined procedures and a detailed division of labor: the researcher, the designer, the interviewer, the respondent.

Burawoy's method proposes not to simply throw away the positive model of science and its techniques, but rather complementing them with the reflexive method, embracing context and dialogue into research (without forgetting that reflexive science also has its shortcomings).

4.1.2 A reflexive model of science

The reflexive approach draws from dialogue, virtual and real, between observer and participants, and simply by doing so "embeds such dialogue within a second dialogue between local processes and extra-local forces that in turn can only be comprehended through a third, expanding dialogue of theory with itself" (Burawoy, 2009, p. 5). Objectivity is not assured by method but by the growth of knowledge, the reconstruction of theories to include anomalies.

Reflexive science collects different readings for a single case and aggregates them in social processes, always based on prior theory. Information and knowledge can be reached through interviews but also through other analysis, sometimes of non-discursive aspects, participatory methods, doing things with and to those being studied. Dialogue is a main feature of reflexive science: "It calls for intervention of the observer in the life of the participant; it demands an analysis of interaction within social situations; it uncovers local processes in a relation of mutual determination with external social forces;

and it regards theory as emerging not only in dialogue between participant and observer, but also among observers now viewed as participants in a scientific community." (Burawoy, 1998, p. 16).

What were obstacles in positive science (derived from context) are structural basis to reflexive science:

- Interventions: the interview takes the participant out of their space and comfort, creating perturbations that transmit hidden information by pushing it out of the routine;

- Process: the standardised questions can't contain the participant's different experiences and the observer must help the participant to develop those situations;

- Structuration: going beyond social processes into social forces that can be interpreted locally;

- Reconstruction: connected to sampling problems, it acknowledges the difficulty in representation and consequently in producing generality; observers start with their favourite theories and seek not confirmations but rather refutations that allow to deepen those theories, rather than the uniqueness of the case and its representativity, we seek for its contribution to reconstruct theory.

Burawoy defends that what is sought are reconstructions of theories that "leave core postulates intact, that do as well as the preexisting theory upon which they are built, and that absorb anomalies with parsimony, offering novel angles of vision." (Burawoy, 1998, p. 16).

Contrary to Burawoy's concept of "industrial mode of knowledge production" connected to positive science, in reflexive science, it is the product that governs the process: theory and research are inextricable, as the goal of the research is not to reach a definitive truth but to continue improving the original theory: the extended case method is form of production of knowledge wherein the conceiver of research is simultaneously the

executor. The research process cannot be reduced to a set of standard procedures, but rather is based on how the "product" is evolving, whether reconstruction pushes theory forward or if it leads to more parsimonious theories.

In reflexive science, like positive science, there are important obstacles. If in positive science the problem were context effects, in reflexive they are effects of power, namely:

1. Domination: The interviewer cannot avoid domination, both dominating and being dominated, as the interview can be a prolonged and surreptitious power struggle between the intrusive outsider and the resisting insider. Also as participant we are participating in contexts full of hierarchies, ideologies, struggles and networks of power;
2. Silencing: the metanarrative and the ruling ideologies represent class interests and dominant classes interests are represented as being the interests of all;
3. Objectification: it is the problem of methodologically hypostatising social forces as external or natural things, but it also reflects power exercised by political, economic and cultural systems over lifeworlds.
4. Normalisation: there is a coercive process of reconstructing theory, fitting complex situations into theories and also fitting theories into cases.

Choosing to remain on the side of science, we have to live with its limitations, whether they be the context effects of positive science or the power effects of reflexive science. Given that the world is neither without context nor without power, both sciences are flawed. So the proposal of a dual model is relevant.

4.1.3 A dual model of science

Burawoy's extended case method proposes the coexistence of the positive and reflexive models of science, to complement and complete each other. Positive science isolates subject from object, while reflexive science promotes dialogue between both. Connecting the two, we are able to achieve more, exploring historical patterns and macrostruc-

tures without abdicating from participant observation and creating generalisable explanations for empirical phenomena.

With two models of science the techniques may be greatly valued: Survey research suffers from context effects that can minimised with reflexive methods. To minimise interview, respondent, field, and situation effects, survey researchers use clinical or extended case methods.

The choice between positive and reflexive methods might be made focusing on the issue we study, with positive methods being used to study enduring systemic properties and reflexive methods to study everyday social interaction: positive methods for the objective and reflexive methods for the subjective. It is repeating the different conceptions of science: to observe or to intervene, to seek detachment or to enter into dialogue. Underlying our two models of science are two different theories of action— instrumental action on the one side and communicative action on the other.

4.2 The Extended Case Method

The extended case method is described as having 4 extensions:

1. Extending the Observer to the Participant

The extension of the observer into the lives of those participating in the study. Participation as intervention is important precisely because it distorts and disturbs. Social order reveals itself in the way it responds to pressure.

2. Extending Observations over Space and Time

Fieldwork is a process of successive approximation to theory, with shocks between observations and expectations signifying poor understanding and minor problems calling for healthy rethinking of theory. In the early stages theory developing is compiling situational knowledge into an account of social process.

3. Extending Out from Process to Force

The extension of micro processes into macro forces. Here we compare differences to causally connect cases, "Instead of reducing cases to instances of a general law, we make each case work in its connection to other cases." (Burawoy, 2009)

4. Extending Theory

We do not look for confirmations but for refutations of theory. We need the strength to to challenge our original convictions, and the imagination to sustain theoretical reconstruction. We may have to abandon our theory altogether and start afresh with a new, interesting theory for which our case is once more an anomaly. In the positive mode social science stands back and observes the world it studies, whereas in the reflexive mode social theory intervenes in the world it seeks to grasp, destabilising its own analysis.

The *extended case method* applies reflexive science to ethnography in order to extract the general from the unique, to move from the "micro" to the "macro," and to connect the present to the past in anticipation of the future, all by building on preexisting theory. We aim at bringing "reflective understanding" to the extended case method by raising it to the "level of explicit consciousness."

Burawoy defends ethnography as a reflexive science that evaluates context, affirming its localised character and recognising theoretical presumptions. We need to establish a context and recognise the critical theory. Ethnography must also be historicised and take into account history, social, political and economic forces that exist inside and outside the field work. Burawoy's extended case method stimulates involvement in processes rather than abstraction as a key method. He proposes a multi-case ethnography selected with theoretical criteria, focusing more on differences, rather than try to force similitudes - these cases improve the perception of connections between local cases and social, political and economical structures. That is what I have done in the study and interviews of Portugal, Spain and Morocco: I've conducted a historical study on the evolution of public policy and climate policy in particular for the three countries in the study and in their context, and have reviewed information about each of the concrete countries, focu-

sing on the evolution of climate and future scenarios, as well as social, economical, political and industrial tendencies. There were 1062 enquiries and interviews conducted for this thesis, 46 of which were presencial and structured. I've also developed a tool to quantify the difference between really existing climate policy and climate action that would achieve affirmed goals of stopping climate collapse on the three countries, the "climate policy gap" that produces a quantification of the impact of metanarrative.

I have used my own experience as a climate justice activist in the last five years to integrate the questions of my thesis and also to observe its implications. I have participated in the Portuguese climate justice grassroots movement Climáximo since its foundation in 2015, I have participated in mass direct actions by the German platform Ende Gelände in 2017 and 2019, I have been involved in the anti-oil and gas struggle in Portugal, I have supported students' climate strikes by going to dozens of schools to talk about climate change and climate justice, I have participated in the Portuguese Extinction Rebellion movement and I have participated in the Climate Jobs campaign. I also published a scientific communication book called "Climate Change Combat Manual", in Portugal (Camargo, 2018) and Spain (Camargo and Martin-Sosa, 2019). These are all about metanarrative and about the social and political body that can interpret (or not) this new Grand History. Although this is not structurally included in my thesis, it is not something that can be set apart from it. Although I didn't create a specific interview plan inside these movements, they have always been directly involved with public policy, challenging legal limits and constraints and are now in fact in the forefront of this major shift that is happening. My analysis can not be strictly limited by my written down work plan, but it also includes insight from these movements, campaigns, actions and the grand histories they are trying to create.

4.3 Delimitation of the research problem

Considering the question of how to evaluate the appearance of a climate justice metanarrative, based on the previous definition I provided in the beginning of chapter 3, a potential metanarrative needs:

- A scientific history connected with political institutions;
- Participation in the media circus;
- Strong moral character;
- Strong connection to History;
- Power to produce laws;
- A social and political body.

As described in chapter 3, I believe we now live in the third period of the emergence of a climate change metanarrative, in which the first four criteria enunciated (a scientific history connects with political institutions, participation in the media circus, strong moral character, strong connection to History) are fully met. My focus will then be in the "power to produce laws" (through a qualitative and quantitative analysis of enquiries on stakeholders, legislators and legislation regarding climate change and climate justice, and a quantitative analyses on the gap between current legislation and what would be climate justice legislation).

After this I will focus in the social and political body connected to this metanarrative, namely the climate justice movement divided in Blockadia, Youth Climate Strikes (Fridays for Future) and Extinction Rebellion, and possible political programs.

In this moment I need to explain why I chose the Mediterranean, the climate context and the social and political contexts of my analysis, as well as the main social actors being studied.

I consider that a research plan around climate policy would provide answers as public policy has two main origins: scientific base and/or public support. I consider that such study will help lead to the formulation of a more general theory about potential meta-narratives, and about a climate justice potential metanarrative in particular. I sought to identify a geographical area comprising several national units exposed to similar expected climate impacts. Considering my own localisation in Portugal and advantageous study of the issue having as a base this country, there would be two possible regions for selection: Europe and the Mediterranean.

Europe is a political space with high integration, due to the existence of the European Union, with common legislation in the majority of states and the expected impacts in southern Europe are very different from those in northern Europe (as well as important differences between eastern and western Europe).

As such, I have selected the Mediterranean as the most relevant to exploit the area of climate policy. This region has biogeographical unity, which makes it so that its impacts in both the European, the African and the Middle Eastern parts of it have high similitude, being highly impacted by its disposition around the mediterranean Sea. The Mediterranean is a climate change hotspot (Giorgi, 2006), that is, a region in which the impact of climate change will be felt harder than in most regions of the world, and in which global trends will be magnified. The Mediterranean also possesses particularly relevant conditions in terms of political regimes diversity, from fairly consolidated democracies to semi-dictatorial regimes or monarchies. The region is also a biodiversity hotspot and is home to over 400 million human inhabitants. The effects of climate change in the Mediterranean are already being acutely felt, with successive drought, floods, wildfires and a very relevant phenomenon of mass migration.

4.3.1 Climate context and climate change impacts

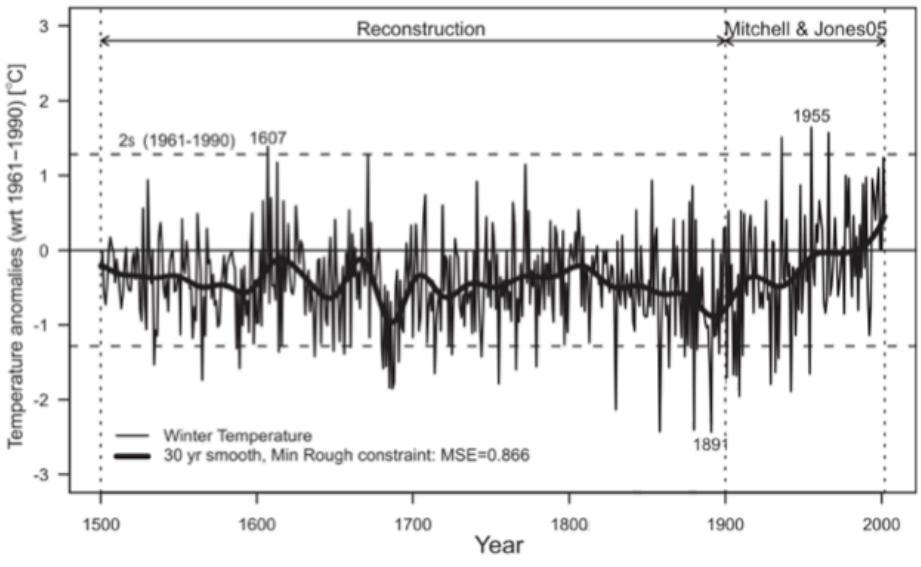
The Mediterranean is in a transition zone between the arid climate of North Africa and the rainy and temperate weather of Central Europe, affected by the interactions between

medium latitudes and tropical processes. Due to this specificity, small changes in the general circulation of the atmosphere may lead to substantial changes in the region (Giorgi e Lionello, 2008).

In the Mediterranean we find some of the oldest records in the world about climate, dating back to more than two millennia under the form of high quality temporal series, documental information (written sources, paintings, flood markers) and natural archives. These sources, complemented with indirect data (other documental sources, growth and density of tree rings, corals, ice cores or lake sediments) allow us to do climate reconstruction dating back many centuries and analysing weather extremes and their respective socioeconomic impacts in the region.

According to estimates by Luterbacher *et al*. (2006) seen in figure 1, there is a clear tendency for warming in the Mediterranean since the beginning of the 20th century.

Fig. 1. Temperature anomalies in the Mediterranean since 1500 (adapted from Luterbacher *et al.* 2006)

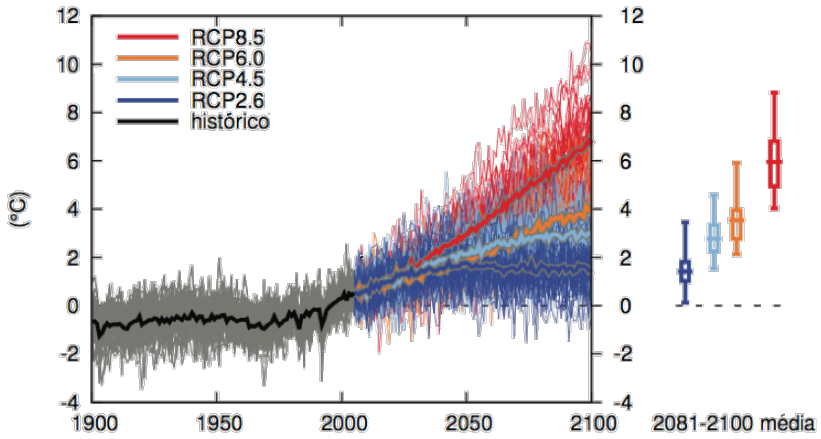


According to the IPCC (Christensen, 2013), there is high confidence in the projection resulting from the models for average temperature in the region, being very likely the temperatures will continue to increase during the 21st century in the Mediterranean. It is

considered very likely that the duration, frequency and/or intensity of warm seasons and heat waves increase in the region, accompanied by a reduction of summer average precipitation.

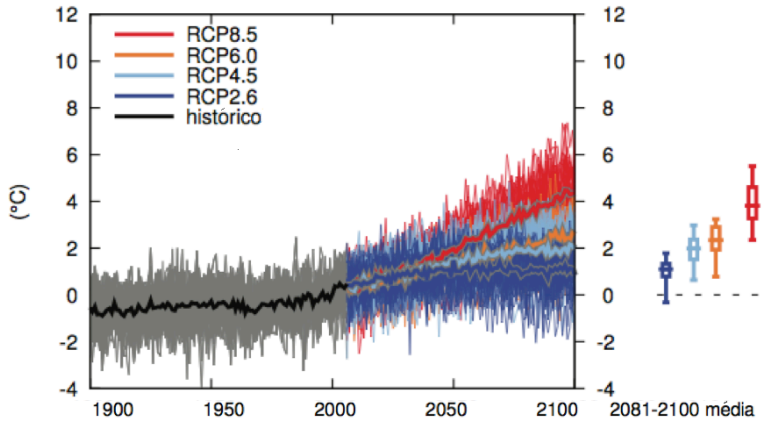
Figure 2 illustrates the different scenarios presented by the IPCC for temperature change in the summer months in southern Europe and the Mediterranean, compared to the average temperature registered between 1986 and 2005. In all scenarios, the prediction is an increase in temperature. In three out of the four scenarios, from the decade of 2050 onwards this increase will have been of over 2ºC. In the most extreme scenario (RCP8.5), the expected temperature increase by the end of the 21st century is of 7ºC. Only in the most optimist scenario (RCP2.6), does the prediction point to a stabilisation of the temperature increase slightly over 2ºC after the 2050 decade.

Fig 2. Scenarios of temperature increase in the Mediterranean Summer (adapted from IPCC (2013))



The scenarios for temperature shift in the winter months can be seen in Fig. 3. There is a clear temperature increase. The RCP8.5 scenario represents an increase of over 4ºC by the end of the century, while the three other scenarios having less significant differences, with only the RCP2.6 remaining under a 2ºC temperature increase by the end of the century.

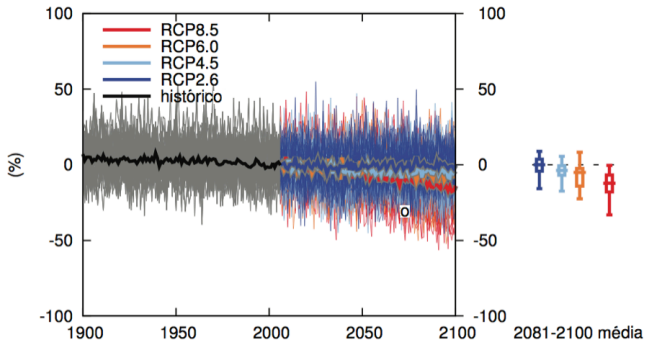
Fig 3. Scenarios of temperature increase in the Mediterranean Winter (adapted from IPCC (2013))



The fifth IPCC report, in its long term projections (Collins *et al*., 2013), also refers to regional impacts in many other variables and climatic phenomena: regarding the water cycle, the projections of the highest decrease in evaporation include the Mediterranean, and there's a projection of loss in soil water content consistent with the projections of shifts in the Hadley Circulation with increase in superficial temperatures, reinforcing dry soils in higher global temperatures with very high confidence.

Also in the RCP8.5 scenario, the reduction of precipitation in the Mediterranean is very likely (fig. 4).

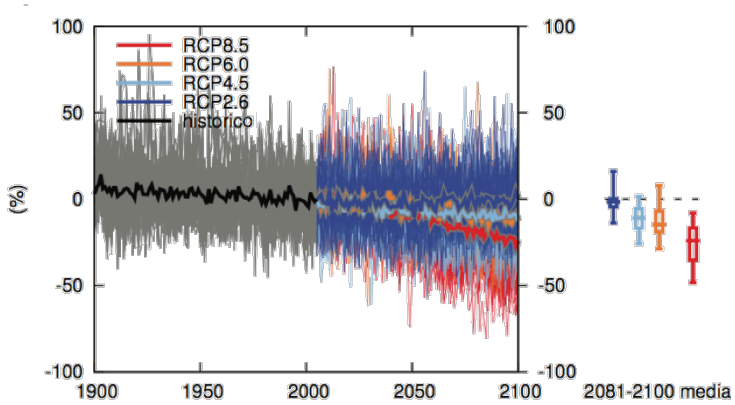
Figure 4. Projection of precipitation variation in Southern Europe / Mediterranean for Autumn/Winter (adapted from IPCC, 2013)



The projection of widening of the Hadley Circulation points to a reduction of humidity in the Mediterranean due to changes such as subsidence (downwelling) that inhibits precipitation. Large scale droughts in the Mediterranean are present in different genera-

tions of projections and climate models, being estimated as likely with the global increase in temperature, raising agricultural drought risks. Precipitation in Spring / Summer may reduce as much as 25% (figure 5).

Figure 5. Projection of precipitation variation in Southern Europe / Mediterranean for Spring / Summer (IPCC, 2013)



Beyond the evolution of values for total precipitation, it is expected that there will be a change in extreme events connected to the water cycle.

Predictions further indicate a change in extreme temperatures. The number of days with ice will diminish in all regions. On the other hand, the number of tropical nights will increase (days of the year in which the minimum temperature at night is superior to 20ºC).

Table 3 gathers observed and projected elements connected to extreme weather events and water cycle events for the Mediterranean.

Table 3. Observed and projected tendencies for the Mediterranean. Adapted from Hewitson, et al. (2014)

Tendencies for extreme daily temperatures (frequency of warm and cool days)		**Tendencies in extreme nightly temperatures (frequency of warm and cooll nights)**		**Heatwave tendencies**		**Heavy precipitation tendencies (rain, snow)**		**Tendencies for aridity and droughts**	
Observed	Projected	Observed	Projected	Observed	Projected	Observed	Projected	Observed	Projected
Increase in warm days (and decrease in cool days) in most of the region. Stronger and more significant tendencies in the Iberian Peninsula and Southern France)	Very likely increase in warm days and decrease in cool days	High increase in warm nights and decrease in cool nights in Southwestern Europe / West Mediterranean	Very likely increase in warm days and decrease in cool days	Increase in most areas	Very likely increase in the occurrence of longer and more intense heatwaves (highest increases in southwest and East)	Inconsistent tendencies on the regional level	Inconsistent changes and/or many regional variability	General increase in aridity, likely increase in droughts	Consistent increase in aridity and droughts

.

Beyond the atmospheric patterns that influence the regional climate, the Mediterranean thermohaline circulation (MTHC) is a maritime circulation that allows for the accumulation of great amounts of heat as it transfers surface anomalies to intermediate or deep convection sites in the Mediterranean. This circulation has its origins in the Atlantic and it affects the sea surface temperature anomaly patterns due to it varied levels of stabilisation on the regional climate (Somot *et al*., 2008). Recent models suggest that MTCH may weaken acutely during the 21st century (Thorpe and Bigg, 2000; Somot, 2005; Bozec, 2006; Somot *et al*. 2006), which would have a serious impact on the regional climate stability.

The positive feedback between droughts and heatwaves in the Mediterranean reinforce both, which according to Diffenbaugh *et al.* (2007) has been identified as influencing the projected changes in the variability of temperatures and the occurrence of heatwaves.

Associated to ongoing shifts in Mediterranean's climate, there have been mass migratory movements in the region (Cramer *et al.*, 2018), linking climate change, drought, displacement and social and political unrest (Kelley, Mohtadi, Cane, Seager,& Kushnir, 2017).

The Mediterranean region, including the the Iberian Peninsula and Morocco, is regarded a climate change hotspot due to projections of future increasing temperatures, decrease in rainfall amounts, sea level rising and extreme events, namely droughts, heatwaves and extreme precipitation (Argüeso, Hidalgo-Muñoz, Gámiz-Fortis, Esteban-Parra & Castro-Díez, 2012; Turco, Palazzi, Von Hardenberg & Provenzale 2015; Soares, Cardoso, Lima & Miranda, 2017; Cardoso, Soares, Lima & Miranda 2018).

4.3.2 National contexts

I have chosen, in the Mediterranean context, to study three different countries - Portugal, Spain and Morocco. They are geographically close countries, with similar expected impacts caused by climate change, and all are particularly vulnerable to climate change. According to the IMF's 2019 estimate, Spain has the 13th highest GDP level in the world, with Portugal having the 47th and Morocco the 58th. In the 2018 Human Development Index, based on life expectancy, per capita income and education levels, Spain ranks 26th in the world and Portugal ranks 41st, while Morocco is at 123rd position. The first two are rated as having "very high human development", while the latter is two levels down, with "medium human development". Portugal and Spain are members of the European Union, with high economic and infrastructural development, while Morocco still ranks as a developing country, despite recent infrastructural advances. Their close physical, territorial and geographic vulnerability are accompanied by different political systems - Portugal is a constitutional parliamentary republic, Spain and Morocco are constitutional parliamentary monarchies. According to the Democracy Perception Index, 51% of Moroccans never or rarely feel free to share their political opinions in public if most people disagree with that opinion. This perception index drops to 38% and 35%, in Spain and Portugal, respectively. Portugal and Spain's population are mainly catholic, while Morocco is mainly of muslim faith. Portugal and Spain are secular states, while Morocco is a confessional state, with the King holding the title "Commander of the Faithful" and Islam being the state religion. These differences are important as they could theoretically lead to different outcomes in climate policy through different

decision-making processes affected by the political architectures and cultural landscapes. By having different political organisations, diverse degrees of public participation and diverse civil society organisations (such as religious ones) influencing differently in the final policies, different outcomes should be expected.

Portugal and Morocco have a very high public acknowledgement of climate change, and Morocco held two high levels summits of the UNFCCC in the past - COP7 in 2001 and COP22 in 2016. The governments of Portugal and Morocco also have a high profile public communication strategy on their commitment to fight climate change, something that is not so clear in Spain (although the recent government has created an Ecological Transition Ministry focused on energy and climate change). Portugal also created a Ministry for the Environment and Energy Transition (which is now called Ministry of the Environment and Climate Action). All three countries have important legislative documents on climate change mitigation and adaptation on national, subnational, and sectoral levels. Spain is one of the biggest greenhouse gas emitters in Europe (the European Union being the third GHG emitter in the world). I have had the support of two Spanish colleagues - an academic from the University of the Basque Country, Iñaki Barcena, and a climate activist from Madrid, Javier Andaluz - to help develop the analysis on the situation in Spain for chapter. I approached some of academics and activists from Morocco to help develop the Moroccan part, but was unable to secure their participation.

The similarities as well as the differences are important to evaluate climate policies in these western mediterranean countries: none of them stand to have any advantages derived from further warming or precipitation decrease, and the political processes, actors and participation are quite different among them.

The choice was made essentially on four criteria:

- High vulnerability to climate change and similar climate change impacts;
- Geographical proximity;
- Political, cultural and social differences;

- That the three countries, especially Portugal and Morocco, are considered somewhat as international examples in public policy on climate change.

4.3.3 Actors

I participated in a relevant project called ClimAdaPT.local, to develop 26 municipal climate change adaptation plans in Portugal, in which there were 1016 written enquiries on climate change, public policies, responsibilities, perceptions and participation, made from October 2015 to March 2016, that I will analyse in chapter 5. I further made 46 semi-guided extended interviews with academics, social movements' activists, municipal authorities, national government officers and private companies in Spain and Morocco on these same issues. The main objective was to identify perceptions on climate change and on a climate change metanarrative, and the perceived obstacles between the acknowledgement that man-made climate change is real and the approval and support of effective climate change public policies. This is a qualitative evaluation of metanarrative as a block against climate action. The groups chosen were not general population, but rather groups that are directly or are at least indirectly connected to work on climate change, be it as social movement activists, academics, private company managers or national/local politicians. These groups can be seen as more "advanced" in terms of dealing and reflecting on climate change public policies, as they theoretically have more contact with these than the general population.
The inquiries and full responses are available annex.

ClimAdaPT.local

Of the 1016 respondents of the ClimAdaPT.local enquiries in Portugal, 30% are from the north of the country (municipalities of Amarante, Braga, Bragança, Guimarães, Montalegre, Porto, São João da Pesqueira and Viana do Castelo), 26% from the center region (municipalities of Castelo Branco, Figueira da Foz, Ílhavo, Leiria, Seia and Tondela), 21% from the Lisbon region (Barreiro, Coruche, Lisboa, Tomar and Torres Vedras), 16% from the south of the country (Castelo de Vide, Évora, Ferreira do Alentejo,

Loulé and Odemira) and 7% from the Islands of Azores and Madeira (Vila Franca do Campo and Funchal).

On a national level, by represented entity, the enquiries respondents were:

16% Private companies managers

16% Teaching Establishments (public and private) workers

15% Municipalities workers and managers

14% Professional Associations

13% Regional / Local Public Administration

8% NGO / Foundation

6% Public Security and Civil Protection Services

5% Parish Councils

4% Others

3% Other Local Public Services

6% of respondents were under 31 years of age, 22% were 31-40, 31% were 41-50, 26% were 51- 60 and 15% were over 60. 64% were male and 36% female.

I also participated and led roundtables of discussion on different topics for municipal climate change adaptation, such as forestry, agriculture, health or coastline protection.

Spain and Morocco stakeholders interviews

I have conducted 46 presencial and structured interviews, on participants that are related to climate change policies: national or local politicians, academics, social movement participants and private companies. The interviews were conducted in 2016, 2017 and 2018 in different parts of Spain (Comunidad Madrid, Catalunya, Basque Country, Aragon and Canary Islands) and Morocco (Marrakesh, Rabat, Tata, Tensift, Tanger)

There was a different base for the interview into each group (national politicians, local politicians, academics, social movements and private companies). Of the interviewed:

15,2% were National politicians (all 7 from Spain)

17,4 % were Local politicians (6 from Spain, 2 from Morocco)

4,3 % were Academics (2 from Spain)
56,5 % were Social Movements' activists (8 from Spain, 18 from Morocco)
6,5 % were Private Companies (3 from Morocco)

Most of the interviews in Morocco were conducted during the COP 22 in Marrakesh (2016) with participants on the summit and in a pre-COP event in Tanger. The Spanish interviews were conducted in four field trips (to Catalonia and the Basque Country, Aragon, Community of Madrid and the Canary Islands) and the interviewees were politicians with direct power over climate change departments (in the municipalities of Barcelona, Madrid, Zaragoza and Bilbao), members of regional and national parliaments with direct oversight of climate policies (Aragon, Catalonia, Basque country, Madrid Community, Canary Islands, Spain) and the National Office for Climate Change, a governmental department focused solely on climate policy. Although I made several attempts to interview private companies in Spain, namely those with the highest GHG emission levels, no significant responses were obtained, but in Morocco energy companies were more open and granted three interviews. We also searched for social movements directly connected to climate change issues (climate justice movements, environmental movements, anti-extractivism movements), which were very open to interviews. I decided not to interview Portuguese national politicians as those most directly related to the issues studies were at this moment having public struggles with the movements I participated in (namely in the anti-oil extraction campaigns).

28,2% of interviewees were under 31 years of age, 19,5% were 31-40, 26% were 41-50, 13% were 51-60 and 13% were over 60. 56,5% were male and 43,5% female.

4.3.4 Object and hypotheses

The universe for this study is the western Mediterranean, focused in Portugal, Spain and Morocco, including local and central government, social movements, academics and private companies.

The main hypotheses are:

- The possibility of a climate justice potential metanarrative is far from being a reality, with institutions and public policies not responding to the contradictions brought on by climate change;

- There are signs of the emergence of a climate justice potential metanarrative, with a push for the creation of new institutions, adaptation of old ones, public perception of the dimension of the problem of climate change and effective legislative responses to it;

- The climate justice potential metanarrative is overwhelming the metanarrative of globalised positivist capitalism, with climate policy developed in an inclusive way, promoted in society and socially accepted, with strong institutional arrangements for them.

4.4 Other ways to evaluate potential metanarratives

Taking as a basis that a potential metanarrative needs:

- A scientific history connected with political institutions;
- Participation in the media circus;
- Strong moral character;
- Strong connection to History;
- Power to produce laws;
- A social and political body.

Further analysis could have been to do research programs:

- on media (coverage, angles, language) and social media / social networks;
- on political parties and social movements (political programs, manifestos, protests, ideological definitions, strategies, tactics);

- on academics (ideologies, methods, political positioning, contradictions and findings);
- other institutions (the military, civil protection services).

I believe these analysis are very much deserving of further studies that could help further restructure my theory on metanarratives of global capitalist positivism and a potential metanarrative of climate justice.

Chapter 5.

Climate Policy - Is metanarrative blocking effective action on climate change?

Public perception on the reality of climate change is a very important factor for the existence of climate policies, but it is not in itself sufficient to produce adequate policies for concrete and effective action - worldviews and metanarratives guarantee this. The difficulty in identifying clearly the actors responsible for the problem, the institutions responsible for solving such a wide subject and the issue of power relations in the economy and society, under a metanarrative of globalised capitalist positivism may be blocking the collective imagining of alternative and sustainable means of producing, distributing and consuming, as well as deterring broad and cross-sectorial climate policies, the ones that can be most effective. In chapter 3 we have identified that a potential metanarrative needs:

- A scientific history connected with political institutions;
- Participation in the media circus;
- Strong moral character;
- Strong connection to History;
- Power to produce laws;
- A social and political body.

Here I review the literature examining belief in climate change and support for public policies and in particular climate policies, and then focus on the reality of three mediterranean countries - Portugal, Spain and Morocco. The power to produce laws is the main focus on this chapter, but we will further add the complexity of evaluating the mismatch between the laws produced and the effect of said laws as regards the effectiveness of solving the issue.

Extensive interviews were made, to analyse how even in countries which are so vulnerable to climate change and which stand out in international panorama for supposedly having advanced climate policies, there are very important blocks, both real and per-

ceived, to effective and socially accepted climate policies. Here, I attempt a successive approximation to theory, corresponding to "Extending observations over space and time" in the Extended Case Method.

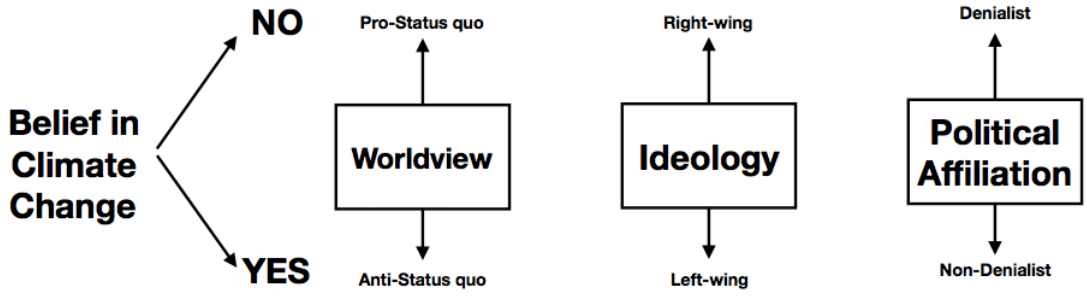
5.1 From beliefs into effective actions

5.1.1 Beliefs and perceptions: Climate change and worldview

As expected, the belief that man made climate change is happening has been shown to be determinant for support on climate action and on climate-related public policy.

According to meta-analyses on the determinants of belief in climate change (Hornsey *et al.*, 2016), the largest demographic correlation for the belief in climate change is political affiliation. This is roughly double the size of any other demographic variable. The more right-wing a political affiliation is, the more likely it is that that person does not believe in climate change, and the more left-wing a person politically affiliates with, the more likely they are of believing climate change is real. There is a significant link between climate change belief and political ideology, but it is less strong than political affiliation (fig.6). It is thus interpreted that the acceptance of climate change has more to do with people's identification with a political party than what their clear political ideology is (although there is only a small percentage of people worldwide who are affiliated or that identify very strongly with a political party, this group is very much affected by this correlation). In the US, "partisan polarization has been strengthened by the growing tendency of individual Americans to treat party identification as a "social iden-

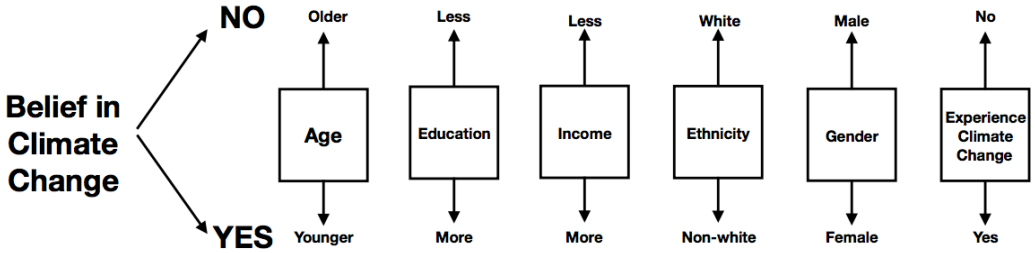
Fig. 6 Correlations between Worldview, Ideology, Political Affiliation and Belief in Climate Change



tity," whereby being Republican or Democrat is increasingly important in how they see themselves.

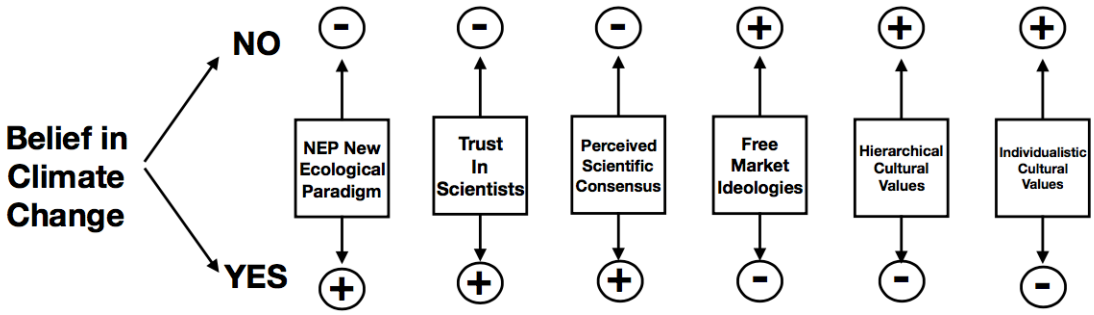
Other demographic factors (fig.7) also contribute to the belief in climate change, with a smaller effect: people with stronger beliefs in climate change are generally younger, more educated, of higher income, and more likely to be non-white and female. The direct experience of extreme weather events, such as people directly affected by floods and drought and their belief in climate change, is much more significant.

Fig. 7 Correlations between Demographic factors and Belief in Climate Change



The theory of Cultural Cognition posits that people's perception of risk and consequently climate change risk is highly influenced by their view on how society should work and be structured. As such, people with more hierarchical values, with a clear defence of the *status quo* tend to disregard risks as posed by an industry and even more so of a whole global system of production, while people who defend more egalitarian values are motivated to accept these risks that tend to confirm their moral suspicion of the system. According to Hornsey *el al.* (2016), "free-market ideologies underpin a range of conspiratorial and sceptical beliefs about science, including climate change scepticism". As such, beliefs about science, intuitions and knowledge-based variables may "be shaped by or trumped by ideological factors": the three most significant correlations for a positive belief in climate change at these levels are the support for "NEP" (New Ecological Paradigm), "Trust in Scientists" and the "Perception of the Scientific Consensus" on Climate Change. The three most significant correlation for disbelief in climate change are the support for "Free-market ideologies", "Hierarchical cultural values" and

Fig. 8 General Beliefs, Intuitions Ideologies and Cultural Values correlations with the Belief in Climate Change



"Individualistic cultural values" (fig. 8). What someone believes in depends heavily on how one looks at the world, society and themselves. The looking glasses used to look at the world, metanarratives or ideologies turning into metanarratives often determine our very belief in physical reality.

According to Hornsey *et al.* (2016) the relationship is stronger for intentions than for behaviours, as intentions are less compromised by reality constraints than behaviour: "the relationship between beliefs and intentions is more 'pure'". In terms of support for climate policy, there is a higher willingness to prioritise the environment over the economy associated with higher acceptance of climate change, and a significant and positive link connecting belief in climate change with support for specific public policies such as promoting alternative energies or creating green policies within organisations.

Capstick *et al.* (2015) have found political reluctance in many countries to approve specific legislation on climate change that could be received unfavourably by parts of the electorates and specially by powerful economic interests that have decisive power of electoral processes, campaigning and the electors, that is, the power structure as it exists. Political polarization in important countries such as the USA, with right-of-center voters becoming steadily skeptical or full denialists was confirmed by a growing effort of right-wing and fossil fuels industry propaganda to promote 'confirmation bias' (seek out and believe information that confirms existing political views on climate change). After the COP-21 and the Paris Agreement, parts of Europe and Australia have also seen an important growth of skepticism, while parts of the world such as sub-Saharan Africa

and South America have seen an increase in concerns about climate change. Cann and Raymond (2018) claim that the promotion of climate denialism by conservative think tanks has seen an important strategical evolution in the framing of the attacks on climate science: with mounting and overwhelming evidence of climate change, these think tanks have started to focus their attacks on the integrity of climate scientists and the supporters of climate action rather than the traditional communicative strategy of stressing uncertainty on climate science but, more important, they are now mostly highlighting the description of negative effects of climate policies on the average citizen.

5.1.2 From belief into support: Effectiveness, participation, individual and collective

Doherty and Webler (2016) propose that the theory of Value Belief Norm (Stern *et al.*, 1999) is a predictor of public sphere climate action and the drive of individuals to try and influence public policy. Individuals have a set of personal norms that drive their behaviour, and if these norms are influenced by an ecological worldview and awareness of environmental problems, when individuals feel that violating these norms has adverse effects on things they value, a sense of obligation to act in accordance to this worldview emerges. Another critical factor is the perception of the effectiveness of actions undertaken, with motivated individuals engaging in public actions through different strategies, according to Doherty and Webler:

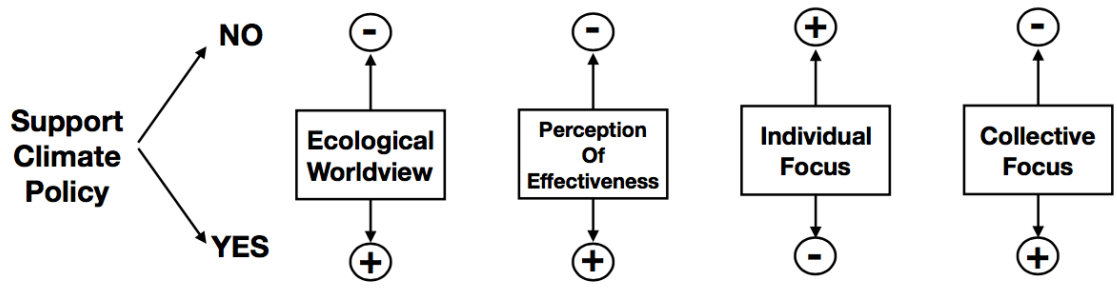
- Self-efficacy: enhancing beliefs about the ability to engage in public-sphere climate action;
- Personal response efficacy: increasing the notion that individual actions contribute to a collective goal;
- Collective response efficacy: the belief that collective action will limit climate change
- Descriptive social norms: convincing people that other close people similar to them (family, friends) can engage in public-sphere climate action.

Bostrom *et al.* (2018) stress that an important factor for lesser support for climate policies is the uncertainty about what behaviours and policies slow or stop climate change,

which reinforces sentiments of ineffectiveness. There is also a difficulty in distinguishing actions that successfully mitigate climate change from others that have little or no impact in the reduction of GHG emissions, even though they might be good environmental practices (such as recycling). The focus on government and collective actions are seen as more challenging than personal actions. These feelings are often explored by fossil fuel think tanks and governments.

There is a persistent ongoing debate on individual vs collective efficacy. This public debate has an impact determinant in the translation of belief into action and support for climate policy: individuals strictly focused on personal changes in behaviour / consumption / investment choices are more likely to be less supportive of wide ranging public policies and the transition from belief into collective action (public policy), while those with a broader focus on collective changes support wide ranging public policies, as described in figure 9.

Fig. 9. Support for Climate Policy as correlated to Ecological world views, Perception of Effectiveness and Focus on Individual/Collective Action

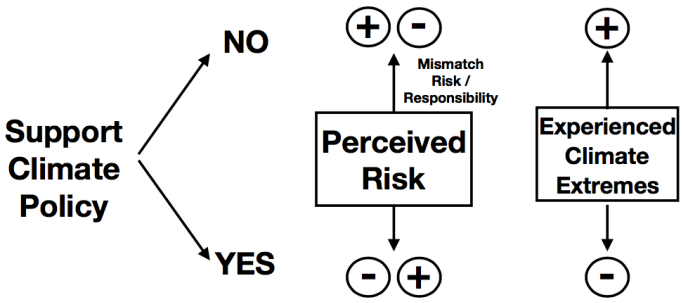


5.1.3 Support for climate public policy: uncertainties, legitimacy, justice and power

Drews and van der Bergh (2016) concluded that a more left-wing political identification, connected to a higher belief in man-made climate change, has a more favourable attitude towards climate policy in Switzerland, Sweden and the USA. Also, as had happened for beliefs, higher assessed knowledge is correlated with greater policy support. The measure of concern or perception of risk for individuals or communities affected by

the negative consequences of climate change increases support for climate policies, as well as experience-based perception of climate change (living through direct consequences of climate change such as natural catastrophes). This can be problematic as there is a question of spatial and temporal mismatches of global warming's impacts and the source of fossil fuels: poorer countries are much more exposed to its effects in the short term, while richer countries, whose entire economies are intertwined with fossil fuels, are less exposed. Davis and Diffenbaugh (2016) claim that "the dislocation of benefits and costs across time, space or organisational level makes it much more difficult to recognize the tragedy and adopt the policies necessary to avoid it" (fig. 10). This is also a question of power, as the cumulative responsibilities for historical GHG emission of richer countries, namely the USA and the EU, means they should be in the forefront of climate policies, when often this does not happen (specially in the US) and the issue of blame-shifting to China and India is recurrent.

Fig. 10 Support for Climate Policy as correlated to Perception of Risk and Experience of Risk

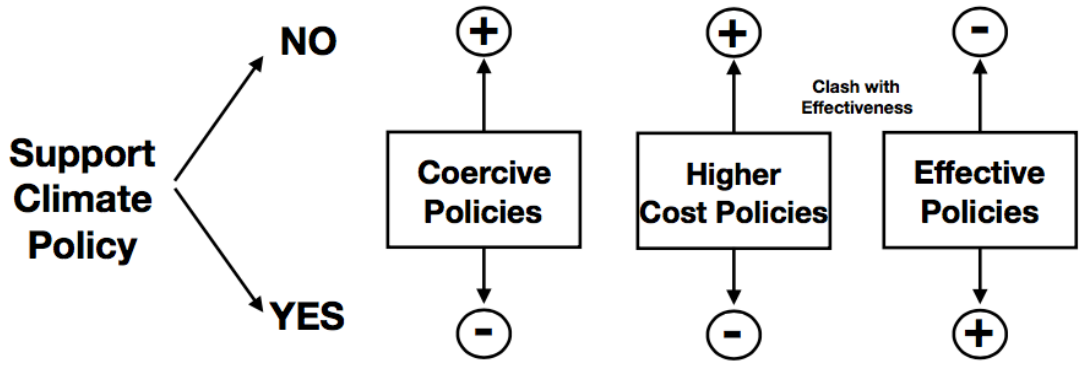


Although the level of support for climate policies can be conditioned by the previously identified determinants, uncertainty about solutions for climate change is a new conundrum, as all the previous demographic determinants for belief are once again set in motion: how to solve this crisis is a question more problematic than the reality and characteristics of climate change itself, with political affiliations, ideology and worldviews once again coming back to the driver's seat. Drews and van der Bergh (2016) explain that support can depend on the perception of lesser economic and behavioural impacts for individuals, and also by the association of coercive measures to a loss of 'personal freedom' and the 'need for choice'. Despite this, according to the same authors, the typ-

ical approach to voluntary individual behavioural changes "was widely regarded as insufficient".

The cost of policies is also taken into account, both by policy makers and the public in general: generally 'cheap' environmental policies are favoured over costly policies. On the other hand, the effectiveness of the policies, as had also been pointed out, is also an important factor for popular support. As such, there is a contradictory nature on the support of climate policies: as a general rule, most mitigation and adaptation policies that are effective are simultaneously expensive and other actions that might be 'cheap' are often ineffective (the general policies set into motion in the last decades), as can be seen in fig.11.

Fig. 11. Support for Climate Policy as correlated to type of policy



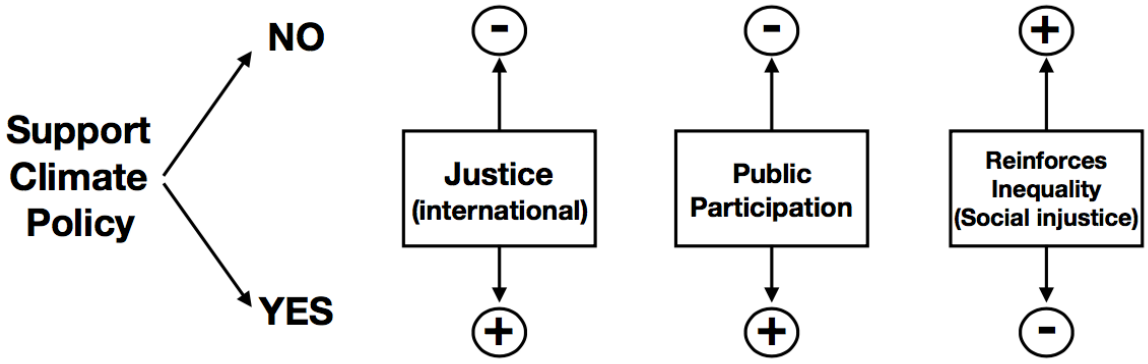
The issue of justice is particularly important in the legitimacy of climate policy: as the risks associated with climate change have unequal social, spatial and temporal distributions, so do the policies. Blackburn and Pelling (2018) propose the need for new social contracts on climate adaptation policies due to the inequities produced by already existing cultural and political differences, so as not to reinforce said inequities with these policies. As the warming of the planet deepens, so does the gap of inequality and injustice, reinforcing social inequality and ecological crisis. The focus on "small-scale, incremental or localized improvements to infrastructures, livelihoods and emergency-response in isolation from mainstream development" leaves underlying causes of risk

such as poverty and social exclusion unattended and may render many climate policies ineffective and unpopular.

Directly related to the issue of justice is the issue of power. On this regard, Vink *et al*. (2013) reviewed climate change adaptation governance's literature and observe that most of the literature does not discuss any forms of knowledge or power that aren't strictly formal and institutional. As such, climate adaptation policy is mostly being discussed as "politics of technology", interpreting it almost as a technical issue, which reinforces technopositivism and does no effort to combat the deepening gap of inequality and injustice. Davis and Diffenbaugh (2016) identify this as a fundamental tendency in climate policies: they serve better organised groups at the expense of less organised ones.

Finally, public participation in the development of public policies for climate change is generally advocated as a means of increasing legitimacy (Burton and Mustelin, 2013), but it also poses more relevant question of responsibilities of political, economical and civil stakeholders, reaching often limits on questions of funding, legal liabilities and institutional frameworks. This issue of broadening public participation is not in itself without further problems, as once more previous obstacles arise: complex policy questions and institutional rigidity, empirical uncertainty, different powers of participation, different world views and political divisions.

Fig. 12. Support for Climate Policy as correlated to perception of justice and public participation

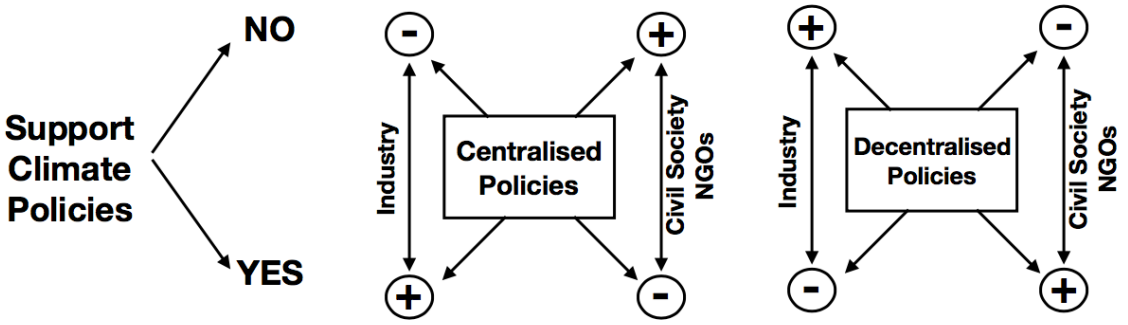


5.1.4 What climate policies?

As we have seen, what exact policies are put in motion is a determinant of support, and so after the debate of collective vs individual, of coercive and costly vs non-coercive and cheap, of just vs unjust policies and of public participation, the issue of centralised vs decentralised systems, per example in renewables or agriculture, is also relevant.

Lindbergh *et al*. (2018), while studying EU's energy policy mix decision-making process has seen a bigger debate on the issue of concentration of energy/electricity (and power) than on the need for more renewables, whose deployment mostly receives agreement. The industry takes a very active role in the debate "in order to maintain their dominant positions in a renewable electricity system", representing the *status quo* in Europe and most of the Western world, favouring a centralised approach that maintains the structure of power untouched. Most actors (the energy incumbents and their associations) that support this also express more moderate ambitions on the expansion of renewable energy, while environmental NGOs have highest ambitions for renewables expansion and favour decentralised electricity systems (fig. 13). This level of debate can be detached from public opinion, but it is decisive for public policy and the favouring of monopolised and centralised systems has seen the level of deployment of renewables slowed down in the last decades: the 2030 targets adopted by the EU in 2014 "were in

Fig. 13. Support for Climate Policy as correlated to centralised or decentralized policies with different stakeholders



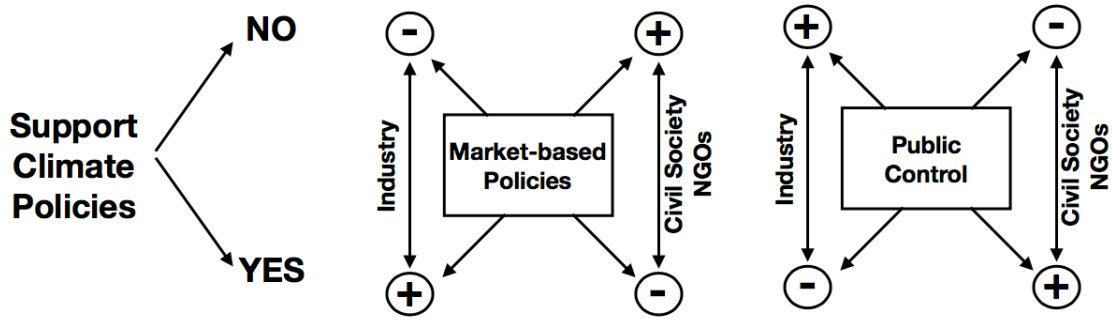
line with the preferences of large traditional utility companies and their associations, and to some extent with energy-intensive industries" (Fitch-Roy, 2017; Ydersbond, 2016).

5.1.5 Who's responsible?

Finally, the issue of responsibility for implementation of climate policies is focused mainly on states, municipalities and public authorities, but a very active participation of civil society, academia and the private sector is in general considered important, not only in matters of social legitimacy but in the prospect of mainstreaming climate policy across society and political spectres.

Mees (2017) points out to two important rationales for public control of climate policies: the need to secure sufficient action in the needed time, while markets are insufficiently engaged in the urgency of a non-profitable climate action and the perception of climate adaptation policies as part of the public duty of elected officials and public bodies, responsible for security, liveability and health of citizens. Fig. 14 expresses these tendencies.

Fig. 14. Support for Climate Policy as correlated to market or public responsibilities with different stakeholders



5.1.6 Development-as-usual and industry: blocks and blocs

A lack of broad public support for climate policies is an important barrier to adequate climate policies, and all the previously identified obstacles contribute to reduce broad

support for climate collective action. The strengthening of these obstacles occurs both by general inertia in everyday life, by fossil fuel-based development-as-usual pathways, by conservative world views in general, by the action of many economic actors, namely the fossil fuel industry and its think tanks, the financial sector and high-emitting industries and by a metanarrative of globalised capitalist positivism they embody and propagate.

Schlitling (2013) conducted a meta-analysis on the strategic framing the industry did on climate change. In 1960's and the 1970's the fossil fuel industry supported scientific research into climate change, in the 1980's and 1990's their focus shifted into promoting a debate of whether climate change was a scientific fact or an unproven theory, encouraging doubts to protect their business from regulation and constraints. This attempt was unable to reap enough support to shut down climate policy and when in the mid-1990's the Kyoto Protocol (a market-based climate policy) was being drawn, the strategic framing from the industry evolved into emphasising the socioeconomic consequences that any international binding treaty would have, specially on Western lifestyle. The promotion of a false scientific controversy by the industry has directly appealed to the journalistic frame of "different angles" on all issues. European multinationals adopted a different framing from American and Australian ones, usually named "industrial leadership", where industrial actors assume industrial responsibility for the climate and focus on technological breakthroughs as the main tools to combat climate change. "Industrial leadership" has been accused as a front for the "greenwashing" of industries, highlighting environmental worries in public while continuing to destroy the environment on a daily basis.

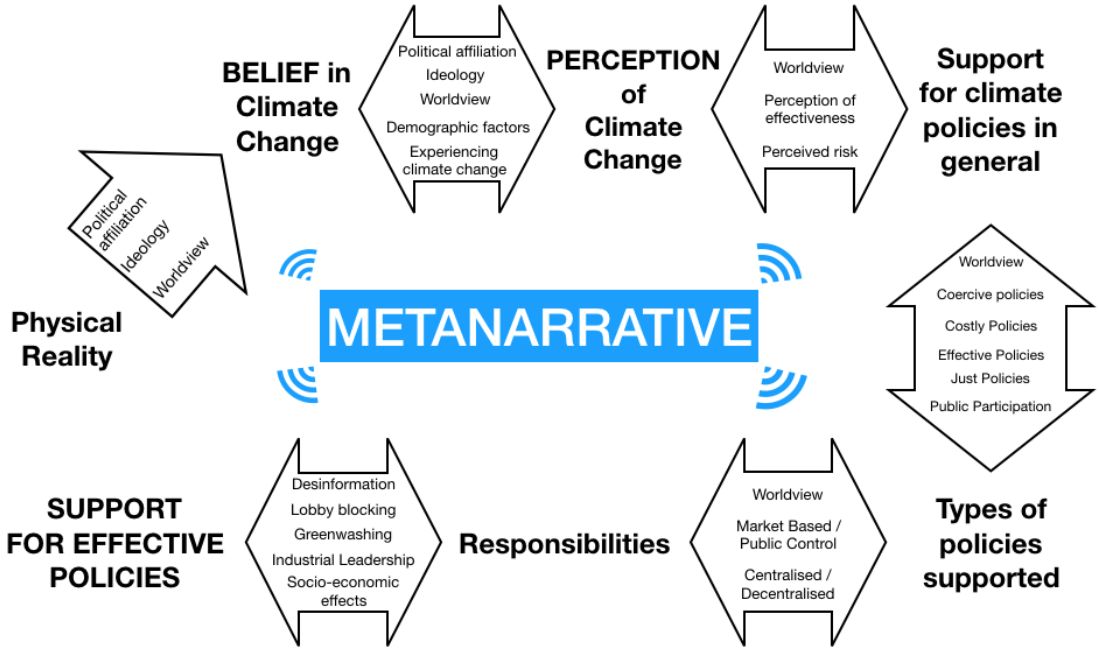
Recurrent financial crises have strengthened the appeal of uncertainty and socioeconomic consequences to halt effective climate action, which is still in use by most fossil fuel companies. The support for conservative political parties and the rise of denialists and far-right parties in the western world has had the support of the industry and acts as an ever more immovable bloc on effective climate action. The potent international cli-

mate justice movement arisen in the last months may change the previous balances that have blocked effective climate policy and action.

5.1.7 From beliefs into effective actions

I've identified a sinuous pathway with many determinants, summarised in figure 15.

Fig. 15. From belief into support for effective policies: identified determinants



5.2 Portugal, Spain and Morocco

To try and identify the main obstacles that justify the mismatch between the physical reality of climate change and the human inaction to stop it, in particular as related to "the power to produce law" as connected to public policies on climate change, I will analyse how this is a reality in Portugal, Spain and Morocco.

I participated in a project called ClimAdaPT.local, to develop 26 municipal climate change adaptation plans in Portugal, in which there were 1016 written enquiries on cli-

mate change, public policies, responsibilities, perceptions and participation, made from October 2015 to March 2016, that I analyse here.

I further made 46 semi-guided extended interviews with academics, social movements, municipal authorities, national government officers and private companies in Spain and Morocco on these same issues. The main objective was to identify what are the main perceived obstacles between the acknowledgement that man-made climate change is real and the approval and support of effective climate change public policies. The groups chosen are not general population, but rather groups that are directly or are at least indirectly connected to some work on climate change, be it as social movement activists, academics, private company managers or national/local politicians. As such, these groups can be seen as more "advanced" in terms of dealing and reflecting on climate change public policies, as they theoretically have more contact with these than the general population. The inquiries are available in the annex.

5.2.1 Public enquiries and barometers

The Special Eurobarometer on Climate Change (European Commission, 2017) regarding European attitudes towards climate change approaches some of the issues we identified for the realities of Portugal and Spain, with 1061 and 1024 interviews respectively.

About the seriousness of the problem, 86% in Spain and 83% in Portugal say climate change is a very serious problem, with only 3% in Spain and 1% in Portugal saying that it is not a serious problem. Only 13% in Spain consider climate change to be the most serious global problem, and in Portugal the number drops to 4%. In both countries "poverty, hunger and lack of drinking water" are identified as the most serious global problem (40% in Spain, 34% in Portugal).

About responsibilities for tackling climate change, the numbers are identified in table 4.

Table 4. Responsibilities for Climate Action (European Commission, 2017)

	National government	European Union	Business and Industry	Regional / Local authorities	You personally	Environmental groups	All of them	Don't know
Portugal	50%	38%	48%	36%	19%	24%	20%	5%
Spain	47%	47%	43%	25%	21%	18%	21%	4%

60% of respondents in Portugal have replied that they've undertaken personal action to fight climate change and 38% have replied that they haven't, with 68% of those who have replied that they have acted identifying this action as reducing waste and separating for recycling. In Spain, 62% have replied that they've undertaken personal action to fight climate change and 37% have replied No, with 77% of those who have replied that they've acted identifying this action as reducing waste and separating for recycling. The scope of replies to this question is almost strictly based on consumption action, withholding, per example, any political initiatives of social pressure and protests.

On specific energy/climate policies, table 5 summarises the replies to questions of support for effective climate policies on fossil fuels and renewable energy targets.

Table 5. Transition from fossil fuels to renewables and renewable energy targets increase ambitions (European Commission, 2017)

	"More public financial support should be given to the transition to clean energies even if it means subsidies to fossil fuels should be reduced"		"How important do you think it is that the national government sets targets to increase the amount of renewable energy used, such as wind or solar power, by 2030?"	
Portugal	82% agree (45% totally agree + 32% tend to agree)	4% disagree (3% tend to disagree, 1% totally disagree)	94% important (48% very important, 46% fairly important)	3% not important (2% not very important, 1% not important at all)
Spain	85% agree (53% totally agree + 32% tend to agree)	3% disagree (2% tend to disagree, 1% totally disagree)	94% important (58% very important, 36% fairly important)	2% not important (2% not very important, 0% not important at all)

There is an overwhelming agreement (82% in Portugal and 85% in Spain) for the divestment of fossil fuels and public support for renewable energies, as well as an even stronger support for increasing energy targets by 2030 (94% in Portugal and Spain). The general tendencies and opinions are summarised in table 6.

Table 6. General opinions / tendencies towards climate change and energy policy (European Commission, 2017; El Bourconi, 2019)

	Spain	Portugal	Morocco
Climate change is the most pressing issue	13%	4%	93%
Has taken individual action on climate change	62%	60%	50%
Support divestment in fossil fuels	85%	82%	No information
Support more ambitious energy targets	94%	94%	No information
Willingness to shift energy sources	No information	No information	65%

5.2.2 Spain

A Spanish Barometer of November 2018 (CIS, 2018) provides very specific information of beliefs, perception and policies regarding climate change in Spain, with a sample of 2974 interviews.

83,4% of respondents say that they believe in the existence of climate change, with 10% replying that they do not believe it. Of those that do believe, 58,1% say that human action influences climate change very much, 35,3% say that human action influences it plenty, 1,5% not much and 0,2% nothing.

62,7% believe that it is possible to stop and reverse climate change, 21% believe that we are in an irreversible situation and that nothing can be done, 4,6% claim they don't have enough information and 10,1% say they do not know.

On the question of global actions that could stop climate change, the five most identified sectors were:

- Reducing greenhouse gas emissions from industry (62%)
- Use renewable energies like solar panels in buildings and homes (42,5%)
- Substitute cars that use gasoline or diesel with electric and hybrids (23,2%)
- Manage waste more adequately (21,6%)
- Protect the water from rivers, lakes and oceans (20,5%)

On personal actions that the respondents found adequate to fight climate change on a daily basis, the five most identified were:

- Recycling products: glass, paper, oils, plastics (70,5%)
- Control energy consumption at home (57,6%)
- Use alternative transports: bicycles, ecologic public transports, etc. (55,3%)
- Control water use (53,4%)
- Reuse objects such as clothes and furniture (37,9%)

About the perception of risk and danger, 73,4% of respondents say there is no exaggeration of the dangers of climate change, while 19,5% say there is an exaggeration. 71% do not believe that science and technology will solve climate change by themselves, while 16,4% do believe it. 81,6% believe that changing our lifestyles will help to solve climate change, while 11,8% do not believe it. 69,8% believe that climate change denialism has been promoted by big industries that cause ecological destruction, while 11% do not believe it.

Only 0,6% of respondents believe that Spanish political parties pay a lot of attention to climate change issues, 5,3% believe they pay enough attention, 52,6% believe they pay little attention and 35,4% believe they pay no attention.

In terms of the political parties attention to climate change, 33,3% believe left-wing parties pay more attention to it, 31,9% believe no party pays attention to it, 9,6% believe all

parties pay the same attention to it, 2,8% believe right-wing parties pay more attention to it and 2,4% believe that center parties pay more attention to it.

In terms of the importance that climate change should have on the programs of political parties, 36,9% of respondents say that climate change should have a lot of importance in them, 44,6% say that it should be plenty important, 9,5% say it should have little importance and 3,2% that it should have no importance. Finally, on the importance that ecological and environmental issues play when deciding in which political party to vote, 7,4% say that they are mostly influenced by them, 24,7% that they are very influenced by them, 10,8% that they have a regular regard for the issue, 30,2% that they have little influence and 20,7% that they have no influence in the decision.

88% believe that climate change will force a change in the functioning of society.

5.2.3 Portugal

In 2016 an inquiry on Sustainability in Portugal (Schmidt *et al.*, 2016), with 1500 participants, asked which should be priority areas of investment for the future, with Education coming first (45,7%), Tourism in second (45,6%) and Renewable Energy in third (37,1%). The least supported areas for investment were Mining (4,5%), Banking and Insurance (2,7%) and Fossil Fuels (1%), as seen in table 7. For younger people (18-54 years old), Renewable Energy rises to the second place with 44,8% and Fossil Fuels drop to 0,7%. When comparing the 2016 inquiry with one from 2000 by the same Observatory that conducted the inquiry, priority to Renewable Energy has risen from 4,1% to 37,1%.

In terms of environmental problems, forest fires are identified as the biggest, at 46,5%, with waste issues, pollutions, depopulation, climate change and others (table 8) coming in at a distance. The connection of many of the issues to each other, such as climate change, depopulation and landscape destruction can lead to confusing results but per-

ception is mostly conditioned by media and public repercussion and debate, which explains clearly the relevance of forest fires.

Table 7. Priority Areas of Investment in Portugal (Schmidt *et al.*, 2016)

Education and Formation	45,7%
Tourism	45,6%
Renewable Energies	37,1%
Agriculture and Husbandry	36,4%
Trade	31,5%
Science, Technology and Research	24,9%
Environment	23,2%
Sea and Fisheries	22,2%
Industry	22,0%
Sports	12,6%
Museums and Cultural Heritage	7,5%
Forests	5,8%
Mining Extraction	4,5%
Banking and Insurance	2,7%
Fossil Fuels	1,0%

Table 8. Main Environmental Problems Identified in Portugal (Schmidt *et al.*, 2016)

Forest Fires	46,5%
Excessive Waste	32,8%
Ocean/Beach Pollution	30,6%
Water Scarcity	29,8%
River/Lakes/Lagoon Pollution	27,3%
Depopulation of the interior	27,2%
Climate Change	25,6%
Air Pollution	25,2%
Industrial Pollution	23,9%
Agricultural Chemicals and Pesticides	23,3%
Biodiversity Loss	22,7%
Landscape Destruction	19,9%
Genetically Modified Foods	16,1%
Disorganised Growth of Urban Suburbs	15,7%

On the issue of beliefs in Climate Change, in the European Social Survey (ESS, 2016), 76,4% of respondents in Portugal replied that “they are sure world climate is changing”, with 19,8% replying that “probably the world climate is changing” and only 2,9% saying that it is not changing (2,1% probably not changing and 0,8% are sure it is not changing).

The connection between climate change and energy consumption is clear, with 77% of respondents considering that global reduction of individual consumption of energy would contribute to fight climate change, though almost 60% find it unlikely that such a reduction will occur. 46% find it unlikely that a great number of countries will implement such policies.

In national terms, 69,4% agree with the prohibition of the sale of inefficient household appliances and 66,9% support public financing of renewable energy (but only 16,8% agrees with an increase of taxation over fossil fuels).

The support for renewable energies once more comes across as overwhelming, with the response to the question of how much electricity in Portugal should be generated from different sources summarised in table 9: very large amounts of solar and wind, a large amount of hydro and biomass, a medium amount of gas and no amount of coal and nuclear.

Table 9. "How much electricity should be generated from this source?"

	A very large amount	A large amount	A medium amount	A small amount	None at all	Don't know / Don't answer
Solar	**56,4**	32,2	6,3	1,1	0,5	3,5
Wind	**54,6**	32,2	6,2	2,2	0,6	4,2
Hydro	32,1	**42,4**	15,3	4,7	1	4,5
Biomass	11,2	**21,9**	21,2	15,5	12,1	18,1
Gas	4,5	17,4	**33,4**	26,4	8,1	10,1
Coal	1,9	6,6	19,2	29,9	**30,7**	11,6
Nuclear	2,9	3,9	10,6	15	**55,5**	12,1

5.2.4 Morocco

At the national questionnaire held by the High Commission for Planning of Morocco in January 2019 (El Bourconi, 2019), climate change is at the top of environmental worries and need for sustainable development policies, with 93% of moroccans (92,5% in urban areas and 92,4% in rural areas) identifying it as the most pressing issue. Half of respondents claim to have taken individual actions to protect the environment, and the top three actions identified were improving waste management (31,9%), saving water (22,7%) and stop using plastic bags (21,7%). Of respondent car owners, 71,1% declared

their willingness to reduce its use to reduce emissions and pollution, and 19,1% declared that their willingness depended on the availability of transport alternatives.
65% of respondent also declared their willingness to abandon gas and wood as an energy source to be replaced by solar power. Of the ones who showed unwillingness to do so, 48% invoked the high costs of solar energy equipments, 45% invoked lack of trust in these equipments and 7% the lack of state support for this transition.

To conclude, there is a clear acceptance of the issue of climate change as particularly relevant in the present and future in the three countries, no relevant denialism on any of them and an openness to act and shift individual and collective behaviours to address the issue more profoundly, if alternatives are provided.

5.4. Results

Here I present the results of my field work in the three countries, integrated in the ClimAdaPT.local in Portugal, and the Spain and Morocco enquiries.

5.4.1 Portugal: ClimAdaPT.local

The summary of answers for the ClimAdaPT.local enquiries is as follows:

Table 10. Summary of ClimAdaPT.local answers

Perceptions on climate change	Very serious on Global Level	83,5%
	Very serious on National Level	59,8%
	Very serious on Regional Level	44%
	Very serious on Local Level	41,3%
Attribution of responsibilities for action on climate change	European Union	90,1%
	National Government	89,5%
	Central Administration	78,5%
	Regional Public Administration	68,3%
	Municipalities	66,4%
	Autonomous regions (islands) governments	65,9%
	Citizenry	60,4%
	Private Sector / Companies	59,9%
Perception of institutional action on climate issues	European Union	21,6%
	Municipalities	12,6%
	Civil Society / NGOs	11,6%
	National Government	8,6%
	Private Sector / Companies	4,9%
Very high importance given to climate change on the national level		30,2%
Participation	There is high participation from Civil Society	6,1%
	I've participated in an initiative or project connected to climate change	38,1%

According to Bengtsson (2016), content analysis is both a quantitative and qualitative methodology that can be used in an inductive or a deductive way. With regards to the ClimAdaPT.local enquiry in Portugal, I conducted mostly manifest analysis (except in the analysis of the question regarding responsibilities (5.4.1.2)), where I provided my interpretation of underlying meaning to the results. I have chosen to signal latent analysis in bold and underline the relevant conclusions.

5.4.1.1 On perceptions:

a) In terms of perception, on a global level, 83,5% (56+27,5%) perceive that climate change is a very serious issue, while on the other end 1,3% (0,3+1%) believe it is not a serious issue.

b) On a national level, the perception that it is a very serious issue drops to 59,8% (20,6%+39,2%) with a particular drop in those that perceive climate change as very serious (from 56% on a global level to 20,6% on the national level). On the other end, 2,7% perceive climate change as not being very serious on the local level.

The trend of a drop in perception when you reach the local level is clear, with only 41,3% (12,8%+28,5%) claiming climate change as a very serious issue.

5.4.1.2 On Responsibilities:

The EU and National Government were, with respectively 90,1% and 89,5%, considered the most responsible for action on climate change. Different branches of public power also rated high, with a 78,5% for Central Public Administration, 68,3% for Regional Public Administration and 66,4% for Municipalities considered very responsible for action on climate change. Only 59,9% of respondents considered Private Companies very responsible, below 60,4% which considered citizens more responsible and over 50,4% of respondents who consider Civil Society and NGOs to be very responsible. The **diversity of branches in public power which respondents consider responsible also**

reveals a broad and diverse interpretation on how public power (through which structures and institutions) should deal with climate change. The sectors considered least responsible for action on climate change were Parish Councils (10,1%), Civil Society / NGOs (6,9%) and Citizenry (6%).

There is an overwhelming agreement that it is up to public power to solve the issues regarding climate change, with the responsibility attributed to companies being very low as compared to all public power except Parish Council.

5.4.1.3 On the effectiveness of actions:

c) The respondents were asked "what has been the action of each of the entities when it comes to solve issues related to climate change?". The EU is considered the most active (21,6%), followed by the Municipalities (12,6%) and Civil Society / NGOs (11,6%). Only 4,9% of respondents consider Private Companies to be very active and only 5,1% consider Citizens to be very active. In all, the classifications of very active are very low for all entities. On the other end, 43,5% of respondents consider Private Companies not to be active at all, and 42,6% of respondents consider Citizens not be active at all, with 30,2% considering governments not to be active at all.

There is an overwhelming agreement that none of the entities is very active, with the EU being the only entity where there's and equilibrium between the responses of being very active (21,6%) and not being active at all (20,3%), while in all other cases the response of not being active at all is very much higher than that of being very active.

5.4.1.4 Importance given to climate change

d). On the question of what importance is given to climate change on a national level, 30,2% of respondents think that in national terms climate change is given very high importance, while 10,9% claim there is very little importance given to the issue.

5.4.1.5 Participation in climate change issues

e). There were two questions on personal evaluation and evaluation of Civil Society's participation

Only 6,1% of respondents consider that civil society is highly engaged in issues related to climate change, while 32% consider civil society's engagement to be nearly non-existent. On the question "Have you ever participated on an initiative or project connected to climate change, 38,1% replied "yes", 60,4% replied "no" and 1,5% did not reply.

5.4.2 Spain and Morocco Enquiries

The summary of issues for the Spain and Morocco enquiries is as follows in table 11. In the case of these enquiries, we will present a qualitative analysis, with resource to word frequency analysis (and word clouds), content analysis and relevant quoting of the most relevant and informative answers. The enquiries conducted in Spain and Morocco have diverse types of questions, apt in turn to manifest analysis and latent analysis, a description of what the respondents literally said and an analysis of what can be extended, seeking underlying meaning in the text. I have signalled latent analysis in bold and underlined relevant conclusions.

Table 11. Summary of the Spain and Morocco Enquiries

Perceptions	There is very high importance given to climate change on the national level
	Belief that climate change can become the biggest problem for the survival of humanity
	Belief that a technological solution is the most effective to deal with the issue of climate change vs Belief that a socio-economic change is the most effective way to deal with the issue of climate change
	Feeling hopeful about the future / Feeling discouraged about the future
Responsibilities	There is a public institution focused on climate change
Effectiveness	Governments/Municipalities have competence to deal with climate change
	Knowing climate change legislation well / Supporting its effectiveness
	A major focus on climate change in terms of public policy would be well received by society
Participation	Social movement activists have participated in public consultations on climate policy / Belief there was an impact from said public consultation
	Social movement activists have participated in legislative processes such as a petition or a citizen's legislative initiative on climate policy / Belief there was an impact from said legislative process
	Social movement participates in a consultive or political body connected to climate change
Worldview	**Choice between adaptation or mitigation policies as a priority**
	Priorities for solving global issues (politicians - national and local): Climate Change > Social Justice > Economic Development > Investment > Terrorism > Competitiveness > Exports > Budgetary Control > Economic Growth
	Priorities for solving world issues (activists): Climate Change > Poverty > Oppression of Women > Nature Conservation > Mass Migration > Workers Exploitation > Unemployment > Resource Depletion > Religious Violence
	Ideological self-analysis by social movements' activists:
	Environmentalist
	Anticapitalist
	Transition
	Reformist
	Ideological self-analysis by social movements' activists (pair):
	Transition / Environmentalist
	Anticapitalist / Environmentalist
	Reformist / Environmentalist

5.4.2.1 On perceptions

a) On importance given nationally to climate change the average was 6,8 out of 10, with a general perception that climate change is a very serious issue.

b) On the question "Do you believe climate change can become the biggest problem for the survival of humanity?" an absolute majority of respondents assume that the importance of climate change is such that it can become the biggest threat to humanity.

Fig. 16. Word cloud for the question "Do you believe climate change can become the biggest problem for the survival of humanity (obtained with the Nvivo 12 software)

The majority of respondents replied affirmatively (only two out of 43 replied "no") and an important number responded that climate change was already the biggest problem for the survival of humanity. Many responses connected climate change to direct consequences such as sea level rising, droughts and flooding, but social issues such as mass migration, unemployment and health consequences were mentioned.

Some of the most informative answers were:

- **“**Yes, for sure. It starts with increasing temperature, rising sea levels, more flooding in certain areas and drought in others. Its the recipe for World War III, specially in terms of water resources, because the value of water is unquestionable, without water there is no survival.”;
- “Yes, certainly. All experts reports confirm this beyond any doubts. With climate extremes, the rising sea levels, the coastlines being engulfed, droughts, lack of water and climate refugees that will surpass 600 or 700 millions by 2050. Climate change is more serious than we think.”;
- “Yes, I think so, at least everything is pointing in that direction. The consequences are very dire. The question is how you transmit this message, it is like telling someone they have a very serious cancer, the margin for listening is small, but the alert signs are very very serious.”.

c) On the question “Do you believe more in a technological solution or in a socio-economic change to deal with the issue of climate change”, an overwhelming majority replied “In a socio-economic change”, a minority replied “technology” and others said they’re complementary and cannot be separated.

Here I outline some of the most informative answers:

- “A socio-economic change. Technology is important but you can develop any technology you want, if you keep to a capitalist model of development that only looks for private benefit and personal interests and economic interests over the common good, you won’t get to the root of the problem.”
- “Both. I don’t believe in a merely technological solution, we will need to change lifestyles, and adopt another energy model. We need to walk towards less unequal societies and have more austere lives.”
- “A socio-economic change, seriously. There’s no trick to solve this, we need a systemic change.”
- "Technology will only work at the service of another socio-economic system.”

There’s **an important repudiation of technopositivist approaches, with people from different backgrounds and political positions coinciding in an analysis that the**

need for major shifts in the socio-economic is paramount, with technological advances even seen as "tricks", and questioning if good technology advances applied inside the current socio-economic system could even work.

Fig. 17. Word cloud for the question "Do you believe more in a technological solution or in a socio-economic change to deal with the issue of climate change?" (obtained with the Nvivo 12 software)

d) On the question "Are you hopeful or discouraged about the future?" there was a more divided response, with the majority of respondents replying "Hopeful", a significant part replying "Discouraged" or "pessimist" and still another part opting for other formulations ("Depends on the day", "I don't know", "Neither").

Most of respondents chose to elaborate on their responses, with comments such as:

- "In principle I always have a little hope, but I see the recurring bad decisions from our leaders and it's difficult to keep it. We make appeals to leaders, to Heads of State to respect their commitments on climate change. Unfortunately, while the system is in place, its very difficult to have hope. The system needs to start changing for us to have hope. We need people to be aware of this, industrials, the most responsible for GHG emissions, the ones who produce the chemicals, they need to know that there

will be no profit if there is no planet. What do they want to take with them when they meet god?"

- "I'm a pessimist in my analysis, but I'm optimist in action. We need to be pragmatic and act but not be deluded."
- "I'm hopeful. Reality will force us into action. No one expected something like the COP-21 to be possible a few years ago."
- "I was a big optimist for a long time. I thought not only that we were going to deal with this but that it would bring us together on a scale never seen and provoke a transformation. Now I think we're too late, I think we're in a tipping point right now. In 10 years the world we live in will be unimaginable to the present. That being said, humans are incredibly ingenuitive and resilient. What I'm starting to work on now is the human culture that might survive this crisis, which might be 200, 300, 3000 years into the future, but I think humans will survive."

Fig. 18. Word cloud for the question "Are you hopeful or discourage about the future?" (obtained with the Nvivo 12 software)

The perception on the dimension of the climate change is recovered here, on an approach about the personal impact one derives from being faced with such a chal-

lenge. Most of the respondents claim to be hopeful but a relevant part claims being discouraged, and explaining this differently:

- the disbelief in a solution inside this economic system (implying that there are two enormous challenges: changing the economic system and solving climate change);

- the claim to be discouraged but not frozen by their personal sentiments, focusing on the need for action;

- the belief that future events will precipitate major shifts;

- the idea that the importance of acting despite discouraging views, not only for the possibility of winning the challenge, but also for the possibility of being operative in a "post-climate collapse" world.

5.4.2.2 On responsibilities

e) On the question "Is there a ministry, secretary of State, National Council or office focused mainly on the issue of climate change?":

- A minority replied that there wasn't any clear office but that there should be, namely "I think what we need is a brave government, supported by a population aware of this issue, making for a brave political program and a brave execution of this program" or "We've been able to act on climate change through other issues, like the fight against air pollution with programs to limit and reduce the use of cars in the city, but specially through issues of health, of public space and planning".
- The majority replied that there was as public institution focused on climate change, and spoke of many different offices/institutions: departments, sectorial councils, ministry ("of Ecological Transition"), regional commissariats, offices, bureaus, chancelleries and observatories.

5.4.2.3 On effectiveness

f) The great majority of respondents (local and national politicians), have said that governments/municipalities have technical competence in climate change, with a small group replying that they didn't. **There's an overwhelming agreement of the existence**

of technical competence on behalf of politicians, with the stress on the need for much more political will to put this competence to good use.

g) The majority of respondents claimed to know climate legislation well (although about a quarter of these cited legislation that is not connected directly to climate change), with a minority assuming they do not know it well. More than half claimed that climate legislation is not effective, and small minorities claimed it is effective or chose not to reply.

Many pointed to the discrepancy between public policies, namely between climate and environmental targets and energy legislation, as well as others. I outline these very informative responses:

- "It all lacks application if civil society is not involved in this, that is, the real civil society, for there are also predators in civil society, proxy associations created to capture subsidies. We need a real civil society that stands up to power and not a fake civil society that pays lip service to power, associations that do nothing, used to break struggles, to appear as puppets, that are formed to participate in international events such as the MEDCOP and the COP22 in Marrakesh."
- "In practice, its very different: we talk about global warming, the way to limit the rise in temperature but at the same time the government launches new projects, extends lifetime periods for coal power plants (at least three), and launches new coal plants such as the one in Safi. Also the issue of shale gas and exploration concessions. Morocco says one thing and does another."
- "Yes, they have laws to support global warming, fossil fuel subsidies, preferential treatment for infrastructure: airports, highways. There is huge amount of legal infrastructure to support fossil fuel industry. These are laws about climate change. The strengthening of immigration laws: those are laws about climate change. They're very effective."

A important majority of respondents claims to know climate legislation well and a smaller majority claim that its not effective with only a very small part replying that it is

in fact effective. **Lack of application is a pressing issue, as well as lack of popular pressure for more effective legislation, but one of the most frequently raised questions was the incongruence between climate legislation and other legislation, for example with oil, gas and coal prospection and exploration (as well as pointing to other issues that were considered pro-global warming laws - subsidies, fossil fuel infrastructure building, free trade and migration restrictions).**

h). On the issue of how a major focus on climate change in public policy would be socially perceived, around half of the respondents replied that it would be well received and only a small minority replied that it would be badly received, with an important part of the respondents giving more open responses such as "We don't have an enormous focus because there is no social claim for it, from the streets or in protest that ask for this or that look at it as a social problem that calls for immediate action".

Fig. 19. Word cloud on how a major focus on climate change in public policy would be socially perceived (obtained with the Nvivo 12 software)

About half the respondents believe a major focus on climate change in public policy would be well received by society, few believe it would be badly received, with the rest

having a precautionary position, **depending on the political situation, what this focus would mean, and the need for a social claim for it.**

On the issue of what stakeholders and social actors would position themselves for and against a major focus of climate change in public policy, the respondents gave many examples, along the lines that "Like in any public policy there would be winners and losers, and this could define the fields of pros and cons.".
Private companies, automobile manufacturers, all that would see their privileges threatened would look at it with aggression, big companies and their lobbies, sectors that will need a radical transition such as the fossil fuel industries, oil and energy companies, right-wing parties, part of the left (specially the very pro-industry unions) were identified as being against this major focus, while ecologists, health sector, collectives for sustainable mobility, agroecology, organised social movement, neighborhood associations, as well as young people and more informed people were identified as being "for" this major focus.

The effectiveness of climate policy was connected to the strength the different groups of stakeholders have in society: stakeholders identified as being against a big focus on climate change were identified as usually yielding a much stronger influence, but in determined moments, stakeholders identified as "for" might gain preponderance.

5.4.2.4 On participation

i). Social movements's activists were asked if they had ever participated on public consultation on climate legislation and split about in half. Of the ones who responded "yes", few believe that participation had had an impact in the final legislation connected to the participation, while the majority believed it didn't.
A small majority of activists have replied they have never participated on public consultation on climate legislation, while the rest say they have, but less then half of the ones who have participated think there was any impact in the final legislation. **As such, a**

majority does not participate and the ones who do participate do no think their participation is effective.

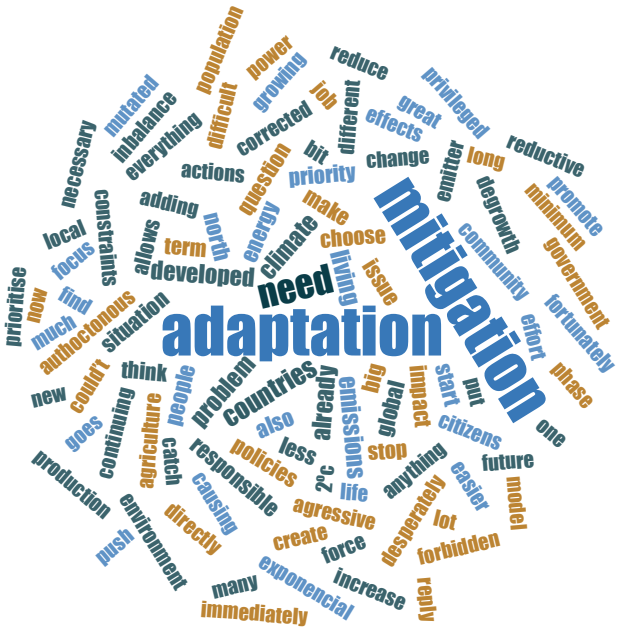
j) The majority of social movement's activists claimed that they at some point were involved in "a legislative process such as a petition or a citizen's legislative initiative connected to climate change", with less than half saying that they weren't. Out of the ones that were involved, the majority says there were results of this involvement and a small minority claim there weren't.
A majority of activists have participated in legislative processes connected to climate change, with a majority of these also believing there were results in these processes. **There is more participation in petitions or popular legislative initiatives than in public consultations and there is a much higher sense of influence in these processes organised outside more official channels**.

l) More than half of social movement's activists responded that their movement participates in consultive or political bodies connected to climate change, with a minority responding "no". A majority of activists claim their social movements participate in consultive/political bodies connected to climate change.

5.4.2.5 On worldview

m) All participants were asked the following question: “If you had to choose between adaptation or mitigation policies as a priority, which would you choose?”. The choice was very divided, with a small majority choosing mitigation, a very relevant minority choosing adaptation, and a minority choosing other responses (both or refusal to frame the issue under the proposed conditions).

Fig. 20. Word cloud on responses to the question “If you had to choose between adaptation or mitigation policies as a priority, which would you choose? (obtained with the Nvivo 12 software)



There was a significant array of justifications for the choices made, of which I outline eight:

- “Mitigation, if we want to do anything, we need to stop worsening the situation”.
- "Mitigation, its the only thing that goes to the root of the problem. If you mitigate, you’re adapting”.
- “Mitigation. We’re still in a phase where mitigation has exponential impacts. Energy put into mitigation now will have more impact on the future than adaptation. Also, adaptation is a local issue, mitigation is a global issue. In privileged countries we

need to be continuing to prioritise the global, because we are responsible for this problem".

- "The countries in the south need to focus on adaptation and the countries in the north need to make the big mitigation effort. Our emissions are minimum and we need to adapt to climate constraints, and we need energy to create a new model of development and production different from the one in the north".
- "Adaptation, because there is already a lot of people suffering from the effects" / "Adaptation, because this allows to save people's lives directly and immediately".
- "Adaptation because it touches all population, citizens need to adapt to climate change, while mitigation, for me, is a question of government, or power and policies".
- "Adaptation. We are a developing country and we need to catch up".
- "Adaptation in the short-term, mitigation in the long term".

On this issue there is a clear geographical divide: Out of the people that chose mitigation, the majority were from Spain and the minority from Morocco, while out of the people that chose adaptation, the majority are from Morocco and the minority from Spain. This gives strength to the notion that appears in three outlined justifications: **adaptation is a pressing issue for more vulnerable populations and territories (mostly in the global south), while mitigation should fall mostly to the richest countries, most responsible for present and past emissions, and the processes can very difficultly be dissociated, as lack of mitigation will create a climate where adaptation will no longer be possible.**

n) Local and national politicians were asked to set a list of priorities from a set of issues/ problems resolution. The problems were Competitiveness, Wellbeing, Climate Change, Terrorism, Economic Development, Investment, Social Justice, Exports, Economic Growth and Budgetary Control. The issues/problems were given each a 1-10 point system (1 most priority, 10 least priority). Climate change received 4 maximum priority points (1), while Social Justice received 5. Budgetary control received 3 minimum priority points (10) and Economic Growth received 10 minimum priority points.

The fact that most of the interviewed are politicians that deal directly with climate change (although from different political spectres) certainly contributes to this outcome, with climate change, social justice and wellbeing set very distant from all other issues. Also the difference between economic development and economic growth is important, with the issue of most frequently assumed equivalence between both being clarified.

The average choice priority list was: 1. Climate Change > 2. Social Justice > 3. Economic Development > 4. Investment > 5. Terrorism > 6. Competitiveness > 7. Exports > 8. Budgetary Control > 9. Economic Growth.

o) Activists in social movements were asked to set a list of priorities from global issues/ problems resolution. The problems were Poverty, Illiteracy, Climate Change, Nature Conservation, Oppression of Women, Mass Migration, Religious Violence, Workers Exploitation, Resource Depletion and Unemployment.

As in the worldview question for politicians, the clear separation of climate change from other issues is a mirror of the sample, but the high points also attributed to poverty and illiteracy, and the "lower" points given to more traditional social movement's programs, such as unemployment and workers exploitation, show a different kind of priorities in social movements. The proximity between many issues' points, such as illiteracy, oppression of women, nature conservation and workers exploitation show a broad array of preoccupations, connecting social problems with environmental problems.

The average choice priority list was: 1. Climate Change > 2. Poverty > 3. Oppression of Women > 4. Nature Conservation > 5. Mass Migration > 6. Workers Exploitation > 7. Unemployment > 8. Resource Depletion > 9. Religious Violence.

p) Social movement's activists were asked to qualify their own movements with two adjectives (out of five proposed: environmentalist, altermondialist, anticapitalist, reformist, libertarian and transition). The majority chose "Environmentalist", while equally significant parts chose "Anticapitalist" and "Transition". A smaller group chose "Reformist" by 17,2%, and even smaller groups chose "Libertarian" and "Altermondialist".

Fig. 21. Word cloud on the choices of qualification of the social movement (obtained with the Nvivo 12 software)

Finally, one respondent added "Human Rights". The most common pair was "Transition/Environmentalist", closely followed by "Anticapitalist/Environmentalist", then fewer chose "Reformist/Environmentalist", even fewer "Transition/Anticapitalist" and finally, one person chose "Libertarian/Anticapitalist" and another chose "Human Rights".

5.5 Conclusions

These enquiries provide insight on constraints identified and blocks between acknowledging the existence of man-made climate change and having climate change policies that are effective and legitimated to address the issue in both scale and time. They reveal the existence of a conflict of metanarratives: in particular, through direct questions in the Spain and Morocco enquiries, such as "Do you believe climate change can become the biggest problem for the survival of humanity?", to which an absolute majority replied "yes" and "Do you believe more in a technological solution or in a socio-economic change to deal with the issue of climate change", to which an overwhelming majority responded "a socio-economic change", and in the ClimaAdaPT.local enquiry, in which 83,5% of respondents perceived climate change as a very serious issue, while only 1,3% do not believe it is a serious issue. The big focus out of direct questioning

mostly on two of the six criteria identified in chapter 3 as enabling a potential metanarrative: the power to produce laws and the social and political body (with higher incidence on the first).

The groups that participated in these two enquiries may be looked upon as more involved in climate issues, namely climate policies and climate politics in a broad scope, inside three countries that have in general a very high acceptance of the reality of climate change and significant legislative pieces on different climate issues. As such, the conclusions obtained are also connected to the chosen samples and may be looked upon as a sort of 'vanguard' in terms of global climate policies and climate politics. These are the main conclusions from the analysis of the enquiries (as well as the previous public enquiries and barometers presented):

A) Groups that are involved with climate change politics and climate activism aren't very much detached when compared to the countries' general population. This reveals that climate change, although described as being an issue "for experts", the "experts" have in general positions close to those of the "general population".

B) The enquiry in Spain and Morocco reveals a majority of anti-Status Quo and Ecological world views, with a very important focus given to climate change, poverty, well being and social justice. The social movements have identified in majority with both ecological and anti-Status Quo political perspectives. This suggests that the overwhelming character of the metanarrative of globalised capitalist positivism is not undisputed.

C) The regional separation of replies on the issue of mitigation vs adaptation policies tends to support the idea of international justice as an important issue in climate policy within these groups.

D) There is a general trend of perceiving climate change as very important in a global scale, but this perception reduces when it closes down to the national level and further when it reaches the local level.

E) There's a very important majority that believes climate change is the most pressing issue for humanity and that believes only a socio-economic change can solve climate change, repudiating technopositivism (71% in general enquiries - the Eurobarometer and Spanish Barometer). This is an important signal of the importance of climate change as part of a metanarrative.

F) There is an overwhelming consensus that governments and public powers in general are responsible for dealing with climate change, and that no actors (supranational public power, national or local governments, private companies or civil society) are doing nearly enough to deal with climate change.

G) Climate legislation is seen as possibly effective, but blocked by many constraints. Such constraints are identified as: lack of application; lack of popular pressure; lack of political will. The incongruence between what is seen as climate legislation and other legislation further blocks the effectiveness of climate policy: "yes, they have laws to support global warming, fossil fuel subsidies, preferential treatment for infrastructure: airports, highways. There is huge amount of legal infrastructure to support fossil fuel industry. These are laws about climate change. The strengthening of immigration laws: those are laws about climate change. They're very effective.". The acknowledgement of climate change as a massively important issue and the failure to address it adequately are clear signals of the metanarrative of globalised capitalist positivism, often behind "lack of popular pressure" and "lack of political will".

H) There is a clear picture that civil society is not sufficiently engaged in public participation on climate change. Social movements have a tendency to believe more in autonomous processes such as petitions or popular legislative initiatives than formal public participation processes, both participating more and believing more in its concrete effects in terms of changing laws and other processes.

I) There's an agreement that a major focus should be placed on climate policy and would be well received, but some hesitation about the political situation necessary for it to occur. The need for a social claim for such a focus, with protests and the vision of climate change as a social problem to be addressed immediately is identified. This is an identification for the need of a metanarrative of climate change, with the lack of political and social bodies identified as a key constraint against its emergence.

J) The stakeholders that would block a major focus on climate policies are perceived as stronger than those supporting the major focus. The perceived strength of the beneficiaries of the metanarrative of globalised capitalist positivism is also contributing to further maintain this metanarrative.

As we observe that correlations work both ways and that world views shift, ideologies and cultural values are beginning to oscillate with the climate crisis. Supporting or undermining effective climate policies is being pressed by the urgency for climate action. The enquiries display many signals of a shaking of the metanarrative of globalised capitalist positivism, with one of the main doubts about this change being pointed out as the lack of social and political bodies for a socio-economic change the majority of interviewees believe necessary to address climate change. It is important to note that these enquiries were conducted before the Youth Climate Strikes and Extinction Rebellion appeared. If it they had been conducted afterwards, it would possibly have led to an evolution in the replies to the enquiries and to the ClimAdaPT.local answers, namely on the issue of the lack of popular and social clamour for effective climate policy and climate action. These results are a qualitative and quantitative expression of the current metanarrative of globalised capitalist positivism and they point to an oscillation of it, opening the door to new metanarratives on climate change. The "power to produce laws" exists but the power to produce laws that usher climate justice through the combination of solving the climate crisis and introducing social justice is still very much in dispute, with the metanarrative of globalised positivist capitalism still blocking effective action on climate change.

Chapter 6.

Mind the Climate Policy Gaps: Climate change public policy and reality in Portugal, Spain and Morocco

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6.1. A Global Gap

A recent projection by Climate Action Tracker puts global temperature increase with current policies at 3.1 to 3.7ºC by 2100, with the Paris Agreement pledges settling on the path to a 2.6 to 3.2ºC global temperature increase. The 1.5 IPCC report concluded that human-induced warming had already reached about 1ºC above pre-industrial levels by 2017, and that global warming is expected to surpass 1.5°C, even if supplemented with very challenging increases in the scale and ambition of mitigation after 2030. Climate policies are seen as a paradigm of under-reaction, especially in the mitigation field (Peters *et al*., 2017).

According to Maor, Tosun & Jordan (2017, p. 599), a policy under-reaction can be understood "as a situation in which the policy adopted by decision-makers provides net utility which is smaller than the one that would have been obtained had a different policy been enacted". The authors further add that it is characterised by slow, insufficient or non-response to a situation of increased risk.

The urgency of action on climate change has moved very rapidly onto policy agendas due to rising and evident climate catastrophes, extreme weather events and unusual meteorological records, accompanied by alarming scientific reports and consequent international agreements. Iacobuta, Dubash, Upadhyaya, Deribe & Höhne (2018) note that worldwide greenhouse gas emission targets have been adopted by countries that correspond to 89% of global GHG emissions and 80% of global populations. Currently, 70% of global emissions (corresponding to 76% of population and 48% of countries) are covered by Intended Nationally Determined Contributions (INDCs) or national

emissions strategies supported by coordinating bodies. This contradicts the continuous rise of global GHG emissions (with 2018 establishing a new record). National legislation, strategies and targets are necessary but have been proven highly unsuccessful in the global scale. Fossil fuel subsidies for 191 countries in 2015, as estimated by the IMF (Coady, Parry, Le & Shang, 2019), were of the order of $5.2 trillion, equivalent to 6.5 percent of global GDP, the largest subsidisers being China, United States, Russia, European Union and India, while renewable capacity growth worldwide stalled in 2018 (IEA, 2019).

With ever mounting public pressure for climate action, the under-reaction in mitigation policies generates over-reaction in other climate policies, namely adaptation and proposed untested technofixes. According to Peters *et al.* (2017, p. 622), adaptation measures such as flood protection and sea walls are more easily observed by voters, especially in local governments, and "hence may represent a more attractive option for vote-seeking politicians". This is particularly true following catastrophes in electorally significant moments. On the other end, the EU Emissions Trading System is seen as an example of over-reaction, with recurring setbacks and over-allocation of allowances for big polluters and emitters (Maor *et al.*, 2017). It has had little effect on global emissions or ambitious targets, although it has benefitted certain economic sectors thereby allowing for policy makers to claim to be acting on emissions.

Maor *et al.* (2017) consider that over-reactions are mostly motivated by economic considerations, public demand, important events and strategic considerations, while under-reactions are mostly motivated by economic considerations and lack of public demand. "Only where the problem is visible and clearly framed as avoidable will governments feel forced to react with an adequate policy design that corresponds to the magnitude of the actual physical and social challenges they face." (Howlett and Kemmerling, 2017, p. 9).

Although the enormous issues connected to the climate crisis are clear for experts, this may not be true for different national and local publics, in particular for people that do

not live in areas overtly affected by extreme weather events and aberrant climate patterns, for whom climate change is often seen as a distant process with an extended timeline. Even in countries more affected, attention spans are short, and even traumas may be short-lived, with media frenzies and other forms of distraction playing a part to turn climate change into an intermittent issue, giving room for manoeuvre to solidify and institutionalise under-reaction. The claims of dichotomy between climate action and fossil fuels industry workers jobs, per example, reinforce this trend.

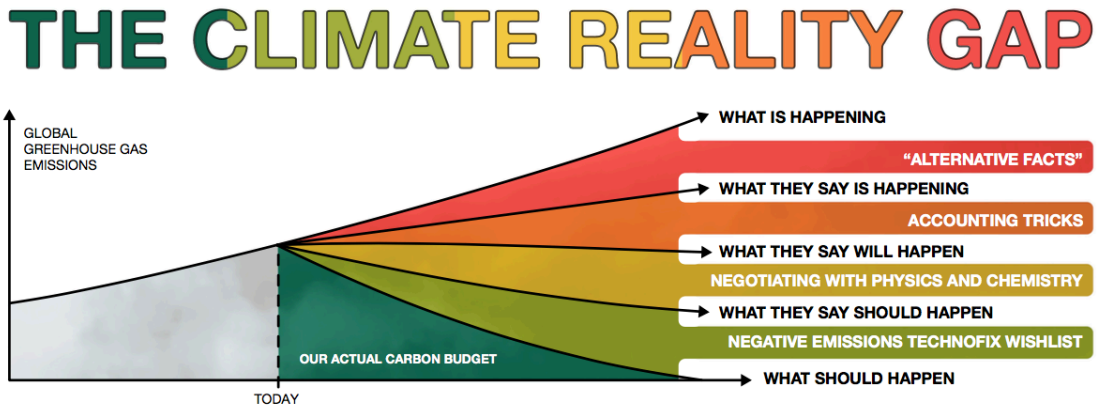
Under-reaction in climate international policy is also quite clear. As Spash (2016, pp. 931-932) puts it "a simple test of the effectiveness of the Paris Agreement would have been a dramatic drop in the share price of the fossil fuel industry, which is loaded with toxic assets (…). Nothing happened to the stock market because the Paris Agreement is perceived by the fossil fuel industry, and by financial markets, as no threat to business as usual, and possibly it is even a great opportunity for new financial instruments and ongoing economic exploitation of the planet, with trillions to come to the energy industry in subsidies for innovation and technology development."

Addressing the global gap between what should happen in terms of emissions and what is happening can be a tool for decision making, political action and providing an analysis of explanation for such blatant shortcomings, contributing to confront climate policy under-reaction. It is also the material expression of the power of metanarratives, through the evaluation of the gap between what climate science tells us that needs to happen, what governments agree and claim to be doing and what in fact happens. The aim of this tool is to demonstrate that the identification and quantification of climate policy gaps can be used as a device in any country for stimulating enhanced mitigation policy delivery and for generating increased public accountability.

Together with Pedro Matos Soares, Luisa Schmidt, Iñaki Barcena and Javier Andaluz, I have developed a multi-factorial tool, the Climate Policy Gap, that analyses the level of mismatch between real emissions, pledged emissions and Paris Agreement (1.5ºC and 2ºC) compatible emissions pathways. This tool is loosely based on an infographic called

"The climate reality gap" published by a climate justice collective in Portugal called Climáximo. This divides the gap into different layers (fig.22), with more popular and political terms, addressing the divide between scientific diagnostic and action through layers of political decision and communication.

Fig. 22. The Climate Reality Gap (Climáximo, 2018)



We argue that the under-reaction in climate policies is a real phenomenon, a built-in feature quantified by the climate policy gap, that this gap is a physical manifestation of the existence of a metanarrative of globalised capitalist positivism that blocks effective climate action. Through this quantification it is possible to demand a public mandate on what can be done to close this gap, as climate stability and thus human civilisation rely on successful emissions reductions delivery. We aim at establishing a bridge between climate science and public policy, by translating under-reaction into tons of carbon emissions, searching to provide science based public action on climate change. Currently the global gap is expanding, but even countries that advertise their commitment to climate action may, in fact, be increasing their gaps through creative accounting of emissions and omission of relevant emission sources and exaggeration of carbon sinks.

6.2. Materials and Methods

In this article we produce the climate policy gaps for Portugal, Spain and Morocco. The choice was made on four criteria:

- High vulnerability to climate change and similar climate change impacts;
- Geographical proximity;

- Political, cultural and social differences;
- That the three countries, especially Portugal and Morocco, are considered somewhat as international examples in public policy on climate change.

We consider:
- Main climate impacts for each country with different RCP scenarios (RCP 4.5 and RCP 8.5)
- Key climate legislation (laws and policies)
- Historical greenhouse emissions' trajectories in the last 30 years
- Comparison between pledges and actual emissions
- Development pathways: future Industrial projects and approaches to climate change

6.2.1 Portugal, Spain and Morocco, mirrors of vulnerability

The Mediterranean has biogeographical unity, making it a region where climate change is expected to have relatively similar impacts. The Mediterranean is also a climate change hotspot (Giorgi, 2006), where impacts will be felt both on its biogeographical conditions and on its 400 million inhabitants. The region has a particular set of social, cultural and political characteristics, with a diversity of political regimes, from relatively consolidated republican democracies to semi-dictatorial or monarchical regimes. The Mediterranean is very sensitive in terms of biodiversity, where current impacts of climate change are already being felt in the land and on the sea, with accelerated ecosystem degradation and species loss (Lejeusne, Chevaldonné, Pergent-Martini, Boudouresque, and Pérez, 2010). Forest fires are on the rise, and successive droughts (Turco *et al.* 2018) further damage the region, with the refugee crisis as the most seen symptom of mass migratory movements linked to climate change, drought, social and political unrest.

The criteria used to choose these countries are relevant for this exploration. Each country is already experiencing climate change related stresses with high public salience. They share contiguous climate space so comparison is valuable. They operate with

varying political cultures so examining the gaps usefully test the efficacy of our approach. They also like to think and advertise they are doing well in the climate policy stakes.

The quantification of the gap between stated emission pathways and Paris Agreement compatible emission pathways is a tool for political action, made more noticeable by the mounting political pressure from the climate justice movement, the young peoples' Fridays for Future strike action and Extinction Rebellion. The choice is further meant to illustrate how even countries that rank high in official indexes and political measurements of climate action and policy are not doing what is required to achieve what climate science reveals.

Climate context and climate change impacts

The Iberian Peninsula (IP) and Morocco are located in the western limit of the Mediterranean basin, the IP in the southwest of Europe and Morocco in the Northwest of Africa. Subsequently, the three countries' (Morocco, Portugal and Spain) climate is determined by the large- to local scale atmospheric processes from the North Atlantic mid-latitudes and the Mediterranean sea, and is characterised by a large inter-annual and spatial variabilities (Esteban-Parra, Rodrigo and Castro-Diéz, 1998; Muñoz-Díaz and Rodrigo 2004; Soares, Cardoso, Miranda, Viterbo & Belo-Pereira 2012a; Cardoso, Soares, Miranda & Belo-Pereira 2013; Knippertz, Christoph & Speth, 2003; Driouech, Déqué, Mokssit 2009). This variability is also extensive to the seasonal cycle in particular for precipitation, and is enhanced by costal processes, complex topography and land-ocean-atmosphere interaction processes (Serrano, Garcia, Mateos, Cancillo & Garrido, 1999; Soares, Cardoso, Miranda, de Medeiros, Belo-Pereira & Espírito-Santo, 2012b; Rios-Entenza, Soares, Trigo, Cardoso & Miguez-Macho, 2014; Knist *et al.* 2017).

In the case of the IP, the north-western highlands are one of the wettest regions in Europe, with mean annual precipitation above 2500 mm, highly contrasting with the south-eastern coastal values which are below 200 mm and amongst the driest in the continent (Couto *et al.* 2011; Cardoso *et al.* 2013). Similarly, in Morocco the wettest regions are located in the Atlantic northwest coast and in the Atlas mountainous region, but with

total annual amounts below 1300 mm. The arid south/south-eastern areas yearly rainfall do not surpass 100mm.

Future climate impacts

The Mediterranean region, including the IP and Morocco, is regarded as a climate change hotspot due to projections of future increasing temperatures, decrease in rainfall amounts, sea level rising and extreme events, namely, droughts, heatwaves and extreme precipitation (Argüeso *et al.*, 2012; Turco *et al.*, 2015; Soares *et al.*, 2017; Cardoso *et al.* 2018).

The regional climate model future projections unanimously predict an overall warming for the Portuguese mainland, for both maximum and minimum temperatures in all seasons. The severity of the temperatures increases is from about 6°C in summer and autumn, in the northeast and southeast areas, and between 2 and 4 °C in winter and spring in coastal regions (Cardoso *et al.*, 2018). In what concerns to temperature extremes, the changes are tremendously worrying: an augment from 7 tropical nights, on average in the historical period, to 60 tropical nights is projected for the end of the century. Furthermore, the yearly average number of heat waves is projected to increase from less than 1, on average in the historical period, to about 7 by 2100, in some inland areas. The most frequent heat wave duration rises from 5 to 22 days throughout the twenty-first century, and the maximum length can amount to around 50 days. Regarding precipitation in Portugal, the projections for the end of the century, according to the newest and highest resolution multi-model ensembles, indicate important losses of rainfall in spring, summer and autumn, from −10% and −50%, when compared with the historical period (Soares *et al*. 2017). The more severe reductions occur in the southern river basins. Moreover, the number of wetdays decreases substantially throughout the year, and an expressive increase of high-ranking precipitation percentiles is projected, which may reach around 70% in some regions. Roughly, in agreement with the RCP4.5, the temperature increases are mitigated to values below 3ºC and the reduction of precipitation is attenuated to values between -5% and -15% (Cardoso et al. 2018; Soares et al. 2017).

For Spain, the future projections are coarsely in line with the ones for Portugal. For the end of the century, in Peninsular Spain, the maximum temperature changes are in the range from 4.2ºC and 6.4ºC, with larger values inland and milder in the north/northeastern areas, *i.e.* larger increments in the major river basins and smaller in the Galician and Cantabrian basins (Amblar-Francés, Casado-Calle, Pastor-Saavedra, Ramos-Calzado & Rodríguez-Camino, 2017). As for Portugal, the expected increases of minimum temperatures are slightly minor, in the case of Spain are between 3.7ºC and 5.5ºC. Again, the heat waves maximum duration is projected to augment sharply, for the continental Spain between 15 and 50 days. For the end of the century, the rainfall is also projected to be reduced, which in the case of yearly values toll in between less -16% and -4%. In spring, the decrease is predicted to reach -24%, -42% in summer and -4% in autumn. The mentioned projections are greatly attenuated if the RCP4.5 is considered. The projections according to this scenario point to temperatures increases between 1.7ºC and 2.9ºC and annual precipitation reductions for inland Spain below -10%.

Finally, the projected changes in temperature and precipitation for Morocco are as well similar to the ones of Iberia, but revealing a larger uncertainty for extreme precipitation. The projected temperature changes are above 4ºC, w.r.t. to the historical period, in particular in the warmer northeast and southeast regions (Filahi, Tramblay, Mouhir & Diaconescu 2017). Conversely to the IP, the maximum temperature is expected to increase less than minimum temperature in large regions of Morocco, except in the Eastern areas. The yearly average precipitation may be reduced in more than -30%, especially in the south of Morocco, and extreme rainfall (1 day and 5 days) is expected to augment in the northern areas but decrease in the south of the country. For the RCP4.5, these changes are reduced, *e.g.* the projected temperature increases are in the range of 1 to 2ºC and the annual precipitation reduction mostly below 10%.

6.2.2 Climate performances and analysis

There are currently many different climate performance indexes and trackers, comparing countries to each other and evaluating shortcomings of both politics, pledges and

actions. We will focus on three of these analysis: the Climate Performance Index, the Climate Change Action Tracker and the Climate Change Laws of the World.

Climate Change Performance Index

The Climate Change Performance Index (CCPI, 2018), developed by CAN (Climate Action Network), Germanwatch and the New Climate Institute, evaluates four dimensions:

- Greenhouse Gas Emissions (40%)
- Renewable Energy Use (20%)
- Energy Use (20%)
- Climate Policy (20%)

In table 12 we display some of the decomposed elements for the 2018 CCPI for the three countries in analysis, and also their evolution from 2018 to 2019.

Table 12. Climate Change Performance Index and its decomposed parts (CCPI, 2018, CCPI, 2019)

	Portugal	**Spain**	**Morocco**
Greenhouse Gas Emissions (rating) 2018 / 2019	Low/Medium	Low/Medium	High/High
Renewable Energy (rating) 2018 / 2019	Medium/High	Medium/Medium	Low/Medium
Energy Use (rating) 2018 / 2019	High/Medium	High/Medium	Very High/High
Climate Policy (rating) 2018 / 2019	High/High	Low/Low	High/High
Climate Policy (score/ ranking) 2019	98.4 (#4)	39.3 (#43)	87.6 (#8)
CCPI (Score) 2018 / 2019	59.16 / 60.54	48.19 / 48.97	68.22 / 70.48
CCPI (Rating) 2018 / 2019	High / High	Low / Low	High / High
CCPI (Ranking worldwide) 2018 / 2019	**#18 / #17**	**#38 / #35**	**#6 / #5**

Morocco is very highly placed, rating number 5 in the world (which actually means number 2, as the first three places are left vacant, because no country in the world is considered to be doing enough to prevent catastrophic climate change). To this effect, Morocco's low energy use, low GHG emissions and high climate policy rating were decisive. Portugal comes in the 17th position, also rating high on energy use and climate policy, but with more GHG emissions. Spain comes in the 35th position due to its very high GHG emissions level and low climate policy rating. From 2018 to 2019 all three countries have improved their rankings and ratings in general. In terms of climate policy, Portugal and Morocco rank at the very top (number one and number five, respectively).

Climate Change Action Tracker (CAT)

The Climate Change Action Tracker (CAT) tool aims at providing independent scientific analyses run by a consortium of three research organisations: Climate Analytics, New Climate Institute and Ecofys, with the collaboration of the Potsdam Institute for Climate Impact Research (PIK).

The CAT (2018) compares 39 countries' INDCs with interpretations of fairness (including historical responsibility, capability and equality), evaluating the emission levels resulting from emission reduction commitments against effort sharing benchmarks in each country. It further provides an evaluation of countries' efforts as regards the Paris Climate Agreements targets of 1.5ºC and 2ºC.

As in the Climate Change Performance Index, Morocco is very well placed, with a status of "1.5ºC Paris Agreement Compatible", while Portugal and SP, grouped inside the European Union evaluation, rate "insufficient".

Of the 29 countries evaluated in the CAT (including the EU as a single country), only Morocco, Nepal, Ethiopia and India are considered 1.5ºC compatible. Morocco and the EU are also evaluated as having had clear progress in climate policy since 2015.

CAT also evaluates current policy rating and climate policy progress since 2015. In this regard, Morocco is evaluated as "Best in Class" and 1.5ºC Paris Agreement compatible, with "clear progress" made since 2015. Portugal and Spain, evaluated in the EU, fall in the category of "moving, but a long way to go" and "highly insufficient" in terms of the Paris Agreement, but also with "clear progress" made since 2015.

Climate Change Laws of the World

Climate Change Laws of the World (CCLW, 2019) is a database from the research program on Governance and Legislation from the Grantham Research Institute on Climate Change and the Environment (London School of Economics). This database tracks climate change related legislation, litigation and targets per country. Table 13 summarises information on Portugal, Spain and Morocco.

Table 13. Information summary about Portugal, Spain and Morocco in the Climate Change Laws of the World database (adapted from CCLW 2019)

	Portugal	**Spain**	**Morocco**
GHG emissions	63.91 $MtCO_2e$ (2013)	273.52 $MtCO_2e$ (2013)	77.42 $MtCO_2e$ (2013)
Annual loss from natural disasters (% of GDP):	0,052%	0,065%	0,175%
Rank as emitter	Below Top 50	21-50	Below Top 50
Number of climate laws	0	7	5
Number of climate policies	11	20	4
Number of climate litigation cases	0	13	0
Economy wide targets - Up to (and including) 2020	20-20-20 (GHG emission cuts of at least 20% below 1990; 20% of energy coming from renewables; 20% reduction in primary energy use compared to projected levels)	Reduce emissions in sectors not covered by EU ETS by 10% by 2020 from 2005 levels	Beyond 2020: GHG emissions reduction of 13 - 32% compared to business-as-usual emissions, conditional on external support.
Targets - Energy demand	Reduce primary energy consumption by 25% by 2020, with government bodies achieving a reduction of 30%	Increase energy efficiency by 20% by 2020	Reduce energy consumption by 12% by 2020 and 15% by 2030

Table 13. Information summary about Portugal, Spain and Morocco in the Climate Change Laws of the World database (adapted from CCLW 2019)

Targets - Renewables	Renewables share in final gross energy consumption to 31% and in energy used for transport to 10% by 2020.	20% share of energy from renewable energy sources in gross final energy consumption by 2020	Increase of renewable energy in total power generation capacity of 42% by 2020 - 14% solar, 14% wind and 14% hydro
Targets - LULUCF	None	Increase CO2 storage in forests by planting 45m trees between 2008 and 2012	None
Targets - Transports	None	Reduce 17,900 kt CO2 eq in total by 2020 compared with the ”without measures” scenario	None
Last updated	17 October 2015	30 October 2016	23 August 2017

The database does not provide a comparison between countries or an extensive evaluation of climate legislation or litigation as compared to emissions, and targets, but it provides information on projected emissions' pathways.

The combined analysis of the Climate Change Performance Index, the Climate Action Tracker and the Climate Change Laws of the World provides us with important information about these three countries climate policy wise, as well as its pledges/targets and GHG emissions' pathways.

6.2.3 Key Climate Legislation

Portugal

Portugal's political and institutional frameworks on climate change were developed in the 1990s, after the ratification of the United Nations Framework Convention on Climate Change in 1992 and, especially, after the signature of the Kyoto Protocol in 1998 (ratified in 2002) (Carvalho *et al.*, 2014). While most EU countries pledged to reduce their GHG emissions, under the 1998 Burden Sharing Agreement, Portugal benefited

from a moratorium to compensate its economic backwardness, having even been authorised to increase its emissions to a maximum of 27% by 2008/2012 (compared to 1990), the highest rise allowed in then EU-15 member states (Aidt & Greiner, 2002).

The year 2015 was a landmark in the field of national policy for climate change, with the approval of the Strategic Framework for Climate Policy, including the approval of a third National Climate Change Program (PNAC 2020-2030), a new National Strategy for Adaptation to Climate Change (ENAAC 2020) and the creation of the Interministerial Commission on Air and Climate Change (CIAAC). The period 2015-2016 was marked by the elaboration of Municipal Strategies for Adaptation to Climate Change in 26 municipalities throughout the country (one per inter-municipal community), including Lisbon and Porto.

In 2016 Portugal ratified the Paris Agreement and in 2018 the Climate Change Adaptation Program of Action (P-3AC) was presented for public consultation. This program complements and systematises the work carried out in the context of ENAAC 2020, focusing on its second objective - the implementation of adaptation measures. It outlines eight action lines for direct intervention in the territory and infrastructures. These action lines are complemented by a transversal one, aimed at responding to the main impacts and vulnerabilities. This includes the development of decision support tools, as well as capacity-building and awareness raising actions. Portugal's Nationally Determined Contribution was jointly submitted with the rest of the 28 Member States of the European Union (including Spain) and it has an unconditional target of at least 40% domestic reduction in GHG emissions by 2030 compared to 1990 (Portugal's individual pledge is only of 17%).

In the transition from 2018 to 2019 two new strategic plans emerged. The elaboration of the National Integrated Energy and Climate Plan (PNIEC) consists of a new energy and climate policy instrument for the decade 2021-2030, in line with three main objectives: to give priority to energy efficiency, to achieve world leadership in energy renewable sources, and to ensure more equity among energy consumers. On the other hand, there

is also a public consultation on the Roadmap for Carbon Neutrality 2050, which has the general objective of technically supporting the commitment made by Portugal to achieve the carbon neutrality of its economy by 2050. This includes specific transition pathways for the sectors of energy, mobility and transportation, industry, the residential and service sector, agriculture and forestry, and waste management (including the transitions induced by the circular economy). In terms of emissions, the PNIEC pledges 45-55% emissions cuts by 2030 (base 2005). By choosing the 2005 emission-peak as base, instead of 1990 or 2016/2017, the pledge implies only a 35% emission cut (base 2016).

Spain

Spanish climate change policies have been strictly connected to (or almost exclusively derived from) EU's policies. The National Climate Change Adaptation Plan (PNACC) was approved in 2006, stipulating the implementation of work programs every 8 years, containing actions at state level, as well as strategic lines for different local and regional entities. In terms of mitigation, legislation on climate change remains strictly sectoral, and the initiative for producing legislation has been mainly the adoption of European directives and mandates.

The lack of a general framework and the decentralised competences in Spain has generated an important normative dispersion. In fact, some regions (Comunidades Autónomas) have taken the initiative quicker than the central administration, creating numerous conflicts of competence. The most relevant case was the Catalan Law on Climate Change, which was challenged by Mariano Rajoy´s government in the Constitutional Court (BOE, 2017). The appeal affected 26 articles and 7 provisions, and there were mechanisms blocked, such as carbon budgets, regional emissions inventories or climate change adaptation regulations. The same government vetoed the proposal of law of the Government of the Balearic Islands (BOCG, 2017) prohibiting oil exploration, as well as the scheduled end of electricity production with coal in the island territories (El Pais, 2018).

There is a clear political divide regarding climate change policies in Spain: the more left-wing leaning parties have approved more legislation as right wing and conservative parties have dismantled said legislation or rendered it ineffective. Such is the case with the renewables self-consumption regulation in Spain, RD 1699/2011, which facilitated self-consumption, approved by a PSOE (Socialist Party) government.

Projections point an increase in GHG emissions in all sectors. Although in some cases, such as in electricity, there will be emission savings because of the shutdown of fossil sources such as coal plants in 2024, they will be quickly absorbed by the increase in economic activity and energy consumption. Transport will experience the highest growth (including flights and maritime transport). The tourism sector will also become one of the most important emitters, while the waste sector stands to have a a significant reduction in emissions due to the implementation of the State Plan of Waste Management by 2020 which predicts the reduction of the volumes of waste destined to dump. In the last official emissions projections by the government (MAPAMA, 2017), published on March 2017, which include the impact of new policies, Spanish emissions are expected to rise 15% by 2030 compared to 1990, and 27% by 2050 compared to 1990 levels.

Morocco

Morocco ratified its entrance to the UNFCCC in 1995, the same year its National Strategy for Sustainable Development and Environment was adopted, joining the Kyoto Protocol in 2002. In 2008, the National Plan of Priority Actions (PNAP) and the Morocco Energy Strategy (SEN) were launched, with its main axis being the security of supply and diversification of fuel types and origins; access to energy for all society at competitive prices; promotion of renewable energy and energy efficiency, and regional energy integration in the euro-mediterranean markets (Koskou, Alloui, Belattar, Jamil, Rhafiki & Zeraouli, 2015).

Morocco's Nationally Determined Contribution established an unconditional compromise of 17% reduction of GHG emissions by 2030 when compared to the BAU scenario, with 4% reduction in LULUCF (Land Use, Land Use Change and Forestry) and 13% in the remaining sectors, with a conditional compromise of an additional 25% reduction when compared with BAU scenario (also including LULUCF), which could amount in total to a 42% emission reduction compared to BAU. This additional reduction is conditional on obtaining 24 billion USD in financial support. The mitigation effort for the 2020-2030 period would be divided in sectors: Electricity Production 42.1%, Waste 13%, Forest 11.6%, Agriculture 9.7%, Transport 9.5%, Buildings and Housing 7.6% and Industry 6.4% (CDN, 2016). Table 14 summarises the most important legislation identified in the three countries in analysis in regards of climate change mitigation and concrete GHG emission cut pledges.

Table 14. Summary of key mitigation legislation and pledges

<table>
<tr><th>PORTUGAL</th><th>SPAIN</th><th>MOROCCO</th></tr>
<tr><td>Burden Sharing 1998 | maximum 27% emission rise by 2008/2012 (based on 1990)</td><td rowspan="2">Burden Sharing 1998 | maximum 15% emission rise by 2008/2012 (based on 1990)</td><td rowspan="2">PNRC 2009 | 52,9 MTCO2eq reduction compared to BAU by 2030</td></tr>
<tr><td>Kyoto
PNAC 2004 | 7,6-8,8 MTCO2eq reduction compared to BAU by 2008/2012 (based on 1990)</td></tr>
<tr><td rowspan="2">PNAC 2015 |
30% emission reduction by 2020 compared to 2005
40% emission reduction by 2030 compared to 2005</td><td>PEEC 2008 | 21% reduction in intensive sector by 2013/2020 compared to 2005
10% reduction in other sectors by 2013/2020 compared to 2005</td><td>INDC 2016 | Unconditional 17% reduction compared to BAU by 2030
Conditional 42% reduction compared to BAU by 2030</td></tr>
<tr><td>Effort Sharing 2009 | 26% diffuse emissions reductions by 2030 compared to 2005</td><td rowspan="4"></td></tr>
<tr><td>INDC 2015 | 40% emission reduction by 2030 compared to 1990 (17% for Portugal)</td><td>2nd Kyoto | 20% emissions reduction by 2013/2020 compared to 1990</td></tr>
<tr><td>PNIEC 2019 | 45-55% emission reduction by 2030 compared to 2005</td><td>PEEC 2015 / INDC 2015 | 27% emissions reduction by 2030 compared to 1990</td></tr>
<tr><td colspan="2">EU Roadmap 2011 |
40% reduction by 2030 compared to 1990
60% reduction by 2040 compared to 1990
80% reduction by 2050 compared to 1990</td></tr>
<tr><td colspan="2">EU Carbon Neutral 2018 | Carbon Neutral by 2050</td></tr>
</table>

6.2.4 Development pathways: future industrial projects and approaches to climate change

Portugal's climate policy as regards energy is very limited by the private ownership of the biggest providers and distributors of electricity, EDP and REN (privatised during the public debt crisis, now controlled by the Chinese government). The shift that has occurred in the last two decades, with an important rise in renewable use for electricity, especially with wind power, was led by private companies through high government subsidies, giving rise to higher energy costs. Most of political initiative on energy still focuses on the issues of prices, over-costs and the continuous flow of public money into energy companies' shareholders (Camargo, 2018b), with decarbonisation being more of a side effect than a focus of energy public policy.

Currently, Portugal's highest emitting sectors are electricity production and distribution (EDP, REN, Tejo Energia) transport and fuel (GALP Energia), paper pulp (The Navigator Company, Altri Florestal) and cement (Secil, Cimpor).

Spain is a country highly dependent on the import of fossil fuels and whose use has been a source of high greenhouse gas (GHG) emissions, lacking structural policies capable of curbing such emissions. Among other, these are reasons for the Spanish State to be the country with the highest increase in its GHG emissions since 1990 in the EU.

The various Spanish governments during the last three decades have opted for natural gas as a fuel for energy transition, which has led to an oversized policy of under-utilised gas infrastructure (facilities operate at 13% of capacity, although proprietary companies charge 700 million euros per year in capacity payments). Spain has more than 30% of the total regasification capacity of the EU (4th country in the world). This gas policy is still underway as well as the gas interconnection with Portugal and the duplication of the interconnection with France. Spain still holds concessions for oil and gas drilling offshore, but it has announced the closing of the last coal mines in the Asturias region and has cancelled the MidCat gas pipeline between Spain and France. According to the

Observatory of Sustainability, ten Spanish companies represent 28% of total emissions, with ENDESA being the first electricity company with 10% of the total of emissions of the country, followed by Gas Natural, EDP and Repsol-Petronor with 3% each, while Arcelormittal and Viesgo being responsible for 2% and Cepsa, Iberdrola, Cemex and Cementos Portland of about 1% each of the total emissions of the country (OS, 2017).

The agricultural sector emissions in the year 2017 were 11% of the total, (increased by 2.9% over the previous year). The main increases come from sectors such as pig rearing, organic fertilisers and the increase in agricultural machinery use. 82% of water consumption in Spain takes place in irrigation and the remaining 18% for industrial consumption and population supply. Even so, the hydrological planning foresees the creation in the next years of 700.000 new hectares of irrigation.

Morocco's public and political discourse on climate change is unequivocal, and it is acknowledged as an example in its policies. The country is one of the least responsible for climate change and one that is set to be most affected and is least prepared for the impacts of global warming. In the light of the its recent history and political regime, there are signs of sophistry. There has been significant investment and growth in wind power plants, big hydraulic dams, solar power plants, but investment in new fossil fuel projects such as the Safi and Nador coal plants, the extension of the Jerrada coal plant and the numerous oil and gas drills onshore and offshore (with very attractive conditions for oil companies) reveal, much like in Portugal and Spain, that more than producing energy and decarbonising the economies, what exists is the idea of attracting diversified investment, many times with assured profitability by the state. According to ONEE (2019), the main public provider of electricity (although the importance of private providers is also very relevant), by the end of September 2018, 33.83% of installed power was of renewable source.

The agricultural strategy, outlined in the Plan Maroc Vert, promotes "high added value" cash crops, with agricultural intensification of production for export, namely of citrus and fruits that consume big amounts of water, competing with subsistence farming and

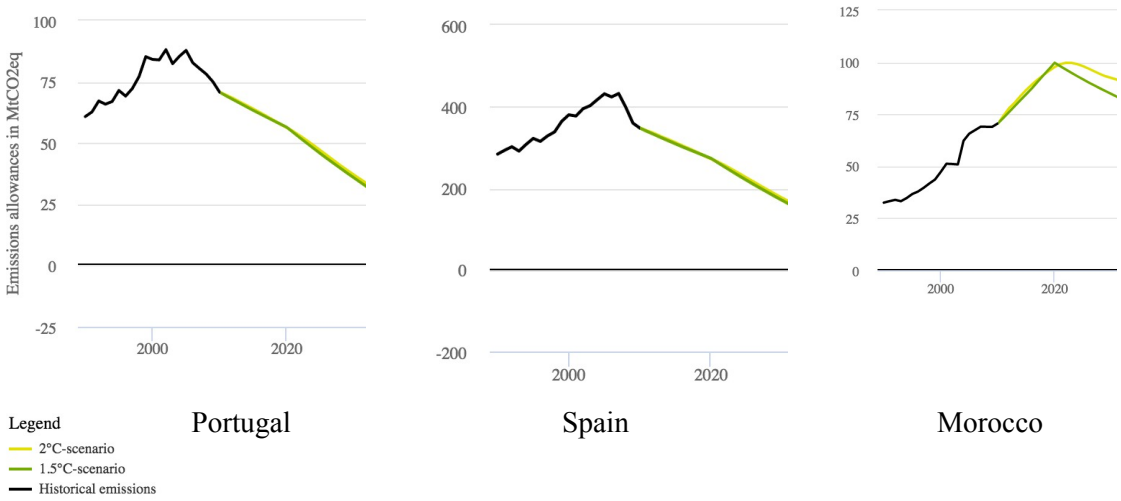
cereal production, which has lead to an increased dependency of food imports (Saidi & Diouri, 2017). Morocco has become more dependent and vulnerable to fluctuations of the global food market than before, both to export its tomatoes and citrus and to import its cereals. Moustakbal (2017) points out the convergence of three factors - political despotism, economic liberalism, and climate change - as overlapping and converging processes speeding up negative effects of one another. He identifies public policy on climate change in Morocco as "elite environmentalism", in which state and public sector see the ecological crisis as an opportunity for enrichment and accumulation of additional profits, focusing more on energy production projects which are highly profitable under public-private partnerships, rather than mitigation efforts which do not shoulder the public responsibility of financing these projects through hikes in energy prices and the draining of state finances.

All three countries expect and work towards higher economic growth in the future, not having a clear explanation of how this may be achieved while fulfilling decarbonisation pledges, something which can be seen quite clearly in a economic sector such as tourism and travelling.

6.3. Climate Policy Gaps

The climate policy gaps for Portugal, Spain and Morocco were obtained through the comparison of historical emissions (OECDStat, 2019; EEA, 2018; MTE, 2019; ME-MEE, 2016; Meinhausen & Alexander, 2017), the emission pathways according to the latest and most ambitious pledges made by each country (not necessarily the INDCs) and the 1.5ºC and 2ºC future emission pathways as defined by Paris Equity Check (2019) and Robiou du Pont & Meinshausen (2018). According to the Paris Equity Check, Portugal, Spain and Morocco's fair and equitable 1,5ºC and 2ºC compatible emission pathways by 2030 should be as illustrated in figure 23.

Fig. 23. Paris Agreement compatible emission pathways for Portugal, Spain and Morocco
(adapted from Robiou du Pont and Meinshausen, 2018)



The issue of equity is evaluated by the Paris Equity Check, with different historical responsibilities and justice, which explains why Morocco has a further increase of GHG emissions for a few more years, while Portugal and Spain would need an immediate decrease and maintenance of steep downward GHG emissions pathways.

We have used more updated databases (in Annex 2) to construct our climate policy gaps, which generated a steeper decrease immediately after the historical emissions, which we extended up to 2017 (for Portugal and Spain) and up to 2015 (for Morocco). Figures 24, 25 and 26 are the climate policy gaps for the countries analysed.

Fig. 24. Portugal's climate policy gaps

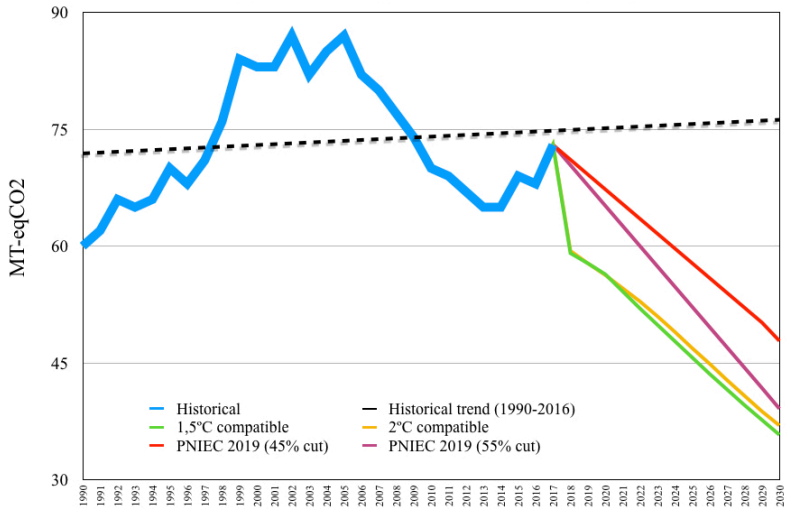


Fig. 25. Spain's climate policy gaps

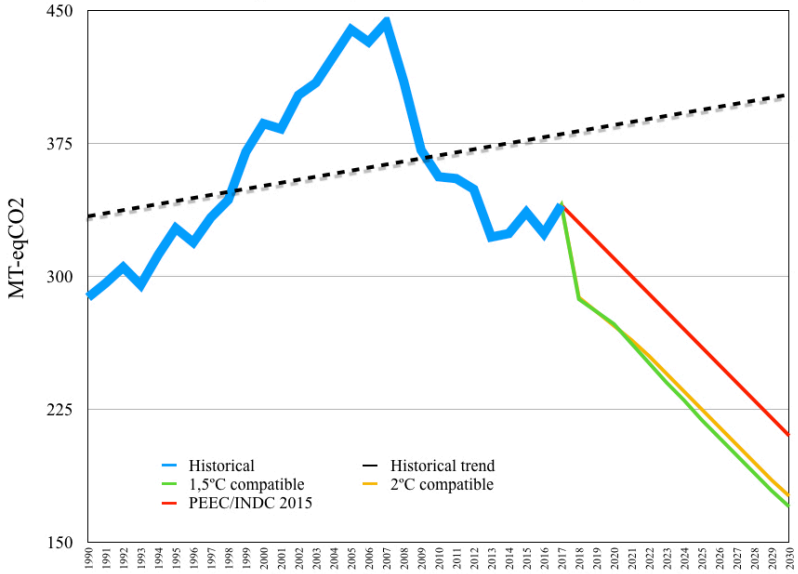
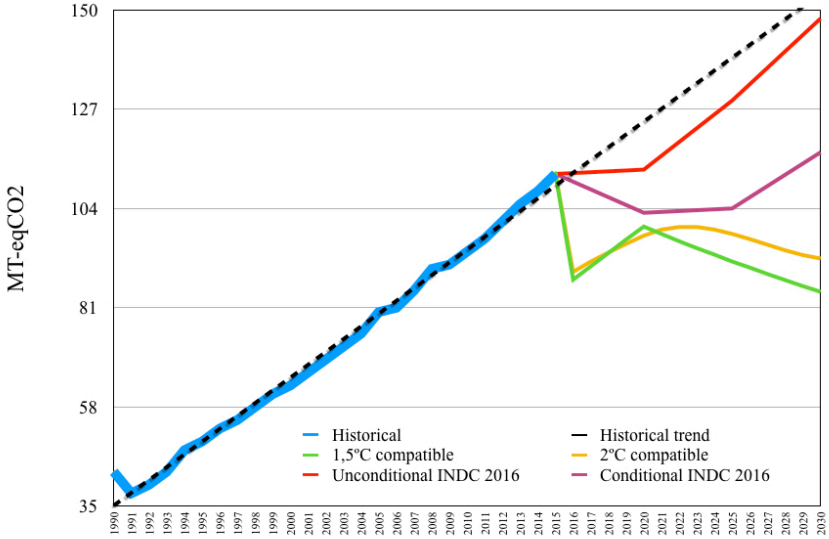


Fig. 26. Morocco's climate policy gaps



There are at least four more aspects that need to be addressed to complete the interpretation of these climate policy gaps, which are difficult to integrate numerically:

- Uncertainty in terms of LULUCF (Land Use, Land Use Change and Forestry), namely connected to the alteration of soil emissions due to variable trends in terms of agricultural activity and intensification, forestry and forest fires;
- General uncertainty in terms of inventory, which rely mostly on voluntary submission of yearly emissions by industrial units and activity sectors;
- Omission of emissions regarding aviation and shipping;
- Omission of future industrial projects in emission pathways presented by countries.

In general these uncertainties and omissions will increase the emission profile (current and future), further increasing the climate policy gaps currently identified. It is also important to notice that the gap measured is between pledges and what the 1.5ºC and 2ºC compatible pathways should be, this means that if any of these countries does not fulfil their pledge, as has happened in the past, the distance to a 1.5ºC future will further increase.

6.4 What's the overshoot and what benchmarks can close the gaps?

The climate policy gaps reveal important overshoots for the three countries and pledges and point to the need of much more incisive climate policies and emission pathways, all of which need to start a steep decline in emissions immediately. Spain is the most expressive case in terms of overshoot, and although Morocco reveals relevant gaps, contrary to Portugal and Spain, the gap does not mean a reduction of emissions, but rather a non-increase of emissions in the short term. Portugal seems to be the country closest to achieving an emission pathway compatible to the Paris Agreement. The gap-widening uncertainty factors connected to LULUCF, forest fires, inventory, aviation, shipping and future industrial projects aggravate the gaps and further increase the need for immediate decline in GHG emissions for Portugal and Spain.

Portugal's climate policy gap reveals, by 2030:

- a 2.15 MTCO2eq gap comparing the current highest ambition pledge of 55% emission cuts to the 2ºC compatible emission pathway;
- A 3.35 MTCO2eq gap comparing the current highest ambition pledge of 55% emission cuts to the 1.5ºC compatible emission pathway;
- A 10.85 MTCO2eq gap comparing the more modest ambition pledge of 45% emission cuts to the 2ºC compatible emission pathway;
- A 12.05 MTCO2eq gap comparing the more modest ambition pledge of 45% emission cuts to the 1.5ºC compatible emission pathway;
- A 11.95 MTCO2eq gap comparing the EU general roadmap pledge of 80% emission cuts by 2050 (based in 1990) to the 2ºC compatible emission pathway
- A 13.15 MTCO2es gap comparing the EU general roadmap pledge of 80% emission cuts by 2050 (based in 1990) to the 1.5ºC compatible emission pathway.

Spain's climate policy gap reveals, by 2030:

- a 34 MTCO2eq gap comparing the current pledge (INDC/PEEC 2015) to the 2ºC compatible emission pathway;
- A 40 MTCO2eq gap comparing the current pledge (INDC/PEEC 2015) to the 1.5ºC compatible emission pathway;
- A 52.2 MTCO2eq gap comparing the EU general roadmap pledge of 80% emission cuts by 2050 (based in 1990) to the 2ºC compatible emission pathway
- A 58.2 MTCO2eq gap comparing the EU general roadmap pledge of 80% emission cuts by 2050 (based in 1990) to the 1.5ºC compatible emission pathway.

Morocco's climate policy gap reveals, by 2030:

- a 55.6 MTCO2eq gap comparing the current unconditional pledge (INDC 2016) to the 2ºC compatible emission pathway;
- A 63.3 MTCO2eq gap comparing the current unconditional pledge (INDC 2016) to the 1.5ºC compatible emission pathway;

- A 24.6 MTCO2eq gap comparing the current conditional pledge (INDC 2016) to the 2ºC compatible emission pathway
- A 32.2 MTCO2eq gap comparing the current conditional pledge (INDC 2016) to the 1.5ºC compatible emission pathway.

We suggest short-term sectoral benchmarks to close these gaps:

In Portugal, expansion of the solar energy sector is crucial, but this must be accompanied by a very short-term (1-3 years) decommissioning of its coal-power plants, and a decade plan to shut down its combined cycle natural gas power plants and oil refineries. In increasing ambition, Portugal needs to shift its transport system onto the expansion of railways and very affordable and extensive electric public transportation. Other strategic decisions relate to industrial projects, namely the ones connected to transport and energy: there is a planned new airport and expansion of current seaports, both to receive increased amounts of cruise ships and cargo ships. It is particularly important the declared intention of establishing a permanent import relation with the United States to received fracked gas and export it into Europe with massive pipelines and fossil fuels infrastructures through Portugal's hinterland, as well as the intent to include the Sines Port in the Belt and Road Initiative promoted by the Chinese Government. The country should further cancel its oil and gas contracts, changing legislation to prevent new concessions. These projects are an hindrance of further energy transition, diverting resources, political will and investment out of decarbonisation and supporting the extension of fossil fuels industries' profitability and continuation of rising GHG emissions worldwide.

Spain has similar issues, although the emphasis on transport shift is more important. Most of the countries emissions come from transportation, with both cargo and passengers mostly stuck in a fossil fuel individual vehicle system, which should be substituted with railways and affordable and extensive electric public transport systems. Such as happens in Portugal, there is a push for the expansion of ports and airports, as well as the establishment of runways into central Europe of imported fossil energy. Also in terms of energy, the push to shut down its coal and gas power plants and expand both its

solar and wind-power sources (in Spain the energy cooperative sector is quite vibrant) is urgent in the short-term and the 2024 deadline should be sped-up. It should cancel all it oil and gas contracts and revoke the legislation that allowed them in the first place. The close energy interconnections between Portugal and Spain can be an important tool for this fast transition. On a further issue, intensive livestock rearing is also an important emitter in Spain whose planned further expansion should be discouraged, as well as the massive industry of tourism.

Morocco's necessarily different pathways includes mostly the need to stabilise emissions fast and start a slower descent, which means a need to transition the old and new coal power plants, blocking any new coal projects, but also rescinding the oil and gas concessions that it has throughout the country. Morocco should receive technological and financial support to further boost its renewable energy sector and create an effective and affordable public transportation system, further expanding its railway lines.

The frictions on any of these actions will reveal the initially identified possible explanations of why under-reaction occurs in climate mitigation. It also resonates with systemic bias on the overwhelming metanarrative of globalised capitalist positivism, which constructs a worldview that ultimately blocks any meaningful move to low carbon transitions.

6.5. Mind the climate policy gap, a guide for immediate policy change and an indicator of metanarrative gap

In the three countries highlighted there is a general acknowledgement of the importance of the issue of climate change and its recognition of it materialised in the formulation of public policies. Two out of these three countries - Portugal and Morocco - are considered climate policy champions, as can be seen in the climate performance indexes and trackers. But even the third country, Spain, can be generally analysed as being in the forefront of countries that address climate change, even if the main driver for its policies is the European Union. We are visualising a vanguard of countries that have developed

complex and sectoral policies for climate change, and that have begun to put climate policies in an important place in terms of government action. These countries have expanded their renewable energy sectors very significantly. Yet, even if these countries were the rule of global climate policy, and even if their emission pledges were absolutely fulfilled, the 2ºC and especially the 1.5ºC targets by 2100 would not be attained. Sadly they are not alone.

These three diverse countries represent diversity in action and decision making, yet they suffer from not only similar problems in the application of their climate policies, but also in the design of these policies. The logic presiding over the mitigation of GHG emissions, the transition process, in particular in the energy sector, even in these highly vulnerable, climate policy vanguard countries, still aims almost exclusively to expand their energy basis in diversified forms, that is, including both fossil fuels and renewable energy. We are confronted with built-in institutional failure. The explanation for these institutional failures is multi-factorial, and the failures are also systematic:

1) There is no institutional arrangement, no political body or regulator to audit and monitor emissions pathways in an integrated way;

2) There are no clear shared visions of low carbon development pathways (such as the Green New Deal or any arrangement of that sort);

3) The urgency of action is mostly not part of public discourse and there is only beginnings of deliverable rhetoric on the climate crisis;

4) There is still an educational hollow, both in schools and everyday life, on the immediate need for this unparalleled fast shift in the economy and everyday life;

There is a growing popular outcry, represented by the Fridays for Future climate strikes, the Extinction Rebellion movement and the global Climate Justice movement mounting pressure for a dramatic shift in public policy, an outcry which is growing steadily and fast.

The climate policy gaps calculated here display the failure to reach 1.5ºC/2ºC emission compatible pathways. There is a power relations barrier of systemic character here: the

continuing political support for the fossil fuels industry, its immense power in international and trade relations, the intertwined connection between energy fluxes and political and economic power, the absolute failure to disconnect economic growth from carbon emissions and the unwillingness to plan a stabilisation of economic output. These overarching arguments are summarised by Klein (2019), while a detailed analysis of the overwhelming and presently unstoppable role of the fossil fuels industry is compellingly outlined by Heede (2019). This is reinforced in a background of global capitalist technopositivist policy framing, which also helps to explain the endemic institutional failures. The climate policy gap is a tool that would enable these movements to demand action on the national level, based on this national mitigation performance assessments, by systematically quantifying the shortcomings in climate policy rather than depending on the level of trust attributed to political discourse.

These graphics can be updated yearly and made public, and could be set as the basis for a legal mandate of emissions' cuts to net zero levels. The identification of the actors and sectors responsible for emissions and liabilities would also be an important lever in deconstructing the power relations that maintain and seek to expand these gaps, as exemplified here.

The climate policy gaps of these three countries confirms the built-in nature of underreaction in climate policy, staving off meaningful action, even in countries that thoroughly recognize the problem. This is a clear manifestation of a metanarrative of globalised capitalist positivism. Addressing the quantified institutional and regulatory failures, both systemic and specific, should form the main guidance for immediate climate policy change and for heightened public engagement and protest.

From a research perspective here is scope for science based public action monitored on an annual basis which projects the manifest public anger over inaction into focussed dialogue with the principal players. This work shows that even now the climate policy gap fulfils this vital purpose. There is a complementary research effort still required to calibrate and refine the methodologies of the climate policy gap as we have intended here so it becomes an indispensable methodologically rigorous tool in the emerging struggle

to cut 50% of global GHG emissions by 2030 and get to net zero by the middle of the century.

Lurking in the policy gap shadows is another looming trouble spot. This is the dilemma of how to shift the dependency of many families and jobs from the carbon emitting activities which characterise the regional economies of these three countries, notably tourism and agriculture, along with inadequately cooled housing with a sustainable set of alternative living patterns which are both socially acceptable and low carbon in delivery. A campaign by climate justice movements and unions in Portugal "Jobs for the Climate" (Empregos para o Clima, 2017) is one of the attempts to address this.

As we have identified the power to produce laws as a tool for identifying a metanarrative, the climate policy gap also represents a gap between the metanarrative of globalised capitalist positivism, whose objective is to maintain an economic and power status quo and a metanarrative of climate justice, whose objective is to stop the climate crisis. The current metanarrative is a force for the maintenance of *status quo*, assuring that nothing relevant, let alone something adequate to maintain global temperatures under the 1.5ºC/2ºC limit, is done. The response to this massive built-in under reaction in climate policy has started to manifest in the form of the growing climate justice movement, the youth climate strikes (Fridays For Future) and Extinction Rebellion.

Chapter 7. Climate Justice: Social bodies and political programs

Ok, on a la rage mais c'est pas celle qui fait baver,
Demande à Fabe, la vie claque comme une semelle sur les pavés
La rage de voir nos buts entravés, de vivre en travers,
la rage gravée depuis bien loin en arrière
La rage d'avoir grandi trop vite, quand des adultes te volent ton enfance.
Pah! Imagine un mur et un bolide
La rage, car impossible est cette paix tant voulue,
La rage de voir autant de CRS armés dans nos rues
La rage de voir ce putain de monde s'auto-détruire
Et que ce soit toujours des innocents au centre des tirs
La rage car c'est l'homme qui a créé chaque mur
S'est barricadé de béton, aurait-il peur de la nature?
La rage car il a oublié qu'il en faisait partie
Désharmonies profondes mais dans quel monde la colombe est partie?
La rage d'être autant balafré par les piquants des normes
Et puis la rage, ouais la rage, d'avoir la rage depuis qu'on est môme.

Parce qu'on a la rage, on restera debout quoi qu'il arrive,
La rage!
D'aller jusqu'au bout et là où veut bien nous mener la vie,
Parce qu'on a la rage on pourra plus se taire ni s'asseoir.
Dorénavant on se tiendra prêt parce qu'on a la rage, le coeur et la foi
Parce qu'on a la rage, on restera debout quoiqu'il arrive
La rage!
D'aller jusqu'au bout de là où veut bien nous mener la vie,
Parce qu'on a la rage rien ne pourra plus nous arrêter
Insoumis, sage, marginal, humaniste ou révolté

La rage parce qu'on choisit rien et qu'on subit tout le temps
Et vu que leurs choix sont bancals et bah tout équilibre fout le camp
La rage car l'irréparable s'entasse depuis un bout de temps
La rage car qu'est ce qu'on attend pour se mettre debout et foutre le boucan?
La rage, c'est tout ce qu'ils nous laissent, t'façon, tout c'qui nous reste
La rage, combien des nôtres finiront par retourner leur veste
La rage de vivre et de vivre l'instant présent
De choisir son futur, libre et sans leur grille d'oppression
La rage, car c'est la merde et que ce monde y adhère
Et parce que tout leurs champs OGM stérilisent la terre
La rage pour qu'un jour l'engrenage soit brisé
Et la rage, car trop lisent "Vérité" sur leur écran télévisé
La rage car ce monde ne nous correspond pas
Nous nourrissent de faux rêves pour placer leurs remparts
La rage car ce monde ne nous correspond pas
Où Babylone s'engraisse pendant qu'on crève en bas!

La rage car ce monde voit rouge mais de grisaille s'entoure
Et parce qu'ils n'entendent jamais les cris lorsque le sang coule
La rage, car c'est le pire que nous frôlons
La rage, car l'occident n'a toujours pas ôté sa tenue de colon
La rage car le mal tape sans cesse trop
Et que ne sont plus mis au goût du jour tant de grands savoirs ancestraux
La rage, trop de mensonges et de secrets gardés
L'élite de nos Etats, riche de vérité pouvant changer l'humanité
La rage, car ils ne veulent pas que ça change hein
Préférant garder leurs pouvoirs et nous manipuler comme leurs engins
La rage, parce qu'on croit aux anges
Et qu'on a choisi de marcher avec eux
La rage parce que mes propos dérangent
Vois aux quatre coins du globe, la rage du peuple en ébullition
La rage, ouais la rage, ou l'essence de la révolution

Keny Arkana, La Rage

We have now seen important indications through the enquiries and through the climate policy gaps that an essential contradiction exists in developing public policy on climate change, a criterion early defined as “the power to produce laws”. This contradiction is acknowledged by different stakeholders connected to the issue of climate change, be them local politicians, companies or social movements’ activists. This contradiction can be quantified through tools such as the climate policy gap. There are significant signs of oscillating metanarratives because of climate change. There is also a clear identification that climate change will be very important in the future history for humanity. An important part of the growing oscillation of the metanarrative of globalised capitalist positivism is the emergence of powerful social movements that may constitute the social and political body of a metanarrative of climate justice.

Here I evaluate how the main bodies fighting today on climate justice - Blockadia, the “older” climate justice international movement, Youth Climate Strikes and Extinction Rebellion - are bearers of fundamental elements for a climate justice metanarrative, namely social justice, the need to drastically shift capitalist-embedded politics, a culture of care and the acknowledgement of Earth’s natural limits. Finally, I will look to political programs - which in many regards are the public expression of what effective climate policy should be - that have already come to public on climate change: the Green New Deal and Climate Jobs. A summarised version of this chapter was published in the scientific journal Ecología Politica, number 58, under the title “Freno al colapso inminente: el movimiento por la justicia climática, los revolucionarios de Walter Benjamin” (Camargo, 2019b).

7.1 Social bodies for a climate justice metanarrative

7.1.1 Blockadia

It is certainly difficult to clearly delineate which struggles are for climate justice, as different motivations, different approaches to power, tactics and strategies can apply to

struggles that can be local, national, regional, theme-oriented, or simply interpreted as part of climate justice. To connect different struggles on climate change and social justice is a strategical landmark for the possibility of a climate justice metanarrative, joining migrants or refugees with workers and students, landless peasants with environmentalists, indigenous communities with feminists, but there are very important movements now exclusively focused on climate justice, with a broad scope of actions and political programs. Here I will focus on the more "traditional" climate justice movement, and specifically on its more radical and action-oriented part, named 'Blockadia' by Naomi Klein in "This Changes Everything", and finally on the more recent Youth Climate Strikes (Fridays for Future - FFF) and Extinction Rebellion (XR).

The traditional climate justice movement with that concrete name has been constituted on an institutional basis, namely grounding most of its action on international pressure connected to the yearly Conference of Parties from the IPCC. Although most NGOs and movements that participated in this movement had their own national and international agendas (such as Greenpeace, Friends of the Earth or Avaaz, and platforms such as the Climate Action Network - CAN) connected to climate change and other environmental issues, the yearly participation in the negotiations for climate agreements was central for the development of the identity of climate justice, but the surrounding environment of negotiation with governments and private companies conditioned it and watered down the most advanced proposals, the ones made by the traditional climate justice movement, the more radical part of the COP process. Successive failures and institutionalised failures in the international negotiations, such as the Kyoto Protocol or the 2009 COP in Copenhagen that led to a collapse in international climate negotiations after the financial crisis, opened a previously existent rift in the movement, between more institutionalised organisations, that still reluctantly trust the negotiation processes (WWF, Reseau Action Climat, Legambiente, Oxfam, RSPB, CAN), and more grassroots and direct action groups, that have, since 2009 but specially after the Paris Agreement in 2015, set their strategic goals outside institutional arrangements and into civil disobedience and non-violent direct action (the platform Climate Justice Action, 350.org, Ende Gelaende,

Reclaim the Power, Climáximo). Some groups stayed in the middle ground, participating in both approaches.

Another important part of the climate justice movement started developing in the frontlines of environmental and climate struggles, in what Naomi Klein called "Blockadia": "Resistance to high-risk extreme extraction is building a global, grassroots, and broad-based network the likes of which the environmental movement has rarely seen. And perhaps this phenomenon shouldn't even be referred to as an environmental movement at all, since it is primarily driven by desire for a deeper form of democracy, one that provides communities with real control over those resources that are most critical to collective survival - the health of the water, air, and soil. In the process, these place-based stands are stopping real climate crimes in progress" (Klein, 2014, p. 295).

Blockadia is mostly based on rural communities, indigenous peoples and an important solidarity network from the traditional climate justice movement. I define the part of the traditional climate justice movement that has set its strategic goals outside institutional arrangements and focusing on civil disobedience and non-violent direct action as part of Blockadia. The struggles against fracking all around the world have seen peasants and farmers blocking infrastructure building in the USA, in Europe, in South America and Africa. The opposition to tar sands exploitation in northern Canada has been led by farmers and indigenous tribes, while the construction of pipelines for gas and oil have mobilised thousands in the USA and Canada, with effective blockades of both the Keystone XL pipeline and the Dakota Access Pipeline, by the Standing Rock mostly indigenous movement. Coal projects have been blocked throughout Southeast Asia, but are still strongly opposed in Australia, where the struggle against the Adani Carmichael coal mine is now a national coalition of indigenous peoples, farmers and youth climate strikers. The frontlines of the climate justice movement are the grassroots struggles, locally based and building broad coalitions and solidarity of different movements, including indigenous peoples, environmentalists, "local development" movements and progressives in general. The political and action tools of Blockadia are varied, but civil disobedi-

ence and non-violent direct action are at the center, a step forward in the intensification of climate struggles.

In Europe, Ende Gelaende now represents a different point of Blockadia: this coalition is not only opposing the opening of coal mines in Germany, but rather it is doing mass civil disobedience and direct action to shut down the existing coal mines, with a focus on the Rhineland area. They identify themselves in their website as a "broad alliance of people from the anti-nuclear and anti-coal movements, the Rhineland and Lausitz climate camps and the Hambacher Forest anti-coal campaign (…) from grassroots climate action groups, large environmental organisations, left-wing political groups and many other campaigns, groups and networks.". Ende Gelaende mobilises thousands of people from all over Germany and across Europe, converging in one or two yearly mass mobilisations that always include mass civil disobedience, usually the invasion of coal mines, coal power plants and coal infrastructure in general, for up to several days, directly disrupting the business-as-usual of coal giants such as RWE. The political process of organising these mass mobilisations includes consensus building, action consensus, training, logistics and a culture of care and support inside the movement and participants, that has provided Ende Gelaende with an ever expanding number of participants and trainers. This has also led to the reproduction of these types of actions and organisation into other countries and struggles (against gas, against port infrastructures, against ports and airports).

Close to Blockadia are other networks such as Stay Grounded, that has opposed airport expansion all around the world, mostly on the issue of the increase of climate emissions directly connected to the aviation industry. They support alternative transportation modes, a reduction of aviation, its negative impacts and also the aviation offset projects and biofuel plantations. Growingly other groups and networks have formed on specific issues connected to climate change, namely gas expansion (Gastivists), mass tourism with cruise ships and gentrification. Many of these groups are allied in different platforms, as well as with other platforms connected to housing, conservation issues, agri-

cultural groups, consumer groups, local production and fair trade, among others. More and more groups are adopting civil disobedience tactics, close to those of Blockadia.

7.1.1.1 By 2020 We Rise Up

By 2020 We Rise Up is a platform of over 30 climate justice grassroots groups and platforms based in Europe, aimed at a short-term escalation in confrontation regarding climate action, striving to create a strategic and coordinated uprising. It includes groups and platforms I have referred before, such as Ende Gelaende, Stay Grounded, Gastivists, Climáximo (Portugal), Ecologistas en Acción (Spain), System Change not Climate Change (Austria), Breakfree Suisse, Fossil Free Agriculture, among others (all can be seen at by2020weriseup.net). It is based on the call “Turning the Tide 2020 - Streaming towards Climate Justice”, and tactically it looks to mimic the Ende Gelaende mass actions of civil disobedience in different places all around Europe, defending a long-term escalation of action on climate justice and system change. In 2019 it launched with different decentralised actions on regional context by the members of the platform (coinciding with the 20-27th Global Climate Strike) and in 2020 it calls for a common uprising, of waves of coordinated mass actions on pipelines, harbours, airports, coal-mines, agro-industry, banks, arms factories and borders. It is a self-declared massive and non-violent uprising against the "economic model that has many losers and that destroys the very natural foundations life on Earth depends on”. Its goals are:

- Empower ourselves as civil societies to take collective action at unprecedented levels to respond to the challenge of the 1.5 degree upper limit.
- Take immediate and decisive steps to end the fossil fuel era now.
- An emancipatory transition overcoming systemic injustices, towards societies based on relations of mutual care and solidarity.
- Societies respecting planetary boundaries, which recognize themselves as part of nature.

By 2020 We Rise Up has a clear and public narrative that expresses one of the ways Blockadia is evolving in Europe: “Throughout the autumn of 2018 we came together around marches and meetings, we looked around us and saw new faces, more than ever before. Change was coming.

Following a scorching summer, climate change made it to the top of the news. Scientists’ cries became ever more urgent with every passing year and were finally starting to be heard. Even some officials started telling the truth. New movements were springing up; people who had never demonstrated before would bring their kids and parents to climate marches. The young and the old looked at each other, and there was a spark of recognition, a thought: we are all in this together. We can be complementary. We are the ones we’ve been waiting for. Now, let’s plan to win this fight.

For several months, groups and people talked to one another. Bridged long-standing gaps. Wrapped their heads around questions of strategy and coordination. We understood that our diversity was the key to bring about real change, not just a new cosmetic adjustment within the old exploitative system. We called, we met, we sat together, we agreed, we disagreed: we planned.

At first, we thought we would have to push for a turning point to happen in 2020, for we thought we would never be ready in 2019. But through the first months of this very same year, we realised that it would be too late if we took yet another 12 months. We no longer had the luxury of time. And then a question formed at the back of our minds: did we even need that kind of time? Or were we actually, finally, … ready? Ready with experience, ready in numbers, ready with determination and resolve. Would we be more ready, stronger within a year? No, we wouldn’t. We would only be taking a major risk: missing what felt like a turning point in numbers, consciousness and action. Decades of work had brought us to that point. It felt time to turn this hard-won experience and strength into a winning strategy.

That's when the idea of the waves took shape. Because, so far, a single day or week hadn't proven to be enough. We had tried demonstrations, petitions, mass actions… but the system had always been able to ignore our cry for justice and life and keep going with "business as usual". The factory farms, the luxury cruises, the Black Fridays… all were left untouched. So we had to come up with a plan to scale up pressure, to ensure to the best of our capacities and intelligence that the system would come to a complete halt. And we have the power to do that because we are the ones who make the system work – not the political and economic decision-makers." (By 2020 We Rise Up, 2019).

7.1.2 Extinction Rebellion (XR)

British movement Extinction Rebellion (XR) officially began on the 31st of October 2018, with the reading by over 1500 people of a "Declaration of Rebellion" against the UK Government in front of the British Parliament. The movement called for a peaceful insurgence against climate inaction. In the weeks afterwards, XR organised the block of five major bridges in London, the block of ministerial departments, Buckingham Palace and other notorious and public spaces.

I believe that XRs appearance and tactics derive from an analysis of lack of dialectics in the climate change movement and facing climate degradation, with its appearance pushing for a rapid escalation of confrontation in face of the climate crisis.

According to their website, XRs philosophy is that of nonviolent civil disobedience, promoted due to the need of fast shifts in society: "we are asking people to find their courage and to collectively do what is necessary to bring change". It is also "above the ground" civil disobedience, that is, in full public view, to reach economic disruption and "to shake the current political system and civil disruption to raise awareness". The actions, done in public view and taken full responsibility of, are done through a public Action Consensus (that also exists in Ende Gelaende) that outlines how people should work together in actions.

XR's structure is organised to allow for as many participants as possible, acting as a part of XR, as long as they agree on ten core principles:

1. We have a shared vision of change: Creating a world that is fit for the next 7 generations to live in.
2. We set our mission on what is necessary: Mobilising 3.5% of the population to achieve system change – such as "Momentum-driven organising" to achieve this.
3. We need a regenerative culture: Creating a culture which is healthy, resilient and adaptable.
4. We openly challenge ourselves and this toxic system: Leaving our comfort zones to take action for change.
5. We value reflecting and learning: Following a cycle of action, reflection, learning, and planning for more action. Learning from other movements and contexts as well as our own experiences.
6. We welcome everyone and every part of everyone: Working actively to create safer and more accessible spaces.
7. We actively mitigate for power: Breaking down hierarchies of power for more equitable participation
8. We avoid blaming and shaming: We live in a toxic system, but no one individual is to blame.
9. We are a non-violent network: Using nonviolent strategy and tactics as the most effective way to bring about change.
10. We are based on autonomy and decentralisation: We collectively create the structures we need to challenge power.

XR seeks a balance between acting fast to shifting situations while being able to integrate the collective wisdom of multiple perspectives when needed. It focused all its political activity into three demands in the UK:

1. Tell the Truth: Government must tell the truth by declaring a climate and ecological emergency, working with other institutions to communicate the urgency for change.

2. Act now: Government must act now to halt biodiversity loss and reduce greenhouse gas emissions to net zero by 2025.
3. Beyond politics: Government must create and be led by the decisions of a Citizens' Assembly on climate and ecological justice.

In little time, XR went international, although the most organised expression of it is still focused in the UK. It started to define itself as "an international apolitical network using non-violent direct action to persuade governments to act on the Climate and Ecological Emergency.".

There are many interesting and new things about XR, when compared to previous movements: although what is most noticeable is the magnitude of actions of civil disobedience (which may have reached in some days over 10 thousand participants), other issues are equally noteworthy - the issue of emergency, the theories of momentum-driven mobilisation, the explicit call for personal sacrifice and the culture of care and reflection (regenerative culture).

The issue of emergency inside the movement and the call for a systematic change - although XR rarely - if ever - mentions the word "capitalism" - is not vague and XR is not based on local struggles such as much of Blockadia is. Momentum-driven organisation and mobilisation is theoretically based on Ghandi and Martin Luther King's civil disobedience campaigns, intended on approaching mass protests strategically, to spark and maintain periods of mass defiance through well planned, disciplined and flexible formation of cadres and groups that can multiply themselves autonomously, aimed at creating the persistent mobilisation than can overturn seemingly immobile power structures. It follows a very technocratic approach on what is necessary to overthrow power, with the 3,5% of the population number used quite frequently, based on a study published by Chenoweth and Stephan's book "Why Civil Resistance Works - The Strategic Logic of Nonviolent Conflict" (Chenoweth and Stephan, 2012). Public civil disobedience through blocks and occupations is a direct challenge to public order and so the need for those who engage in them to be prepared for some personal sacrifice is clearly present,

in an appeal that is basically contrary to the individualistic approach of self-preservation at all costs that supposedly is a golden rule in western societies. In fact, many activists are now facing consequences for these actions which is also an important challenge to institutions, as the police and courts (as well as governments) are faced with deep questions, such as: is it allowed to disrupt public order in order to safeguard the future of humanity? Which laws take precedence in an unprecedented situation? Property protection or survival? Should order be maintained if the persistence of said order is the guarantee of collapse? Disruption in not an unintended consequence of the movement, it is its objective.

The proposal of the creation of randomly chosen "Citizens' assemblies" whose decisions should lead governmental action on climate change, paired with wording such as "Beyond politics" and "apolitical" are enigmatic, considering the rest of its clearly political stances and its disruptive attitude towards power and its very clear purpose on emissions cuts (net zero 2025). There seems to be a genuine interest in pursuing the citizen's assemblies, composed of randomly chosen individuals that would represent the diversity in British society (therefore diluting non-representative power structures, such as economical, race, gender and party) and whose decisions, after expert advice, would be implemented by government and supervised by citizen's assemblies. This proposal is based on some previous experiences with this type of mechanism, namely in Gdansk (Poland) where a local random citizen assembly debated policy on flood mitigation, with a decision by local authorities to automatically implement any recommendation with over 80% of support from the assembly, or in Ireland, where Citizens' Assembly broke the deadlock in legalising same-sex marriage and repealed the ban on abortion. It is clearly a critique of parliamentary democracy and the electoral cycles, the influence of lobbies and corporations on political parties, the media and opinion polls. Although this distrust is justifiable, in my regards it falls into a technocratic approach to politics and ideology, the view that there is a problem in the systems' rules, rather then a problem in the system itself, as well as a measure of aversion with regards to power itself.

Through other perspective, I see the enunciation of its three demands as instrumental in movement building, with a more pragmatic than programatic approach. The first demand, the declaration of a climate emergency, has been achieved in the UK and in many other countries (it also became a demand from the whole of the climate justice movement), and was a rather “easy" to obtain victory, as it has been declared without any mandatory consequences affixed to it. The second demand, reducing greenhouse gas emissions to net-zero by 2025 is politically impossible in capitalism (act to halt biodiversity loss is non binding). The third demand, setting up Citizens’ Assembly to guarantee the second demand, seems to point a way into the old revolutionary tactics of double power and creating the possibility of emptying the existing power structures. The refusal of the 2nd and 3rd demands may be strategical in providing further openings for the movement.

With its disruption, XR has drawn critiques, namely because of its most advocated tactics, that are perceived as confined to socially privileged groups that can afford to be almost full-time engaged in this kind of activism, that can afford to be arrested, excluding in some measure less the participation of poorer people, immigrants, black, brown communities and women with children. Another critique relates to a somewhat dogmatic approach to civil disobedience, the studies it based its theories on, and the extrapolation of the tactics used by movements and campaigns mainly in repressive contexts and led by oppressed grassroots groups (Ahmed, 2019). Ahmed claims there is cherry-picking of data of worldwide struggles of people of colour and a wrong interpretation of violent struggles as non-violent.

The core principals of XR try to address these issues but it is not clear how they effectively do. In its Rebellion Week declaration, in April 2019, XR affirmed that “we will not allow the degenerative dominant culture to persistently mine/deplete us and the earth and in it’s wake we are planting the seeds of a Regenerative, Nourishing Culture!” with the creation of spaces for the development of this culture:

- The Skill of Brokenheartedness in the wake of XR – for those of you stirred, bereft, lost, angry, longing, unsettled, heartbroken, raw, unsure;

- Post-Action Debrief and talking circles – This is to provide safe space for honest expression of our emotions, to connect with each other, and respond to our needs;
- Debrief and mutual support for local Regen Culture coords/supporters – Space for us to come together and reflect on our experiences and support each other with our shared wisdom and skills;
- Talking circles;
- Buddy guide;
- Burnout and post-arrest support;
- Emotional Wellbeing Regional and National support networks for rebels, buddies and regen coordinators.

This express and explicit approach as built-in to actions is very relevant and it also opens space for other types of participation, both on support and care teams close to the action and on other types of support outside it. It does not respond to all criticism, but it is undeniably relevant.

7.1.3 Youth Climate Strikes / Fridays for Future

The climate strikes are both a tactic and a movement. These strikes have focused initially in youth, with university, high school and younger students organising the first two global youth strikes in March 15th and April 24th, after 15-year-old Swedish student-Greta Thunberg gained notoriety for her climate strike for climate action every Friday in front of her countries' parliament, in Stockholm. These two global events were of massive scale, both times exceeding one million participants in more than a hundred countries all around the world. The biggest mobilisations and actions were based in the richest countries - Europe, USA, Canada, Australia and New Zealand, - but some countries in the Global South also had expressive mobilisations. These were likely the biggest youth protests since May 1968 and certainly the biggest climate justice mobilisations ever. As a rule, the whole of the climate justice movement supported these strikes, mo-

bilising and participating in it, through various forms, namely street marches that gathered hundreds of thousands in the streets.

This is and was a very decentralised movement, with different tactics for mobilising and striking, with different political platforms adjusted to local and national contexts, with various concreted demands on the smaller contexts, but a broader demand directly connected to the Paris Agreement and the COP 1.5ºC Report: Keep It In The Ground (no new fossil fuel projects), 50% greenhouse gas emissions cut by 2030 and social justice in obtaining these purposes. Later they would take up the call for declarations of climate emergency, from Extinction Rebellion. There isn't a clear international coordination, although there are frequent partial international meetings. Greta Thunberg still plays a very relevant role in the movement, not as coordinator or leader, but as the most notorious participant, gaining extensive media coverage.

National and local youth climate strikes, that in many countries designate themselves as "Fridays for Future", have held local or national student climate strikes, have connected to other struggles and movements (in Germany, Fridays for Future participated in Ende Gelaende's summer action in the Garzweiler coal open pit mine, in Australia they have focused on the Adani Carmichael coal mine struggle).

In August 2019, European representatives from the youth strikes from 38 countries met in Lausanne, Switzerland, and issued the "Lausanne Climate Declaration", expressing their common demands:

1. Keep the global temperature rise below 1.5 °C compared to pre-industrial levels.
2. Ensure climate justice and equity.
3. Listen to the best united science currently available.

The declaration expressed adherence to the principles of non-violence and transparency, horizontality in decision-making, against all forms of discrimination (racism, sexism, xenophobia, ableism, discrimination against LGBTQIA+ people), against fascism and

actively working to challenge hate speech, against judgement based on their current abilities or skills, especially regarding environmental behaviour, but encouraging to further learn inside current social contexts. In their declaration of purposes, they "recognize that the problems of the climate crisis we are facing today come from flaws in our socio-economic system, change is needed." and highlight that "Social justice is an important value of our movement and social justice knows no borders. In combating the climate crisis we must support the ones who are the most affected and thus vulnerable. We show solidarity to all affected by the climate crisis." (Lausanne Climate Declaration, 2019). It affirmed the autonomy and self-management of local and national branches, but important parts of the document, such as Structure and Possible Starting Points were not consensual, and even if they were, it would only represent the European part of the movement. Different countries have developed different youth climate strike movements, with more or less ambitious manifestos, demands and goals, and also with the adoption of different tactics (beyond the commonly shared use of the climate strike).

In May, the movement announced the call for a Global Climate Strike in September, to coincide with a New York Summit on Climate Change organised by the Secretary-General of the United Nations, António Guterres. This strategical step, calling on labour unions to join the youth movement on a climate strike echoes the May 1968 alliance of students and workers that shook France, and it puts pressure on adults to participate in mass climate protests, and specially on the workers movements, to leave the sidelines of its now almost universal tactic of strict trade unionism struggle for economic reasons, and adopt the acutest tool of struggle - the general strike - for political (and obviously also economic) reasons. Although workers' support was not expressive, the Global Climate Strike represented an important alliance between the Youth Climate Strikes and Blockadia and, from the 20th to the 27th September, it is estimated that 7 to 8 million people in over 6000 actions in 185 countries took part, making it the most groundbreaking and participated action in the climate justice movement ever.

2019 is the year in which the climate justice accelerated like never before. The intersections and interconnections between the "traditional" climate justice movement, Blocka-

dia, Extinction Rebellion and the Youth Climate Strike are permanent and participation in all of them is not rare. There is a critical social and political body developing in the heat of this struggle, with tens of thousand of organisers, hundreds of thousand mobilised and millions of participants. It is also necessary to mention that XR and to some extent the Youth Climate Strikes are western phenomena while Blockadia is more international - this issue is not irrelevant as the need to break the barrier of massive actions into Asia, Africa and South American will be determinant for the future.

7.2 Political Programs

There is no climate justice political party, but political parties are trying to adapt, reproducing their worldview into climate change reality, but climate change is not the central issue in the strongest parties now in the world (although Democrats in the USA, Labour in the UK and other leftwing and green parties seem to be trying to catch up). This is a clear reflection of the influence of the metanarrative of globalised capitalist positivism, and important advances recently occurred, either by opportunism or by genuine adoption of urgency, are a reflection of the new expressions of a new climate justice metanarrative, its social and political bodies - Blockadia, Youth Climate Strikes and Extinction Rebellion.

7.2.1 Green New Deal

The idea of a Green New Deal (GND), much like different new “New Deals” that have been promised or proposed since the end of World War II, is quite abstract. New Deals have been invoked many times by different political forces aiming at shifts away from dominant policies, but they stand to represent more of a brand or feeling than a concrete policy. Specially in the West, there is a spectrum of alliance between greens, liberals and socialists (and democrats in the USA) that can and does propose some type of GND, but its appealing name holds no concrete action. In the Democratic Party’s primary for the 2020 presidential election in the US, all candidates proposed GNDs, but quite clearly,

they represent different things and are often contradictory with each other. In Europe, some political parties are looking at climate change instrumentally, and into the idea of a GND as a possible escape route from the debates on austerity, migration and the ascension of the far-right. Electoral gains by green parties in the 2019 elections for the European Parliament further added to the appeal of some cross-sectoral policy on climate change, with center parties approaching some form of GND.

The idea of a GND can be just as vague as that of Climate Emergency, although they both sound quite thunderous. In Canada, the government declared a climate emergency and the following day it approved the construction of a massive tar sands oil pipeline. I believe this happens because the social and political body providing unequivocal guidance to such policies (despite the scientific body, specially since the IPCC 1.5ºC Report, has been much clearer) is still growing, learning and radicalising. It also happens as the climate justice movement does not yet have enough clarity to see through the declared “ambitions" of political realism. The climate strike movement is based on Greta Thunberg’s speeches and words, but it doesn’t and could hardly be as radical and focused as she is. But even this is rapidly changing, with the increasing connection of the new political actors (specially the youth) to the historical vindications of Blockadia.

A look of what the original New Deal was is relevant to understand how a policy such as a GND can be effective and a mobilising tool for the movement and for a climate justice metanarrative.

Franklin Delano Roosevelt (FDR) was elected president of the United States of America in 1932 on the promise of addressing the dire social and economic situation in the US after the 1929 financial crash. The New Deal was not a coherent and unified program, but rather the sum of a long govern by FDR, an ensemble of institutions, public works, and new legislation across all economic sectors. When Roosevelt was elected he compared the present situation to "a war” and responded with a political program of stabilising the financial system, providing support and employment and relaunching American capitalism.

To control an out of control banking system, he approved the Securities Act and the Glass-Steagall Act, dividing commercial banking from investment banking and imposing a tight regulation on financial markets. Fannie Mae, the federal administration for mortgages, was constituted, as well as a Federal Administration for Housing. Wall Street lost a lot of its strength over the US economy, with financial and real estate speculation taking a dive. To support millions of poor workers and unemployed people the Federal Emergency Relief Administration was created. The government employed millions in different types of jobs: a Civil Conservation Body was created to plant trees, build bridges and clean beaches; Rural Electrification Administration brought electricity to the entire country, the Soil Conservation Service provided formation for hundreds of thousands of farmers to change agricultural practices that were leading to soil degradation. The National Industrial Recuperation Act introduced mass scale economic planning, changed labour legislation and consumer rights, promoting collective bargaining and the formation of labour unions. Under this act, two Administrations were created: the Public Works Administration and the National Recovery Administration. Under the National Industrial Recuperation Act, the Golden Gate Bridge in San Francisco, the Hoover Dam, the Laguardia Airport in New York, as well has hundreds of massive public works were conducted, dozens of thousands of houses were built, over 11 thousand roads and thousands of schools and hospitals also. But the National Recovery Administration was the initiative that Roosevelt's most valued: its was an alliance between government, workers and private companies to eliminate wild competition and stop cuts on costs, imposing a minimum wage, a maximum work week of 35 to 45 hours, abolishing child labour, creating "fair practices" codes, imposing price controls an production standards. Private companies reluctantly accepted, but in time they started to dismiss everything that was not binding. On his second government, the second phase of FDR's New Deal began, with increased taxation over the wealthy and introduction of property taxes, a reorganisation of the executive power and the creation of a Social Security system.

The New Deal was by no means consensual in North-American society. The richest opposed it by many different means and Roosevelt was accused of being a communist, a fascist, and authoritarian and a populist. Each proposal, each legislation, each administration was contested in the courts, in the House of Representatives and in the Senate (where the Democrats were the clear majority by this time). Through provisions and acts, FDR supported the labour movement which became one of his main allies. By strengthening labour rights and creating millions of jobs, Roosevelt's Democrats also created a social and political body to sustain the New Deal program. Simultaneously, workers organisations increased massively, with more bargaining power than before. The New Deal was not only a political program or an electoral program, it was a social process. Its difficult to argue against its success: the economic recuperation was extraordinary, with an increase in living standards for the working class and the establishment of public infrastructures, rights and guarantees that still exist today. The New Deal strangled the far-right in the United States and Roosevelt saved North-American capitalism by taking power away from the big capital owners. By the end of the decade cuts began in the programs and the administrations, which led to a rise in unemployment. The previous alliance was beginning to fade. But World War II was already on the horizon and the economic mobilisation for it extended most of the New Deal's effects in time. The New Deal was a short lived political program of huge spectrum, with immense impact and a political and social body of support, than was continued by the introduction of war economy right after it, with industrial military output centrally planned and product standards, wages and speed of production controlled by the government. The New Deal was the most practical example of advanced Keynesianism, producing a highly regulated form of capitalism, focused on increased industrial output through the injection of capital in diversified forms of public works programs. Its success was strictly dependent on economic growth, which it unequivocally achieved.

The most concrete proposal on a GND currently discussed was presented by Alexandria Ocasio-Córtez, congresswoman in the USA, and by Senator Edward Markey, with seven main proposals in order to achieve 50% GHG emission cuts by 2030:

1. Shift 100% of national power generation to renewable sources;

2. Build a national energy-efficient "smart" grid.
3. Upgrade all buildings to become energy efficient.
4. Decarbonise manufacturing and agricultural industries.
5. Decarbonise, repair, and upgrade the nation's infrastructure, especially transportation.
6. Fund massive investment in the drawdown and capture of greenhouse gases.
7. Adopting these goals would make "green" technology, industry, expertise, products, and services a major U.S. export. As a result, America could become an international leader in helping other countries transition to completely carbon-neutral economies.

Ocasio-Cortez and Markey's GND intends to create millions of jobs in the decarbonisation of the American economy "to achieve net-zero greenhouse gas emissions through a fair and just transition for all communities and workers"; "accomplished through a 10-year national mobilisation". It intends to spur "massive growth in clean manufacturing in the United States and removing pollution and greenhouse gas emissions from manufacturing and industry as much as is technologically feasible", and overhaul "transportation systems in the United States to remove pollution and greenhouse gas emissions from the transportation sector as much as is technologically feasible". The way in which this is achieved is defined as "ensuring that the GND mobilisation creates high-quality union jobs that pay prevailing wages, hires local workers, offers training and advancement opportunities, and guarantees wage and benefit parity for workers affected by the transition", grasping the current crisis also as an "historic opportunity" to "create millions of good, high-wage jobs in the United States; to provide unprecedented levels of prosperity and economic security for all people of the United States; and to counteract systemic injustices". As such this proposal for a GND also expressly declares its aim of "providing all people of the United States with high-quality health care, affordable, safe, and adequate housing; economic security; and access to clean water, clean air, healthy and affordable food, and nature.".

Ocasio-Cortez and Markey's proposal strongly resonates with Roosevelt's GND, namely through its intention of mobilising and creating a political and social body, also strongly anchored in trade unions and strengthening of workers and poorer people's

rights, namely by trying to guarantee a broad spectrum of new economic rights such as health care, housing, food and a clean environment.

Some critiques of this proposal focus on the absence of any reference to the destiny of the fossil fuel industry - the United States being the world's first producer of oil and gas, and the second producer of coal -, the vague approach on how the USA would maintain its international trade system with other countries, if it would produce a new moment of massive "carbon leakage" of its industry into poorer countries, how the capital and technology necessary for this transition would be made available for this effort and how the country would coordinate the GND with other countries as the international dimension of climate change is unsurpassable. From center and right-wing criticism, the issue was the huge cost estimated, the ambitious time frame (the only one compatible with climate science), the absence of any reference to market tools such as the carbon tax and, of course, of ushering socialism as it proposes massive public spending.

After this version (which was not the first one), in the United States other democrats proposed different proposals, with less science-oriented goals, such as Andrew Cuomo's (to have electric generation carbon free by 2040), Beto O'Rourke's (create a federal law to have the US reach zero carbon emissions by 2050), Jay Inslee's (national net-zero carbon emissions by 2050).

More recently, Bernie Sanders presented a new GND proposal, pushing for decarbonisation of energy and transport by 2030, and full decarbonisation by 2050, affirming the culpability of the fossil fuel industry, phasing out fossil fuels and holding fossil fuel executives who have delayed climate action responsible accountable (pursuing civil and criminal lawsuits in a manner similar to the cases brought against tobacco companies for covering up data on smoking and lung cancer), creating 20 million new jobs and a comprehensive plan for a just transition for fossil fuel workers, including a wage guarantee and pension support. Sanders' proposal includes a ban on imports and exports of oil and gas, a ban on mountaintop mining and fracking, and a moratorium on permits to drill on public lands. In terms of distribution of power, Sanders' GND proposes the cre-

ation of new public federal and state agencies to produce and distribute publicly owned clean power, encouraging the formation of municipal energy utilities, as well as cooperatively-owned utilities with democratic and public ownership, financing communities to control their energy. This proposal also addresses the issue of international trade and relations, by proposing a 71% cut in domestic emissions by 2030 accompanied by a 36% cut in less industrialised countries by the same year, pledging 200 billion dollars to the Green Climate Fund. A relevant source of income for Sanders' GND estimated cost of $1.215 trillion would be the shut down of military spenditure in protecting the global oil supply.

The political struggle and the struggle for metanarrative happens on every stage, on every proposal, on every wording of possible solutions. There's nothing automatic about a political program only because it is called "green". The different political programs that can be raised around the idea of Green New Deal can be effective or not in addressing the dire situations we are in - Bernie Sanders' proposal might be enough, others are mostly out of line with the climate justice movements and with climate science, failing to challenge power structures and power relations in the capitalist system of production. Mostly the GND proposals are based in the USA, as the original New Deal, but other parties in countries such as Australia, Canada or the UK also have their proposals. One main issue is that China, the world's number one GHG emitter, rather than a GND, is pushing for a new type of Marshall Plan, the Belt and Road Initiative, focused on stimulating fossil fuel and infrastructural industrialisation in poorer countries, much as Europe and the USA once did with China.

A Green New Deal can be a sound political program for a climate justice metanarrative, but for that to be, it needs to integrate not only clear science-based objectives, but also massive mobilisation and the reinforcement of the political and social bodies to sustain it, overthrowing existing capitalist power structures and abdicating the notion of the continuing growth of industrialised countries (as, for questions of justice, there is still the need for some growth in poorer countries, rich countries need to further plan their degrowth, with new jobs being based on use value rather than on exchange value, which

will likely require the creation of new currencies and international organisations for this).

7.2.2 Climate Jobs

The international climate jobs campaigns is a grassroots based effort of establishing clear bridges between the climate justice movement and workers movements. It currently exists in ten countries - United Kingdom, United States, South Africa, Canada, France, Norway, Portugal, Mauritius, Philippines and Slovenia. It is anchored on the notion of Just Transition, which is a feature of international labour unions worldwide, aimed at assuring workers' rights and livelihoods in the shift to a new economic and energy model. The term "Just Transition" is even included in the preamble of the Paris Agreement.

The campaigns vary from country to country, but usually correspond to a coalition of climate justice groups, environmentalist groups, trade unions and other workers organisations, faith groups and academia. According to its website (globalclimatejobs.org), "About three quarters of the warming of the world comes directly from burning fossil fuels – coal, oil and gas. To hold back climate change, we need to stop burning those fuels. To do that, we need to have another way to heat and power the world. So we need to:

- Cover the world with renewable energy like wind and solar power to make all our electricity.
- Switch from cars and to buses and trains, and run almost all transport on renewable energy.
- Insulate and convert all homes and buildings to use less energy and to heat with renewable energy.
- Convert and redesign industry to use less energy and to use renewable electricity wherever possible."

For the execution of such proposals, it will require a massive creation of jobs, estimated by the campaign at about 150 million jobs globally per year, for at least twenty years, mostly in the sectors of renewable energy, construction and transports. Other areas are where the remaining global emissions come from - namely farming, forestry and land use change in general. There is a clear distinction from "green jobs", as climate jobs are based in four main characteristics:

- They need to effectively cut emissions (other jobs, in park conservation per example, are not climate jobs);
- They are new jobs, that is, not those currently existing in sectors such as public transport and renewables
- They are public jobs, they are not merely a response to market *stimuli* or investment opportunities, but based on governmental programs to start effective immediate, all hired within a year
- They are dignified, non-precarious jobs with full respect for the best labour practices, and they will be guaranteed priority to by workers in the sectors most affected by the transition - fossil fuels, dirty transports and such.

The campaign is also based on the notion of energy democracy, a shift away from the current power structure in energy systems worldwide, away from massive and centralized energy systems mostly based on fossil fuels and a transition into a public and/or socially owned energy system, designed and managed to satisfy populations real needs and without degrading the environment, with a decentralized and local production approach, aimed at improving local communities and economies. Trade Unions for Energy Democracy, a platform of trade unions and research centres is an important actor on this issue, and also engaged in the climate jobs campaigns.

The Portuguese campaign's second report puts the climate jobs campaign right in the middle of two crises - the recurrent crisis of employment and labor precarity and the climate crisis, with its most visible expression being the refugee crisis - setting the origin of both in the capitalist system of production (Empregos para o Clima, 2017). Historically, both these crisis have been fought by socially opposed rhetorics: workers (fight-

ing for jobs and economic growth) and environmentalists (calling for cuts and sacrifices in the name of the environment). The campaign claims it is not possible to solve climate change through a sacrificial perspective, as the cuts compatible with climate science are simply too big to be absorbed in the current system, they would guarantee the absolute and permanent impoverishment of poorer classes. Against austerity politics (including environmental austerity) climate jobs are a tool for the creation of dignified lives in a benevolent environment, facing the issue of transition not as an arithmetic exercise, but as a matter of justice. The focus on jobs related to the mitigation of GHG emissions is strategical, but there is an entire world of adaptation jobs that can, in the near future, become a particularly important part in these campaigns that aim at a just planning of the economy on terms which are largely excluded from the capitalist logic - workers needs and environmental limits. Further issues such as the care economy, the reduction of work hours and the just stabilisation of output to balance poorer and richer countries through sustained economic degrowth are predictable evolutions. Italian historian Stefania Barca (2012[1]) calls for the establishment of an emancipatory ecological class consciousness, reminding that historically labour environmentalism is as old as labour unions.

The climate jobs campaigns, although currently involving advanced planning by sectorial areas in different countries, with better and more informed estimates as time goes by, is seen primarily as a tool for mobilisation and for bringing the working class into the climate struggle. Indeed, these campaigns are offering the working class a lead in the process. It is a political program that can and does support a climate justice potential metanarrative.

7.3 Are these movements and programs enough for a new metanarrative?

The Youth Climate Strikes are now a movement with millions of participants all around the world, very much based on and enriched by evidence-based science, by the incon-

trovertible reality of our time, namely the one originating from Big Data: the slowdown of ocean currents, the acceleration of ice melting and the approximation to climate tipping points (from 2010 onwards climate science and information has been routed in very advanced technology). Blockadia and Extinction Rebellion have helped normalise tactics of civil disobedience in many different countries and provided a qualitative shift in this, although it now seems to be in a stalemate, when faced with true rebellions in Catalonia, Ecuador or Chile (and one disastrous XR action in a London working class neighborhood subway). They are also a consequence of "combination of 'awe and shock' as the wider and longer effects of the human footprint become more evident through scientific research, evidence collection, unavoidable warnings, and exceptionally damaging hazard." (O'Riordan and Lenton, 2012, p. 317).

The articulation of these movements and the theoretical and organisational experience of Blockadia is key to maintain these three pillar with different tactics and dimensions in action: mass movements, direct action and political expression. The Green New Deals and Climate Jobs are still the weakest link: the political programs expressing a metanarrative of climate justice and responding to the climate justice movement are still elaborated in a mainframe of negotiation and concession, and specially partially implemented in a "passive revolution" strategy, making it incompatible with effective climate action.

Although these movements and programs are not enough to guarantee the emergence of a climate justice potential metanarrative, they are necessary conditions for it, if they are able to keep political and social pressure high. They are also key actors in defining what this potential metanarrative can in fact be.

8. What climate justice metanarrative?

Cambia lo superficial
Cambia también lo profundo
Cambia el modo de pensar
Cambia todo en este mundo

Cambia el clima con los años
Cambia el pastor su rebaño
Y así como todo cambia
Que yo cambie no es extraño
Cambia, todo cambia
Cambia, todo cambia
Cambia, todo cambia
Cambia, todo cambia

Cambia el más fino brillante
De mano en mano su brillo
Cambia el nido el pajarillo
Cambia el sentir un amante

Cambia el rumbo el caminante
Aúnque esto le cause daño
Y así como todo cambia
Que yo cambie no es extraño
Cambia, todo cambia
Cambia, todo cambia
Cambia, todo cambia
Cambia, todo cambia

Cambia el sol en su carrera
Cuando la noche subsiste
Cambia la planta y se viste
De verde en la primavera

Cambia el pelaje la fiera
Cambia el cabello el anciano
Y así como todo cambia
Que yo cambie no es extraño

Pero no cambia mi amor
Por más lejo que me encuentre
Ni el recuerdo ni el dolor
De mi pueblo y de mi gente

Lo que cambió ayer
Tendrá que cambiar mañana
Así como cambio yo
En esta tierra lejana

Cambia, todo cambia
Cambia, todo cambia
Cambia, todo cambia
Cambia, todo cambia

Mercedes Sosa, Todo cambia

There is a strong shattering in the current metanarrative. Its expression is seen, among others, in political protest, in social conflict and in climate policy. The social and political bodies that could sustain a climate justice potential metanarrative exists. Some of its

main features can already be seen. Yet, a metanarrative can not be created by political decision or by edict. From the collision of great currents of ideas something will arise. We can nonetheless search from what ushers metanarratives, that is, ideologies and hegemonies. After the previous enunciation in chapter 3, in this chapter I argue for a clearer definition of what a climate justice potential metanarrative's elements could be, after reflection on the fieldwork and on the analysis of the political and social body identified. Finally I will look at Walter Benjamin's approach to social revolution as a back-stop against climate collapse, the tactical manifestation of a climate justice - and as such a climate effective - political program and a process to usher a climate justice potential metanarrative.

8.1 Extending the metanarrative

As was already pointed out in 3.6, there is a call for a new metanarrative of climate and ecological justice that focuses on cooperative relationships of humans with:

- a changing global climate;
- a degraded nature;
- other humans.

The climate justice metanarrative calls for a wider human awakening with an impetus to social reordering in favour of redistribution of power, wellbeing and cooperation. O'Riordan and Lenton call for "creating inner satisfactions as well as empowerment over apathy or disillusionment. It [a new approach to measuring and appreciating social betterment] also offers, crucially, the chance to avoid seeing real loss of income and ageing as negative aspects of economic failure. Rather, wellbeing offers the scope for regarding household flourishing as a far more appropriate measure than income, and ageing into health a basis for extending experience for community enhancement." (O'Riordan and Lenton, 2012, p. 312). This notion is crucial for richer populations, richer countries and capitalist classes.

A climate justice metanarrative encompasses a new idea of prosperity inside natural limits and the need for just resource redistribution. It calls for a reconnection of different knowledges and sciences, the rise of public and participatory public science, dismantling exclusion and subordination carried in a science subordinated to the capitalist drive and an immanently destructive idea of development. This new science would be aimed at addressing humanity's and the Earth's biggest problems, putting profit out of scientific and technologies' main concerns.

A climate justice metanarrative would seek meaning for humanity as a collective, through the teleology of humanity's survival as a whole, "a movement of the community of the excluded that affirms climate justice and popular freedoms against capital and planetary sovereignty" and "visions of alternative futures that capture the public imagination" (Wainwright and Mann, 2012).

8.1.1 Changing the glasses to look at the world

I look into Herrero, Cembranos and Pascual (2011)'s"Changing the glasses to look at the world - A new culture of sustainability" as a relevant reference on different features that are needed in a new metanarrative on climate and social justice, namely through the identification of critical issues: relearning about life and life systems, human's ability to mimic beneficial biological features, the centrality of care and women's crucial role in the functioning of life and society, and finally on how indigenous communities are today an invaluable source of some of these forgotten knowledges. I then delve into the outstanding anticapitalist feature for this metanarrative, as the capitalism mode of production has revealed itself structurally incompatible with planetary and ecosystem stability.

8.1.1.1 Understanding life

A small part of the human species is currently causing a disruption in the dynamics of nature that have allowed for the expansion of the human species. It is doing so by ignoring and devaluing core information on what has made it possible for us to be alive and biologically prosperous. Western civilisation based on the capitalist mode of production has developed a way of life that is incompatible and often contrary to nature's cycles, destroying the basis for what allows us to be integrated and participant of life on Earth.
Understanding life, a process of "Ecological Alphabetisation" is crucial for peoples and societies to perceive which strategies have allowed for us to appear as a species on Earth 300 thousand years ago, to have developed since then, for the creation of agricultural systems 12 thousand years ago, and for life itself to have appeared 3.700 million years ago. Practices, beliefs and values that are against some of these strategies are against life and against humanity itself as a whole. The most important aspects to understand in this ecological alphabetisation are:

- the systemic organisation of life;
- the permanent shift in equilibriums and flows of energy and materials;
- life's struggle against simplification and entropy;
- life's closed cycles;
- diversity as protection;
- natural cooperation for survival.

Systemic organisation, shift in equilibriums and flows and the struggle against entropy

Organisms feed, grow and reproduce by changing the environment around themselves, processing energy and materials that affect life and resources available for other organisms and for other species. Through feeding, living beings obtain materials and energy that, after metabolisation, are expelled from inside the individual. Life is the interaction between life's organisms and non-life factors such as energy, soils, water or climate, and a network that connects all of them at every moment. Individuals in a same species do not live isolated from one other, but organise in populations, these populations connect

to other species and to territories, constituting communities. These communities, strongly entangled in their surrounding environment, are ecosystems, that connect to other ecosystems through flows of energy, water, gases, of living beings and of all sorts of particles. The sum of all ecosystems is what we call biosphere, the sphere of life.

Due to our usually short life spams and emotional connection to certain periods of our lives, we tend to believe that one of life's characteristics on Earth is stability and equilibrium, but its dynamism and permanent shifts are much more defining features: rain patterns change, populations migrate, species disappear, new species arrive at a territory, populations grow and reduce, and the food chains are affected by this, changing the flow of energy and materials in accordance. With shifting environmental conditions, living beings are forced to adapt in order to try and maintain their internal conditions through a vast array of tactics, in a process known as homeostasis. To achieve homeostasis with its surrounding environment, living beings have mechanisms that perceive changes and that set in motion the processes that can reestablish internal equilibriums, usually know as negative feedbacks. These try to minimise and absorb the shifts in the environment. Contrary to the previous, there are also positive feedbacks that accelerate the environmental shift and reinforce change, producing a further distancing to the original functioning of the organism or life system. When environmental shifts that affect an ecosystem are too fast and too intense, the mechanisms of negative feedback may prove altogether unsuccessful and produce and intensification through positive feedbacks.

The capacity to accommodate shifts in ecosystems is limited, working through conservative mechanisms and slow evolution, which is compatible with many environmental shifts, usually gradual. When shifts are very fast they cannot be controlled by internal negative feedbacks, which leads to the crossing of ecological thresholds which may produce a cascade of drastic shifts, in which randomness and small events play an important part, disorganising or even collapsing initial situations and creating whole new ones.

The magnitude and speed of climate shifts in today's ecosystems may force a collapse of many natural systems, which will seek new equilibriums, different from the ones where species that exist today on Earth have evolved and survived through variable levels of homeostasis. Our species is particularly vulnerable and paradoxically is set through its direct action into creating a situation of disequilibrium that leads to a crossing of ecological thresholds and to situations of collapse of many of the life systems it depends on.

Our current worldview and the capitalist approach to the network of life as a system that can be harnessed into the production of marketable goods ignores Earth's limits, the interconnectedness of all forms of life, the central role of the sun and photosynthesis as the ultimate life technology, the circulation of materials and energy through integrated cycles and the struggle against simplification and entropy. The human economic system is simply a part of the biosphere which requires a gigantic amount of energy and materials, often withdrawn from life cycles, which produces a gigantic amount of waste not integrated in other life cycles. But it obeys physical and biological imperatives nonetheless, whether it acknowledges it or not. The current use of non renewable resources such as fossil fuels and minerals is damaging for future generations, an absurd in biological terms, as these materials, on a human life time scale, are irreversibly lost.

In a natural cycle, usually a species' waste is another species' food or it enters a biogeochemical cycle, with diversity assuring recuperation of energy and materials. Life was able to expand through the whole planet by extending its cooperative and complementary network: the food chains are something which easily exemplify this, with primary producers (that are able to synthesise their own tissues with minerals mostly through photosynthesis, introducing solar energy into the system) feeding consumers such as herbivores, omnivores and carnivores (that eat primary producers or consumers for materials and their energy), and finally decomposers feeding on the waste of consumers (recycling materials and releasing energy). This process is affected by biological factors as well as by non-life factors such as temperature and water. The 'food chain' model

also happens in other more complex life systems such as ecosystems or even cities: they trade materials and energy with the outside in a clearly open system.

Physical processes, such as entropy, affect these processes: the second law of thermodynamics states that in every process that absorbs energy to produce work, there is a qualitative transformation of said energy, that creates a higher state of disorder, what we call an increase in entropy. Energy does not disappear, but in each phase of these processes it transforms from higher quality energy into lesser quality energy: a wood log represents a high quality energy that can produce work, and when it burns in an oven, the work is produced by energy, which dissipates in the form of heat; the dissipated heat is a degraded energy form, than can hardly be used to produce more work; at the same time, you cannot regenerate the original wood log. The biosphere uses solar energy (and also other less abundant energy forms) to construct complex forms to maintain high quality energy and high quality materials. In the food chain, a plant accumulates energy and is eaten by an animal which can be eaten by another animal. They use the energy to grow and reproduce (transmitting information through the genetic code), and creating growingly complex material structures. The highest quality form of energy (sun) is absorbed in the highest quantity at the base of the food chain, and with each passing level, the amount of energy passed on is inferior and of less quality. The energy for photosynthesis is infinite on a human scale, with the sun assuring the maintenance of the biosphere.

The use of solar energy does not increase entropy in Earth, but rather supplies energy to life cycles such as the food chain, and as photosynthesis uses only abundant substances (water, carbon, nitrogen and oxygen) it is the most relevant productive system on Earth, on which all others depend. After their productive phases, vegetable materials decompose and incorporate soils and dirts to create soils, increasing fertility and complexity to simpler systems.

Life uses energy to generate order, being defined by Margalef (1993), as “a strategy of chemical conservation in a universe that tends to loose heat and to thermal death”. All

living beings have as their purpose survival, avoiding disorganisation through their very metabolisms.

The capitalist economy is an entropy accelerator, consuming massive amounts of low entropy energy forms, disordering soil and ecosystems' complex structures, simplifying food chains and breaking biogeochemical cycles which stop the recycling of materials that sustain the regulation of climate, for example. The environmental crisis we are now living in a clear manifestation of an increased entropy in the biosphere, with industry and basically economy as a whole working against the second law of thermodynamics by destroying the mechanisms through which life reduces entropy: biodiversity, soil, forests and complex ecosystems.

Closed cycles, diversity and cooperation for protection and survival

Material circulation is organised through biogeochemical cycles such as the carbon, phosphorus or nitrogen cycle, which happen inside life systems and non-life factors. Inside capitalist economy, the mechanisms of production, distribution and consumption are a challenge to this material circulation, by circumventing it and producing parallel and often contradictory flows, extracting finite resources in one place, transporting them for transformation elsewhere and finally taking them somewhere else for sale and consumption, before being thrown away, often as "irrecuperable" waste. This economic flow (as it is very rarely a cycle or even "circular") breaks biogeochemical cycles, stopping the reincorporation of the resources, and changing the chemical composition of soils, water and the atmosphere.

Biological diversity or biodiversity is a strategy to protect life through the recycling of different forms of energy and different materials connected through different networks. The evolution of diversity begins with the installation in a territory, with rapid growth of primary producers and transformers of solar energy, that allow for soil transformation and energy accumulation to provide conditions for more complex plants, decomposers and animals, with increasing complexity, up into the higher limit of diversity, called the climax phase. When an ecosystem reaches climax phase, there is a decrease in primary production, as the whole ecosystem develops an internal recycling process between its different species': the great abundance of different species connected to each other through a complex network provides a level of internal metabolism and autonomy from the exterior, a certain protection from shifts in equilibriums and adjustment capacity to these. As such, when there are energy restrictions, for example, they loose species and complexity, but can survive up to a certain intensity of the restriction, like a forest fire or a temporary drought.

Capitalist industrial systems use mainly the early phases of complexity, with high productivity of biomass and low diversity of species, such as forest plantations or intensive agriculture, based on single species, the known monocultures. These less diverse (or not diverse at all) systems, disconnected from life's network, are much more vulnerable to any external modifications, which make modern agricultural systems all the more fragile.

To consolidate ecosystems in climax phases it often takes hundreds of years, but they can be destroyed in a matter of days. "When the temporalities of human history supersede the temporalities of ecological history, the limits for the non-reproduction of ecosystems and their entropy are crossed." (Deléage, 1991, p. 250).

Diversity implies a high level of cooperation between species, and in fact, contrary to a fetishisised capitalistic Darwinism of gruesome competition, the most relevant strategy for species and ecosystems to maintain and expand themselves is through cooperation. Cooperation has dominated the process of evolution, providing individuals and species with higher adaptation capacity to environmental shifts than any individual strategies. This does not mean that there is no competition in nature, but is widely surpassed by cooperation. Humanity has evolved and adapted through many different strategies of cooperation, both with humans and with other species, in a process of coevolution (our ability to construct civilisation itself, is both a process of cooperation with other humans and specially with other species, with agriculture being the clearest example of this). Quite opposite to what our current metanarrative of globalised capitalism positivism proposes for us as a species, we have a level of cooperation that is higher than almost any other animals, through the creation of common stories that bind us together and allow us to coordinate and cooperate on a massive scale. Metanarrative may be the quintessential tool for cooperation, even if the current one propels us away from nature, life and survival.

To be able to adapt to environmental shifts, new structures and patterns of behaviour form, with a certain self-organisation of living systems that allows for accumulation of information, learning and allowing for a constant ability to change and adapt. Ecosys-

tems have “learned” from shifts in the environment and can even anticipate them. They are the result of information accumulated through natural history, being able to produce shifts in its self-organisation and ecological evolution that can modify the evolutionary process that happens inside the system. The resilience of an ecosystem is higher the more complex, the more diverse and the more interconnected it is. We need to learn from the systems in which we live how to create collective strategies do adapt, such as promoting diversity, obtaining materials in close territories and respecting energy and material cycles.

The notion that we can end life on Earth is preposterous. We are at most a threat to ourselves. We are strictly dependent on our surrounding environment. As such, we benefit from knowing life systems’ strategies, processes, cycles and organisation, from understanding life. It is only rational to reproduce in some sense these tested and clearly successful processes that allowed for life to survive and complexify in the last 3700 million years. This is called biomimetic, and it follows some of the following principles:

- To accept and submit to the existence of physical limits;
- To shut down material flows and substitute them for closed material cycles;
- To favour the use of solar energy;
- To maintain essential factors in equilibrium;
- To base on proximity;
- To favour diversity;
- To adjust to the slow times of natural and community life;
- To stimulate cooperation;
- To increase eco-efficiency and reduce absolute energy consumption on a global scale, basing it on local and decentralized production from renewable sources;
- To promote solidarity and social justice.

Much like life contradicts entropy, collective knowledge can introduce collective evolution to contradict the gloomy predictions of thermodynamics.

8.1.1.2 The care economy and feminism

Australian sociologist Ariel Salleh (2003) explains how the sexual division of labor has led into a political view appertaining to women's position in society:

"Keeping focus for now on women and the modernist division of labor, it is plain that their relation to nature, and therefore to "capital" and "labor," is constructed, and constructs itself, differently to men's relation to nature in several ways. A first difference involves experiences mediated by female body organs in the hard but sensuous labors of birthing and suckling. A second difference follows from women's historically assigned caring and maintenance chores that serve to "bridge" men and nature. A third difference involves women's manual work in making goods as farmers, cooks, herbalists, potters, and so on. The fourth difference involves creating symbolic representations of "feminine" relations to "nature" - in poetry, in painting, in philosophy, and everyday talk. Through this constellation of lay labors, the great majority of women around the world are organically and discursively implicated in life-affirming activities, and they develop gender-specific knowledges grounded in this material base. As a result, women across cultures have begun to express political views that are quite removed from men's approaches to global crisis - whether these be corporate greenwash, ecological ethics, or socialism."

According to Rodriguez and Herrero (2010), the capitalist system is a system of exclusions: it excludes the rest of species that exist with us, it excludes future generations, it excludes the poor and most of workers, it has historically tried to exclude the majority of humanity, women.

Although epic historic tales focus on wars and power struggles, invasions and treaties, human existence and expansion around the world can be much better explained by the daily practice of maintenance (feeding, rearing children, creating affective bonds). The activities of maintaining, attending to, rebalancing or taking care of are not valued in the modernist view, that always favoured war over peace, construction over repairing, transforming over stabilising. The history of recreating and maintaining life is without a doubt, the history of women. The work of raising children, maintaining productive capacities of soils, mediating and avoiding conflicts, regenerating devastated territories and persons, transmitting knowledge about health and food, are pivotal for society and their exposure and promotion crucial to a new metanarrative of climate justice. Appropriation and invisibilisation of these labours in which life itself depends on are used by both the patriarchy and capital, that have used and expropriated them with success.

That which produces profit for capital is priority when faced with that which produces a benefit for people, and very few times do both things coincide: women's role in daily life is probably the acutest example of this. This reveals an important contradiction between the process of reproduction of people and the process of accumulation of capital. Although the market does not take responsibility for care, it needs it absolutely, and so it needs for the sexual division of labour and the invisibilisation of women's socially attributed responsibility for care to unabashedly continue.

There is a dichotomy in thought to allow for this process to proceed, namely that the world is divided in opposing pairs: man-woman, culture-nature, mind-body, reason-emition, liberty-need, autonomy-dependency, production-reproduction, public-private. They are not only opposing pairs, they are hierarchies, with the first part being in the public domain, and the second part in the private sphere. This dichotomy allows for the submission of women, at the same time and, in the same coherent thought, for the submission (destruction) of nature.

The daily labour of maintenance is crucial for humanity: to cook, to take care of children and people that are ill, to clean houses and places, to decide what meals will be, to maintain supplies at an adequate amount, to feed, to organise, to console. These labours are attributed and often guaranteed by women and, without them, there would be no productive system (either capitalism or other). They are set outside capitalism because they produce mostly goods and services for self-consumption with little to no mercantile change, that is, they generate use value but not exchange value, because they don't intend to increase productivity and don't rule themselves by competitive rules. The care economy protects diversity and adjusts to context variation, it has a strong emotional charge, centred around an ethic of human relationships and needs that, contrary to many of the current existing jobs, has vital importance and is absolutely necessary. Further, as Terlinden (1984) notes, "Housework requires of women [or men] a broad range of knowledge and ability. The nature of the work itself determines its organisation. The work at hand must be dealt with in its entirety .... The worker must possess a high degree of

personal synthesis, initiative, intuition and flexibility.", "which contrasts with the fragmented industrial division of labor and the numb inconsequential mindset that it gives rise to.".

Care and maintenance are constant struggles to "stop" the increase in entropy, against disorder, lack of availability of supplies and affective abandonment. Without the care economy and labour led by women, maximum domestic entropy would be reached in a very short term.

No person is "autonomous". As part of a cooperative and socially dependent species, all persons need care throughout all their life (although this is clearer in childhood, old age and in illness periods). Due to the historical sexual division of labour, most men have become chronically social dependents, being sane adults who don't know and do not intend to solve the issues of labour care on which they depend. The visibilisation, politicisation and dignifying of care is a key issue for a climate justice metanarrative. At the same time, it is anti-patriarchal and anticapitalist, facing at both times the order that imposes and naturalises masculine domain and the sexual division of labour that denies this labour while the whole economy and workforce are strictly dependent on care.

According to Vandana Shiva (2005), there are three economic spheres: the economy of nature, the economy of survival and the economy of the market. The ascendancy of the economy of the market over the other two has grown by degrading them. By hiding humanity's dependence on women and nature, markets use non-monetised realities by treating them as limitless, without respecting their cycles, times or limits. This is further evidence that capitalism has no objective to satisfy human needs, otherwise it would place a massive importance on the organisation of human societies, which is precisely what the care economy is.

To further aggravate this, labour directed at maintenance and care is in general more labour-intensive than labour directed at destruction: permaculture and ecological agriculture, taking care of the sick, repairing objects, raising children, rehabilitating dama-

ged spaces, organising people. Assuring food sovereignty, energy sovereignty, emotional support, requires a lot of work, which doesn't occur with highly mechanised jobs that imply the use of complex technology. The lack of jobs, a permanent threat waved by the system, is just a fiction: a major shift in homes is required, with the co-responsibilization of all genders for care and maintenance activities.

The "crisis of care" which is now a relevant issue, specially in countries of the Global North, was aggravated by the massive entrance of women into paid labour, as well as with the ageing of the population and the increase in dependency of children in urban contexts. This led directly to a scarcity of care labour and a break in social peace around the sexual division of labour. As expected, capitalists saw an opportunity here, which led to an increase in businesses connected to nurture the elderly and children activities, but mostly it was governments that had to mediate this acute conflict by expanding kindergartens, increasing school hours and school activities, as well as nursing homes. This process reproduced all frailties in social organisation: the care work, even mediated through the market, was performed overwhelmingly by women, and in particular young women, migrants, in precarious conditions and paid low wages, while this issue was mostly not addressed by men.

Throughout the world and history, subsistence farming has depended and still depends mostly on women. They have been responsible for maintaining communal lands, for organising community life and systems of support before any social security systems even existed. Struggles in defence of territories, for peace, for nature, the climate justice movement, were and are mostly led by women.

Without the acknowledgment of the essential labour performed historically by women, it is not possible to work towards justice, and social (and environmental) resilience needs for men in society to use and practice the strategies and knowledges women have used to guarantee human reproduction, community life and defence of territory.

The recent mass mobilisations of women, either in the USA against president Donald Trump, in Europe's feminist strikes, or in the worldwide movement against violence towards women shows the growing strength of the feminist movement that represents the care economy and the emancipation of women towards justice.

8.1.1.3 Learning from indigenous peoples

Modernism has seen the history of the West as the pinnacle of a linear historical process, portraying the evolution of societies from hunting-gathering up until private propertied industrial capitalism as the "natural course" of history. This relevant component of the metanarratives of modernity and of the metanarrative of globalised capitalist positivism has led western civilisation to feel entitled to destroy other peoples' cultures and resources with violence, even bearing the moral notion of "bringing civilisation and progress" to countries all around the world. This was particularly damaging for those people who were less violent and those who were closest to nature and who experienced, in general, catastrophic experiences, who were deprived of their cultures, their territories and even their livelihoods. Many of them resisted and some have survived, keeping precious information about other ways of life which had been in effect, in some places and peoples, for thousands of years.

Indigenous practices and cultures are generally much more efficient in ecological terms, being depositaries of old knowledge that is very relevant for the moment of crisis we live in (Herrero *et al.*, 2011). Indigenous peoples can still look at capital industrial society from outside, relatively impervious to the metanarrative of globalised capitalist positivism (with examples such as 1920's "Papalagui" from Tuiavii of Tiavea or the more recent 2010's "The falling sky" from Davi Kopenawa and Bruce Albert).

Peasant culture is also a very important base for the knowledge of indigenous peoples, although peasants have mostly disappeared in Europe and North America.

Indigenous peoples are, according to Herrero *et al.* (2011), the guardians of biocultural memory, as many of them are still living in tropical and boreal forests, savannahs, tun-

dras and other ecosystems, among which are the less degraded areas in the world. Rather than extracting resources until exhaustion, indigenous peoples relation to nature promote biomimetic and the establishment of more symbiotic relationships with their surrounding ecosystem. Indigenous presence is still the best guarantee against immediate clear-cut deforestation followed by slash and burn in some of the most endangered and vulnerable zones in the world, such as large parts of the Amazon. Their different world views usually act as a regulating mechanism for resource use and management: the Earth is often worshiped and respected, not only as a generator of vital energy and materials, but as the center of the universe, of culture and often of ethnic identity.

Strategies of diversification allow for indigenous communities to survive by appropriating small quantities of many biological resources in closeness to their territories, basing their subsistence more on ecological trade (with nature) than on economic trades (with markets). As their participation on markets is much less relevant for community economy, they adopt techniques that guarantee an uninterrupted flow of materials and energy through non-specialised production based on diversity in resources and productive practices. Use value is at the forefront of any productive activity, with strategies to maximise variety of products to supply households through the year: diversification is natural insurance.

Modernity's and current days' metanarratives are not only about omission, but also about purposeful erasing of memory: we have always comprehended and used the natural cycles and times for production, adapting to environmental shifts and cooperating with the natural world through a library of information left by our ancestors. Indigenous peoples are now the holders of memory that was actively erased, and as such they still maintain to a certain level the territories they live in, in some instances even improving the conditions for life systems in those territories. Despite this, capitalism continues to try and homogenise global culture by reaffirming its supposedly superior way of socio-economic and cultural organisation, the organisation which is leading us into collapse. Learning from more successful cultures is common sense and the indigenous cultures that have guaranteed sustainable and resilient territories for thousands of years are more

successful than the western civilisation which is degrading its environment up to the point of collapse.

A level of historical repair for communities and peoples that were sacrificed in the process of colonialism and globalisation is the definition of just. Richer countries and richer people need to limit consumption into a life of sufficiency, allowing for a just redistribution of resources through public and collective use. To allow for a democratic approach for this, values such as ecological sustainability and human rights must be observed, guaranteeing the common good over individual interests or the interests of multinationals and "markets". The ecological debt, resulting from the ecological and social theft that richer countries have exerted of poorer countries and communities must be repaid. Then, we may aspire to what Vandana Shiva called "a democracy of the Earth". Indigenous peoples, rural communities and peasants are, today, some of the most important social groups involved in climate justice struggles, once again defending livelihoods, cultures, territories and environment against the ceaseless assaults by mining projects, oil, gas and coal infrastructures and other highly destructive projects.

8.1.1.4 Capitalism: a mode of production incompatible with stability

According to Bensaid (1995), the production of surplus value grounded in the increase of the productive forces demands a permanent production of new consumptions, the expansion of existing consumption, the extension of new needs to a wider circle, the production of new needs and the creation of new use values. This implies the goal of exploring the entirety of nature, the creation of new use values and the trade, on a universal scale, of products made in all climates, all ecosystems and all countries. In other times, this description was theoretical, but we no longer live in such times: "The economic sphere and the biosphere never worked under the same logic, and if we could ignore for a long time this fact as the first didn't seem to threaten the existence of the second, things are no longer like this" (Passet, 1991). Rosa Luxemburg (1913) argued that "Expansion becomes in truth a coercive law, an economic condition of existence for the individual capitalist. Under the rule of competition, cheapness of commodities is the most important weapon of the individual capitalist in his struggle for a place in the market.

Now all methods of reducing the cost of commodity production permanently amount in the end to an expansion of production (…)", that inevitably led to the non-capitalist arenas. "Each new colonial expansion is accompanied, as a matter of course, by a relentless battle of capital against the social and economic ties of the natives, who are also robbed of their means of production and labour power." (Luxemburg, 2003 [1913]). Constant expansion is a requirement for constant accumulation and colonialism/imperialism is a requirement to allow for the expansion of production and for offloading surplus commodities.

Production based on capital aims at a system of universal exploitation of natural and human properties, with the collapse of intrinsic values, as the value accepted is the one created inside the circle of production and trade. Nature "stops being recognised as a power in itself; and even the theoretical knowledge of its autonomous laws appears uniquely as a ruse to submit it to human needs, either as an object for consumption or as a means of production. Capital, according to its tendency, moves beyond borders, national prejudices and the divinisation of nature, as well as the traditional satisfaction of current needs, complacently circumscribed to certain limits, and the reproduction of the previous modes of life. Capital is destructive of all this and constantly revolutionises, overthrows all barriers that stop the development of productive forces, amplifying needs, the diversity of production and the exploitation and trade of natural and spiritual forces." (Marx, 2011 [1857-1858], p. 542-543]. "Capital, therefore, in the same way in which, on the one hand, has a tendency to continuously create more surplus of labour, has, on the other hand, the complementary tendency of creating more points of trade; *i.e.*, considering from the point of view of absolute surplus value or of labour surplus, of causing more surplus value as a complement of itself, that is, to propagate production based on capital or in its correspondent means of production. The tendency to create the world market is immediately given in the very concept of capital." (Marx, 2011 [1857-1858] p. 539-540).

The precedence of trade value over use value allows for capitalism's detachment over nature and its limits, allowing for the trade of the concrete for the abstract. Commodity

fetishism, reducing social relations to economic relations between marketable objects, degrades both human relations and nature in its attempt to reduce them to its momentary trade value, commodifying them. Capitalism marginally defers to the satisfaction of real needs by its necessity to maintain the workforce, while promoting the creation of a body of needs determined by profitability and expansion, being unilateral and compulsory in this regard. Rather than satisfying needs, markets mostly seem to search for them. Currency has no grounds in reality or materiality, but is a representation of wealth and power. If the environmental costs of production were “incorporated" into the prices of products, another metaphysical fiction would have to be created to put a price expressed in metaphysical terms onto a real object, a global flow or a natural process. There is an attempt at doing this with "natural capital", which has served the extractive process by attributing small costs to often irreversible and unquantifiable damages.

The apparatus of production is not neutral, which means that if you maintain a capitalist system, even while calling it socialist or communist, it will, by its very structure, tend to accumulate capital and to expand. By maintaining the criteria of production based not on real needs or real limits, but on growing expectations of possession for possession’s sake, the productive system will always look for the opportunity of commodification of all realms of existence. The capitalist mode of production, whether managed by politically capitalist or politically communist regimes, has transformed an important part of the productive forces into destructive forces. This transformation is increasing with time, even as attempts at adapting to climate change or mitigating climate change, under a capitalist large scale logic, tend to pervert its effects, going as far as increasing the emissions it means or portrays to cut (as happens with agrofuels and other energy crops - both in forestry and agriculture).

Capitalism is also strictly connected to fossil fuels, having used them to create global markets and reach the farthest corners of the Earth to create a trade regime based on energy and power. Ever since James Watt’s invention of the steam engine, the generation of power was taken away from nature’s fluctuation, and capitalist activity was able to remove one more obstacle to permanent expansion. As Daly and Farley (2011, p. 10)

put it, it was no coincidence that global capitalism and the fossil fuel economy appeared simultaneously, as “new technologies, and vast amounts of fossil energy allowed unprecedented production of consumer goods. The need for new markets for these mass-produced consumer goods and new sources of raw material played a role in colonialism and the pursuit of empires. The market economy evolved as an efficient way of allocating such goods, and stimulating the production of even more.”. As Naomi Klein (2014) puts it, contrary to renewables - water, wing, solar or workers - coal, oil and gas are entirely possessable, even if capital had to expropriate peoples, regions or nations for it - as it did. The extraction of fossil fuels further added the need to erase peoples, creating sacrifice zones, in the mines, in the quarries, in the rivers, in the oceans, in the atmosphere.

Production costs are increasing, which leads to an acceleration of the exploitation and the growingly extractive character of today's capitalism: for a very long time, nature provided cheap raw materials and natural resources that capital could harvest. Nature was also capable of absorbing capitalism’s waste. Currently, nature is failing in both these regards, and as such the prices of both inputs and outputs are rising steadily, pushing profits down (Keucheyan, 2016). To deal with this, two main trends have arisen: financialisation of the economy, dematerialising it, and deregulation and relocation of both extraction and waste producing, innovations which allow for the intensification of the extraction of surplus from nature and to blot out environmental destruction.

What is labelled as “innovation” in terms of energy nowadays is a suicidal death pulse, going for the most extreme ways ever used to extract fossil fuels: hydraulic fracturing, deep-offshore drilling, extraction of tar sands and deep sea mining for methane hydrates. Faced with a scarcity of easily-obtainable fossil fuels, the capitalist drive did not stop and plunged capital and manpower into the harshest terrains to obtains the dirtiest fuels used since the industrial revolution, pumping massive amounts of water and energy to be able to go around its incapacity of creating economic growth without oil, gas and coal. In the field of theoretical innovation, the decoupling of greenhouse gas emissions from economic growth has never happened, nor does it show any sign of

happening at any kind of timely fashion - in 2018 global GHG emissions broke the absolute historical record, that had already been broken in 2017. Other issues - most of which unaccounted for - exist as schemes to hide or erase environmental impacts, being manifest in episodes such as the European automobile industry emissions scandal. Volkswagen and other European carmakers manipulated emissions' softwares instead of cutting emissions, by balancing what would be more expensive and opting to cheat authorities and car owners by selling them highly emitting and highly consuming vehicles at higher costs as they were "greener" - increasing profit while maintaining or increasing emissions.

Finally, as no catastrophe has been able to shake the capitalist pulse for profit, there are now financial products set for impending local and regional collapses: the cat (as in catastrophe) bonds. The cat bonds are the securitisation of climate change risks, traded in a stock market in the USA, the CATEX (The Catastrophe Risk Exchange, Inc.). The cat bonds are based on the occurrence of natural disaster and extreme mortality, performing as a life insurance for companies, in particular insurance and reinsurance, but also States. An entity (insurance or reinsurance company, or a State) emits a cat bond and sells it to investors, paying them a fixed interest in return for the initial investment. If a catastrophe occurs, the investors stop receiving their interest, with the initial capital being used to reimburse the entity that issued the bond (which will now need to pay for the damage of the catastrophe). If no catastrophe occurs, the investor keeps the interest. Usually it is not the issuing entity that sells the cat bond to the investors, but rather an intermediary in a fiscal paradise, which then resorts to companies specialised in selling cat bonds - investment banks and hedge funds such as Goldman Sachs, Credit Suisse or Axa Investment Managers. The insurance industry does not have the capacity to cover growing risks associated with climate change and so the price of catastrophes will be paid by the States - those that can afford it - or will be conjured in obscure financial products. Cat bonds and other financial products, like "weather derivates", support the notion that all risks can be taken, as there is virtual capital to pay for any catastrophe and that the insurance industry will always keep afloat, whether in normal years or in catastrophic years.

8.1.2 Ecosocialism and ecofeminism

Metanarratives are ideologies that tend to or that have become naturalised, that have constituted themselves as the new glasses through which very large groups of people see the world. Here I identify two political currents / political ideologies that include many of the features identified for a climate justice potential metanarrative, namely Ecosocialism and Ecofeminism. Like all ideologies, they are not fixed systems of ideas but rather moving bodies of thought connected to political and social bodies.

Ecosocialism

Ecosocialism is a political current based on the safeguard of ecological balances, preservation of healthy environments, defence of workers and refusal of the capitalist mode of production due to its perceived inherent expansive and destructive characteristics. It is also a current of ecological action towards the safeguard of the environment based on fundamental marxist analyses while refusing productivism, the logic of the market and profit, as well as the refusal of the bureaucratic authoritarianism of "real socialism" experiences.

On the basis of the ecosocialist ideology is the acceptance that infinite growth by capitalism (or whatever mode of production) will lead to the destruction of the foundations for human life on the planet. It is the approximation of socialist political views and ecologist political views: the ascendancy of use value, the satisfaction of real needs, social equality, safeguard of nature, natural equilibriums and the perception of the economy as a subsystem of the environmental world (Lowy, 2011).

French-Brasilian sociologist Michael Lowy writes that the issue of ecology is the great challenge for the evolution of marxist thought in the twenty first century, through a critical review of marxist concepts such as "productive forces", the ideology of linear progress and the technological and economic paradigm of modern industrial civilisation.

Back in 1928, Walter Benjamin had already denounced the idea of the domination of nature as imperialism. North American political economist James O'Connor, over sixty years later, would go on to say that what Marx had identified the first contradiction in capitalism as the opposition of productive forces and productive relations, needed a second added main contradiction, the one between productive forces and conditions of production, between workers and urban spaces, and nature. Marx, in his Critique of the Gotha Programme (Marx, 1996 [1875]), identified important signals given on this issue: "Labor is not the source of all wealth. Nature is just as much the source of use values (and it is surely of such that material wealth consists!) as labor, which itself is only the manifestation of a force of nature, human labor power.". Despite this, traditional workers movements, from unions to different grades of left-wing parties, have been and are still very much focused on progress and productivism, while traditional ecologist movements tended to ignore the straight connection between productivism, profit and capitalism: these characteristics on both political groups reveal the overwhelming strength of the metanarrative of globalised capitalist positivism. By considering that workers were irreversibly lost to productivism, some ecologist currents attacked them and proposed a post-ideological "neither left, nor right" approach, even going into a refusal of humanism that might lead into relativism and technocracy. Ecosocialism refuses market ecology as well as productivist socialism.

John Bellamy Foster contends that widespread critique of classical Sociology, namely of Marx, Weber and Durkheim, of ignoring environmental problems, is a false critique, as they have approached this. Foster looks particularly into Marx's notion of "human metabolism with nature", and the early notion of the alienation of nature by capital and the concept of metabolic rift (Foster, 1999). Marx identified an "irreparable rift in the interdependent process of social metabolism" that created the tendencies for ecological crisis under capitalism, by analysing the crisis in soil fertility in face of an "agricultural revolution" of capitalist nature in the 19th century. "Large-scale industry and industrially pursued large-scale agriculture have the same effect. If they are originally distinguished by the fact that the former lays waste and ruins the labour-power and thus the natural power of man, whereas the latter does the same to the natural power of the soil,

they link up in the later course of development, since the industrial system applied to agriculture also enervates the workers there, while industry and trade for their part provide agriculture with the means of exhausting the soil." (Marx 1981 [1894], pp. 949–50). The mass dislocation of population connected to capitalist industrialisation was also identified as creating a rift between towns and countryside, interrupting and disrupting human relations, resources and waste cycles: "it disturbs the metabolic interaction between man and the earth, *i.e.* it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil. But by destroying the circumstances surrounding that metabolism (…) it compels its systematic restoration as a regulative law of social production, and in a form adequate to the full development of the human race (…). All progress in capitalist agriculture is a progress in the art, not only of robbing the worker, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is a progress toward ruining the more long-lasting sources of that fertility." (Marx 1976 [1867], pp. 637–38).

The ecosocialist movement wants exchange value to subordinate to use value, organising production to respond to social needs and environmental protection demands. An ecosocialist society would be based on ecological rationality, democratic control of production, social equality and the predominance of use value. According to Lowy (2011), this society would imply the collective property of means of production, democratic planning that allowed for society to define investments and productive goals, and a new technological structure of the productive forces. The strengthening of use value and the definition of real needs would be the decisive criteria for the valuation of technologies and investments.

Ecosocialists defend that decisions on investment and technological mutation must be stripped away from banks and capitalist enterprises and be delivered unto society for the general interest to be in the core of these decisions. The solution isn't a general "limitation" of consumption, but rather the shift from the current type of consumption, ostentation, waste, alienation and accumulation that prevails in the capitalist order. They belie-

ve that reforms are insufficient, as they do not replace the micro-rationality of profit for a macro-rationality of the social and the ecological, and that this means a civilisational shift.

According to Lowy (2011), the democratic planning at different regional levels for the satisfaction of the real needs of the populations articulated with the safeguard of nature would need to define:

1. Which products should be supported or even freely distributed;
2. Which energy options should be followed and which ones shouldn't, leaving out criteria of capitalist profitability;
3. How to reorganise the transport systems in function of social and natural criteria;
4. Which measures to undertake to repair, as fast as possible, the gigantic environmental destructions that are legacy of capitalism.

There are issues that would arise from such a planification and transition, tensions, contradictions and power structures attempting to arise out of a democratic process, but according to ecosocialists, such is the nature of democracy, in that it gives no guarantees of safety. They claim instead that a destructive market or a technocratic dictatorship are more dangerous.

The future of productive forces, namely workers, is very important in this political current, although it rejects both a positivist view of technological magic to solve issues of environmental destruction and a negative view of authoritarian ecological dictatorships, calling instead for a clear division between development and growth. It proposes to do so by terminating capitalism's massive wastes, based on the production of useless products, and by stopping capitalist artifices such as planned obsolescence of products, for the focus on real needs - water, food, clothing, housing, transportation. To ground needs in reality, it calls for the suppression of commercial publicity, replaced by information and discussion. Its marxist roots also call for a substitution of "having" for "being", striving for personal fulfilment in cultural, erotic, sporting, artistic and political activities over the accumulation of dead objects and properties.

According to Lowy (2011), to pass from the destructive progress of the capitalist system into socialism or democratic participation requires a revolutionary and constant transformation of society, of culture and mentality, that can not happen without a revolutionary change in social and political structures and without popular support of a large part of society for an ecosocialist program.

Ecosocialism recalls older marxist texts to claim that the objective of socialism isn't to produce more and more goods, but rather to give human beings free time to fully develop their potential: this free time is a condition for the participation of workers in the democratic discussions and the common management of the economy by society.

"The socialist and ecological utopia is nothing but an objective possibility. It is not a mechanical result of the contradictions of capitalism or of the "iron laws of History". We can not predict the future except in the conditional: the capitalist logic will lead to dramatic ecological disasters which threaten the health and life of millions of human beings, even survival of our species, if we don't assist a radical transformation of civilisational paradigm and an ecosocialist transformation." (Lowy, 2011, p. 75).

Ecofeminism

Ecofeminism is a political-ideological current that has arisen from the perceived proximity between women and nature and the analysis that the capitalist system has been maintained by the subjugation of women, foreign peoples, their land, and also of nature. Between women in the North that do not resign to the violence against health and nature by companies and military and women from the South that do not accept attacks on their subsistence and livelihoods, ecofeminists defend the possibility of a third way, beyond submission and confrontation. They coincide in the diagnosis that the subjugation of women by men and the domination and destruction of nature by capitalism are two faces of the same coin, perpetuating contempt for life. They propose the cultural

substitution of oppression, imposition and appropriation by cooperation, compassion and mutual aid.

According to Rodriguez and Herrero (2010), "Ecofeminism questions basic aspects that are part of our collective imagination: modernity, reason, science, productivity… These have demonstrated their incapacity to lead peoples to a dignified life. The horizon of wars, degradation, inequality, violence and uncertainty are proof of this. Because of this, it is necessary to search for a new paradigm which must be inspired in forms of relations practiced by women", although they signal that "the construction of the political and public identity of women, in a society that only sees the productive sphere, is made by copying the model of men".

There are two main ecofeminism currents: spiritualist and constructivist. Spiritualist ecofeminism defends that there is a natural essential bond between women and nature, while constructivist ecofeminism believes that the connection between women and nature is a social construction. Ecofeminists have been in the frontlines of environmental movements since the 70s, facing militarism, nuclear power and environmental degradation as expressions of a sexist culture. Ecofeminisms grounded mostly in the Global South consider that women are the bearers of the respect for life, accusing western development of provoking the destruction of women and indigenous communities, which are the most connected to nature (Mies and Shiva, 1993). Constructivists see the mandatory interaction of women and environment as the origin of that connection with nature, through the sexual division of labour, the distribution of power and property that submit women and nature. According to Val Plumwood (1993 p.8), "Ecological feminists are involved in a great cultural revaluation of the status of women, the feminine and the natural, a revaluation which must recognise the way in which their historical connection in western culture has influenced the construction of the feminine identity and, (…) of both masculine and human identity".

From an early viewpoint of the feminist movement "ecofeminism was perceived as a possible risk, given the historical abuse that the patriarchy did of the bond between wo-

men and nature" (Rodriguez and Herrero, 2010), which was used to solidify the sexual division of labour. In these lines, "the liberal, radical and marxist currents [of feminism] had difficulty in dealing with these ideas. The liberal current, as it settled in individual pathways of women in professional careers and for access to politics and technological development, didn't accept ideas that jeopardised this type of emancipatory routes for women. The radical current considered it a capitulation on the liberation of women for there to be a return to the mystic woman-mother and to the biological determinism that guided their lives. The marxist current in its orthodox component didn't consider environmental movements, subjugating them to class contradictions." (Tavares, 2014). But ecofeminism identified that although the naturalisation of women was a tool used to legitimise the patriarchy, the answer shouldn't be to denaturalise. They called instead for "a 'renaturalization' of men.

Rodriguez and Herrero (2010) outline that women's position in history has led them to learn, recreate and improve strategies do face destruction and make life possible, to try and predict the future and guarantee sustenance. "They didn't easily fall for the promises of fast enrichment being offered for the sale of lands or in risky business. They maintained the provisions necessary for those who are responsible for taking care of others and have thus developed survival abilities that masculine culture has despised." Plumwood (1993, p. 35) claims that "women's lives have been lived in ways which are less directly oppositional to nature than those of men, and have involved different and less oppositional practices, qualities of care and kinds of selfhood, an ecological feminist position could and should privilege some of the experiences and practices of women over those of men as a source of change without being committed to any form of naturalism", which can be particularly important in our context, as "Their knowledge have shown to be more adequate to the survival of the species than the knowledge built and practice by patriarchal or market culture." (Rodriguez and Herrero, 2010). According to Inestra King (1983), "To challenge the current patriarchy is a loyalty act towards all future generations and life itself, and toward the planet.".

One of ecofeminism's clearest objectives is to make men co-responsible for the labour of survival. Any alternative is not to un-naturalise woman, but rather to re-naturalise men, by great shifts in the political, domestic and economic relations towards strategies of life. Ecofeminists defend a re-naturalisation and a new culture that makes it clear that there is an absolute ecodependency between men and women.

8.2 Social revolution as a backstop against the climate collapse

German jewish philosopher Walter Benjamin was an eclectic marxist thinker which, back in the 1920's, perceived environmental degradation as a main issue in the capitalist mode of production and also as a rift in the relationship between humans and nature. An early critic of the dangers posed by the threats of progress and technological development led by capital, Benjamin proposed an alternative view on what a revolution is. More than the dominant determinist marxist analysis of his time, he didn't conceive of revolution as inevitable or as a natural result of the contradiction between productive forces and productive relations, but rather as an interruption of an historical evolution that led to catastrophe, an emergency brake. "Marx said that revolutions are the locomotive of world history. Maybe things present themselves otherwise. Maybe revolutions are the acts by which humanity that travels in the train pulls the emergency break." (Benjamin, 1980 [1927-1934], p. 1232]

Much like Gramsci, Benjamin was a pessimistic revolutionary, which does not mean that he was a fatalist. By rejecting the narratives of progress and a linear path of history, Benjamin proposed a radical alternative to imminent disaster: a revolutionary utopia to give way to a new harmony between society and natural environment.

Climate change is and growingly will be a great destabiliser, a "threat multiplier" as it is coined by security forces worldwide, as it will force peoples and communities into moving, undermining fragile governments, turning populations against powers that are unable or unwilling to meet their needs. Malm (2018) sees insurrectional processes con-

nected to climate change evolving in four possible configurations: Revolution as a symptom, Counter-revolution and chaos as a symptom, Revolution for treating symptoms or Revolution against the causes.

Malm (2018) claims that "any climatic spark will *always* burn through relations between people on its way to an explosion" and that "The critical state of nature is mediated — in no way negated — by the nature of the state", that is, that the underlying contradictions in social and productive relations will be exacerbated by climate change, making it an accelerator of social contradictions. Referring to the Syrian Revolution and the five year drought that preceded it, Malm theorises that "Had the country been a perfect democracy, in which households shared resources equally and made sure to distribute water and food to those who suffered losses, the drought might still have caused stress and even widespread hunger*, but it could not possibly have contributed to a revolution*.", which means that the impact of climate change was articulated by the regime, adding to its iniquities and producing a destabilising force in relation to them. The worsening situation connected to climate change under capitalism will aggravate how workers and populations experience climatic shocks (either by extreme weather phenomena or by the simple rise in temperature, which will lead to growing cost in ventilation and air conditioning in workplaces and factories, increased thermal discomfort or impossibility to work outdoors, and reduced productivity, further pressuring wages to maintain profits), and when these shocks reduce their capacity to produce and reproduce, if the surplus extraction of labour continues or even accelerates, "sending ever more resources towards the top, chances are that the former will rise up.". The outcome of such as situation will be revolution or counter-revolution as a symptom of the effects of climate change.

On the other configuration, there is the possibility of a revolutionary process to treat the symptoms of climate change and the causes of climate change. It would need to put into place policies that could deter the worst effects of runaway climate change and save the perspective of a future for human civilisation. This would mean a fundamental shift in power. It would have many and strong enemies, such as the identified forces that are

obstructing the perfectly known solutions to the climate crisis and the overarching metanarrative of globalised positivist capitalism.

Much like Benjamin's allegory of the train of humanity heading for the precipice, our unfolding climate crisis presents itself as the last chance to save humanity. Pulling the emergency break, cutting GHG emissions on an scale without historical precedent and assuring social justice in this process would necessarily be a revolutionary process of massive scale, to break the current metanarrative of globalised capitalist positivism, save civilisation and reinvent and rediscover humanity. Erich Fromm called for Radical Humanism, a humanisation of all sectors of life, with a new hierarchy of values, the highest being one's development of power of reason, love and compassion, and subordination of all others to these (Fromm, (2003 [1947]: 14–17). The safeguard of the environment would need to be put right on that top list. A new potential metanarrative of climate justice would be, by the characteristics of the time we live in and the direct antagonism towards the present metanarrative of globalised capitalist positivism, revolutionary.

8.3 Extended climate justice metanarrative

The first attempt at a description on the basis of what a climate justice potential metanarrative could be could be summed as:

- A human awakening full of impetus for social reordering;
- A redistribution of power, wellbeing and cooperation;
- A new notion of prosperity inside natural limits and just resource redistribution;
- Reconnection of knowledges and sciences;
- The need for a public and participatory science to address human's and earth's needs;
- The teleology of humanity's collective survival;
- A movement of the excluded against capital and planetary sovereignty.

To this, other important features need to be added:

- Understanding and respecting life system's cycles, favouring life's diversity as an efficient tool against the current increase in entropy in the ecosphere;
- Acknowledging and integrating the care economy into daily life, with the corresponsabilizatiron of men and women for care and maintenance activities - inside homes and in society in general;
- Recover indigenous people's knowledge of biomimicry as a collective tool, promoting human beneficial effects on life cycles and ecosystems, diversifying economic practices;
- Introduce reparation for communities and peoples sacrificed by colonialism and globalisation, repaying ecological debt;
- Understanding capitalist production's incompatibility with basic life system's principles;
- Refusing market ecology / green capitalism, as well as bureaucratic authoritarianism / productivist socialism;
- Ascendancy of use value over trade value for the satisfaction of real needs;
- Perception of the economy as a subsystem of the environment;
- Democratic planning of production based on real needs;
- Substitution of having for being, refusing fetishisation of possession for possession's sake;
- Replacing oppression, imposition and appropriation for cooperation, compassion and mutual aid;
- Acknowledgement of the ecodependency between men and women;
- Radical humanism;
- Social revolution as the emergency break against catastrophic historical evolution.

9.
Conclusions

And now we got a revolution
‘Cause i see the face of things to come
Yeah, your Constitution
Well, my friend, its gonna have to bend
I’m here to tell you about destruction
Of all the evil that will have to end

Some folks are gonna get the notion
I know they’ll say i’m preachin’ hate
But if i have to swim the ocean
Well i would just to communicate

Its not as simple as talkin’ jive
The daily struggle just to stay alive

Singin’ about a revolution
Because were talkin’ about a change
It’s more than just evolution
Well you know you got to clean your brain

The only way that we can stand in fact
Is when you get your foot off our back.

Nina Simone, Revolution

We have stepped into the unknown, creating a planet growingly unlike anything we have ever lived in as human civilisation. Many disruptions are already occurring and will intensify in next decades: increasing inequality, malnutrition, starvation, conflict and wars, not avoiding the richest countries this time. It may be unintended, but it certainly it is not unexpected: the profound transformation exerted by the capitalist system of production over the biosphere on which all human civilisations have depended on for stability and survival, is the biggest risk we face collectively. There is still a narrow path to avoid crossing cataclysmic thresholds, with a time frame of one to two decades, with ten years being the deadline climate science points us as the best possibility to prevent exceeding the 1.5-2ºC global temperature increase that would put us beyond the point of no return and subject us to whichever random effects of a chaotic climate system in search of a new equilibrium.

I have tried to respond to the main question of "Why is there not an adequate and efficient answer to climate change?". I have arrived at an at least partial response: we live under a metanarrative, a grand story that is incompatible with solving this issue, that I have identified as the metanarrative of globalised capitalist positivism. It is based on the capitalism system of production, but it far exceeds it, being a reflection of western worldview that dates back centuries and represents many tidal waves of political thought, including human exceptionalism, western exceptionalism, conquer and oppression of others, be them women inside homes, entire peoples in other continents, or workers in their workplaces, conquering and dominating nature, dividing humanity from nature, man as the mythological hero of unending strength and genius, that twists and shapes everything to its needs and perpetuates itself onto eternity by those very means. Being against the entirety of natural cycles and balances, being against the majority of humanity, the metanarrative of globalised capitalist positivism is both anti-human and anti-survival, as it feeds the myths of exceptionality and infinite productive growth, depriving us of essential knowledge of fundamental principles of the life systems we depend on. It is such a developed tool of hegemony, so naturalised, that even the producers of such a metanarrative not only perpetuate it to instrumentally dominate the ruled classes, but actually believe it themselves, it has become their frame of reference and, as

such, has fixed the world's elites into a worldview which is against the maintenance of stability for human civilisations.

The metanarrative of globalised capitalist positivism contains in itself many characteristics, information and an in-built apparatus to maintain the structure of power that has been guiding most of humanity for the last decades or centuries. It has been an essential tool to prevent us, as a species, from adequately addressing and solving a solvable issue such as climate change: we know how it is caused and we have presently no technological barriers to solving it. The strength of the rich white male western capitalist ideology, turned into "human nature" is the biggest mistake that has occurred in the history of the human species, threatening to be its last. There is little to no possibility of the maintenance of material conditions for human civilisations without the abandonment of this metanarrative. The tools that a metanarrative of globalised capitalism positivism have are many and strong: by dominating formal institutions and commodifying information, culture, science and, in many cases, politics, it created a strong shell to protect itself, to project itself not as a pure system of coercion, but as a system of consensus building, of apparent negotiation, leading even the detractors of part of it to defend the integrity of "order and progress". The metanarrative of globalised capitalist positivism creates a default mode that allows for most of humanity (or at least a big part of it) to think and reflect critically as little as possible on its relationships with other humans and with nature. It is the very commodification of thought, molded into the production of profit and the removal of all obstacles to it. It needs not be compatible with planetary limits, as it sets its goals outside the Earth already. Faced with such tools of hegemony, it is easy and normal to despair.

As such, I looked elsewhere for what is happening, to how the reality of climate degradation is producing successive waves of contradictions against the strength of this metanarrative. The projection of one's ideas into large groups might be a temptation, but in reality, large groups and specially groups that have been historically "erased" from mainstream knowledge are continuously projecting ideas and world views unto others, even from small enclaves and trenches, disputing, at all times, for the possibility of be-

coming part of the next big metanarrative. I questioned the possibility of a new potential metanarrative of climate justice, a new "grand history" for humanity that would give it the tools to tackle the giant challenge of stopping climate collapse and, at the same time, to reclaim a radical humanism, deepening our cooperative skills to cope with destruction on a massive scale that is already happening, through systemic collapses, wars, diseases and population movements.

My research problem was delimited to three Mediterranean countries, in a four year period (three years of field work) working both with large groups of people engaged in climate policy development (in ClimAdaPT.local in Portugal, as well as in dozens of interviews in Spain and Morocco) and with climate justice activists. To evaluate the appearance of a climate justice potential metanarrative, I proposed six criteria:

- A scientific history connected with political institutions;
- Participation in the media circus;
- Strong moral character;
- Strong connection to History;
- Power to produce laws;
- A social and political body.

The first four are in existence, as I expressed in chapter 3, and I set myself to evaluate a climate justice potential metanarrative's power to produce laws and the existence of a social and political body for this.

The interviews and enquiries allowed for the combination of positive and reflexive methods, to qualify the possibility of a potential metanarrative of climate justice, through questions on climate change perceptions, responsibilities on climate action, importance given to climate change, effectiveness in climate policy, participation in climate policy and world views. These interviews allowed for very relevant insights of groups and people directly connected to climate action and climate policy, through direct and through indirect questions on a climate justice potential metanarrative and its compo-

nents, as well as climate policy as the clash within the currently dominant metanarrative.

On the other hand, the climate reality gaps allowed me, through a method of positive science, to do a "quantification" of the metanarrative of globalised capitalist positivism, identified in the gaps between real emissions, pledged emissions and Paris Agreement (1.5ºC and 2ºC) compatible emissions pathways, a physical manifestation of the dysfunctional discourse regarding climate change, with the contradictory assumption of science-based targets and the political refusal of said targets. This revealed a built-in climate policy under-reaction that can be largely explained by the metanarrative of globalised capitalist positivism.

Finally, as fieldwork in the Extended Case Method is a process of successive approximation to theory, after the initial theory advanced in chapter three was again revisited in chapter 8, extending the definition of a climate justice potential metanarrative proposed in chapter 3 and studying of the climate justice movement and its three main components - Blockadia, Youth Climate Strike and Extinction Rebellion, political characteristics and political programs.

Initially, I proposed three hypotheses:

1. A climate justice potential metanarrative is far from being a reality, with institutions and public policies not responding to the contradictions brought on by climate change;
2. There are signs of the emergence of a climate justice potential metanarrative, with a push for the creation of new institutions, adaptation of old ones, public perception of the dimension of the problem of climate change and effective legislative responses to it;
3. The climate justice potential metanarrative is overwhelming the metanarrative of globalised capitalist positivism, with climate policy developed in an inclusive way, pro-

moted in society and socially accepted, with strong institutional arrangements for them.

The first hypothesis was refuted by my research plan, while I found evidence in my field work and observations that the second one has not been refuted. If this thesis had finished in the summer of 2018, there would be no doubts that the hypothesis of "signs of the emergence of a climate justice potential metanarrative" would be the sole possibility, with the refutation of hypothesis number 3 as well, but the appearance of the Youth Climate Strikes, Extinction Rebellion and the expanding political programs on climate justice, namely the most science-based Green New Deals, lead me to not outright refute hypothesis 3, although I maintain hypothesis 2 as the strongest and hypothesis 1 as refuted.

As I outlined in chapter 4, further studies would help solidify my thesis of the emergency of a climate justice potential metanarrative, through studies on media, social media, political parties or academia. The constant evolution inherent to the hypotheses I raised will always leave open possibilities of shifts in other directions.

Regarding the three extensions of the adapted version of Burawoy's Extended Case Method that I applied: the climate policy gaps and the interviews and inquiries represented the extension of public policy into metanarrative; the study of the climate justice movement and the characteristics of the metanarrative are the extension of observations over space and time, and the interviews and study of the climate justice movement are the extension of theory, although there were no clear findings to allow for a refutation of theory, but rather a deepening and extension of the proposal of what the climate justice potential metanarrative might be.

In conclusion, regarding the methodology: the climate reality gaps quantified and revealed the very strong contradiction between the metanarrative of globalised capitalist positivism and the requirements to avoid climate collapse, the interviews and enquiries presented the signs of a shaking metanarrative of globalised capitalist positivism and the

opening for a climate justice potential metanarrative, while the climate justice movements provide the clearest sign of this climate justice potential metanarrative, with competing features but some cohesion in central issues. I have then proposed a reformulation and extension of what may be central features of the climate justice potential metanarrative.

New metanarrative or bust

Climate change already is the new natural history of the Earth. This is established, measured and its subsequent chapters are well modelled, with different scenarios built up until the chaotic nature of climatic events kicks in. But climate change is also already the new political history of humanity. This is disguised in the form of other crises, the crisis of the poor becoming poorer, the crisis of care, the crisis of mass movements and refugees, the crisis of barbarism rising in the form of far-right movements, the crisis of neoliberal capitalism, the crisis of the capitalist system of production and the crisis of the metanarrative of globalised capitalist positivism. The capitalist system of production disguises the growing scarcity of raw materials and energy, externalising the cost with the increase in entropy in the earth system, in the atmosphere, the oceans, soils, water, animals, cities and humans. This is an increase in entropy in all life systems, causing mass extinction of species, the 6th mass extinction period on Earth's history.

The current metanarrative of globalised capitalist positivism hides this, divides, separates and obfuscates the strict interconnection between the natural history of the Earth and the political history of humanity, the strict interconnection between the climate crisis, the crisis of care, the crisis of refugees, the crisis of the rise of far-right movements, the crisis of capitalism, the crisis of biodiversity and mass extinction.

In the next ten years much will be decided in terms of humanity's future. We will see either nothing happening with the prevalence of the current metanarrative of globalised capitalist positivism, small transformations or the creation of a transformation society. O'Riordan and Lenton (2013) address this in three scenarios:

- with a ‘lock-in’ first scenario marked by prolonged overall economic decline and turmoil, with some successes of emergent eco-friendly and socially beneficial technology that will reinforce efforts to keep the globalised industrial world by generating more technological hope of fixing the problems generated by the capitalist economy, with growth, production and demand, further locking-in to a n unavoidable catastrophic future;

- with a second scenario where there are some accommodations to calamities, and close to the ‘lock-in’ scenario there are efforts to establish ‘adaptive’ resilient communities across the planet that embrace sustainable energy, low carbon, water and waste technologies and the emergence of a more local, autonomous an communal society and trade; but overall, tipping points, most of them climatic, “will contribute to human disruption and misery, despite many islands of resilience and hope”;

- The third scenario is a progressive combination of the previous ones, with the threats of climate collapse and the example of ‘islands of hope’ transforming governance, politics and markets into a world of sustainable living. This will always happen facing the risk of social violence, economic disintegration, destitution and irrecoverable global damage.

A revolutionary process, beyond the third scenario, in which the global integrated capitalism is defied and in many places substituted by ecosocialist politics on the international scale, even with all the underlying previously identified risks, is the most effective alternative to stop climate collapse, substituting and/or overthrowing national and international institutions to achieve massive emission cuts with social justice and subversion of capitalist social and economic logic.

Much of what will happen in the next decade will depend on the establishment of a clear alternative potential metanarrative of climate change to dispute the metanarrative of

globalised capitalist positivism. The characteristics of this potential metanarrative of climate justice are needed to usher a global agenda of social justice, just transition, localism and low carbon. This potential metanarrative will feed and be fed by political programs such as climate jobs and green new deals, which will be colliding head on against political programs of perpetuation of inequality, prejudice, brutalisation of social relations and necropolitics. This is a new tidal current that will dominate political systems and policies, creating divergent worldviews facing what can only be described as a new world.

"Why is there not an adequate and efficient answer to climate change?", why aren't we trying to save ourselves as a species? Because of the current metanarrative that has no other perspective, no other story to tell except the maintenance of the current economic system and the current social *status quo*. It has little to do with reality. It is a poor story, a poor grand history for us as a species. The creation of a transformation society requires a new grand history, potentially a new metanarrative of climate change and social justice, of climate justice.

We need a new grand new history, about where we come from and where we might be heading, not on the sombre tone of apocalypse and catastrophe that the metanarrative of globalised capitalist positivism gives us - the continuation of globalisation, capitalism and positivism combined in the status of metanarrative and the maintenance of its productive system and social *status quo* will lead us into our demise. Getting rid of it is part of the grand new history we need to aspire to, not because of despair or because of hope, because of survival. We don't need to learn everything from zero, but we do need to collectively remember other histories and know how we have arrived at this point. Climate justice will have its fighting day. In the end, it may win or it may lose, but hopefully if it is based on life and diversity, it will allow for a restoration of life and the creation of a rich and diverse humanity.

10.

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11. Annexes

Annex 1. Enquiries

1. Enquiries ClimAdaPT.local

Questionário – Atores-chave locais

ClimAdaPT.Local

MUNICÍPIO: _____

Caro participante,

Este questionário foi preparado pelo Instituto de Ciências Sociais (ICS-ULisboa), em colaboração com a Faculdade de Ciências da Universidade de Lisboa (FCUL), no âmbito das ações de implementação e monitorização do projeto **ClimAdaPT.Local.**

O objetivo é recolher informação para apoiar a elaboração da Estratégia Municipal de Adaptação às Alterações Climáticas (EMAC) nos 26 municípios participantes. Os dados recolhidos serão trabalhados estatisticamente apenas no âmbito deste projeto e são confidenciais.

Agradecemos antecipadamente o **preenchimento deste pequeno questionário no final da sessão** e estaremos ao dispor para esclarecer quaisquer dúvidas.

SECÇÃO I – CARACTERIZAÇÃO INSTITUCIONAL

1. Nome da instituição que representa (preenchimento facultativo)

2. Tipo de instituição que representa (por favor indique a área de atividade à frente da categoria selecionada)

1. ☐ **Empresa** – Área de atividade? _____
2. ☐ **Associação Socioprofissional** – Área de atividade? _____
3. ☐ **Sindicato** – Área de atividade? _____
4. ☐ **ONG / ONGA** – Área de atividade? _____
5. ☐ **ADL** – Área de atividade? _____
6. ☐ **IPSS** – Área de atividade? _____
7. ☐ **Outra associação** – Área de atividade? _____
8. ☐ **Administração Central** – Área de atividade? _____
9. ☐ **Administração Regional** – Área de atividade? _____
10. ☐ **Instituição de Ensino (Pública)** – Grau de Ensino? _____
11. ☐ **Instituição de Ensino (Privada)** – Grau de Ensino? _____
12. ☐ **Outra** – Especifique _____

3.Dos seguintes, quais o(s) setor(es) da Estratégia Nacional de Alteração às Alterações Climáticas (ENAAC) que mais interessam à sua instituição? (Por favor assinale todos os que interessarem)

1. ☐ **Agricultura, Florestas e Pescas**
2. ☐ **Biodiversidade**
3. ☐ **Energia e Indústria**
4. ☐ **Ordenamento do Território e Cidades**
5. ☐ **Recursos Hídricos**
6. ☐ **Saúde Humana**
7. ☐ **Segurança de Pessoas e Bens**
8. ☐ **Turismo**
9. ☐ **Zonas Costeiras**

3.1 Há algum outro setor que gostaria de ver tratado? Por favor especifique.

SECÇÃO II – CARACTERIZAÇÃO PESSOAL

4. Género 1 ☐ Feminino 2 ☐ Masculino **6.** Idade

5. Grau de escolaridade? (por favor indique o último grau que completou)

6. Profissão *(seja tão concreto como possível, evitando expressões como funcionário público)*

7. Designação da função desempenhada na instituição que representa

SECÇÃO III – CONHECIMENTO E OPINIÃO

8. Na sua opinião, em que medida são atualmente as Alterações Climáticas um problema grave?

	1 Não é grave	2	3	4	5	6 É muito grave	9 NS/NR
Ao nível global	☐	☐	☐	☐	☐	☐	☐
Ao nível nacional	☐	☐	☐	☐	☐	☐	☐
Na sua região	☐	☐	☐	☐	☐	☐	☐
Neste município	☐	☐	☐	☐	☐	☐	☐

9. Na sua opinião, que nível de responsabilidade deve ser atribuído a cada uma das seguintes entidades no que se refere à resolução dos problemas relacionados com as Alterações Climáticas?

	1 Têm pouca	2	3	4	5	6 Têm muita	9 NS/NR
1) União Europeia	☐	☐	☐	☐	☐	☐	☐
2) Governo	☐	☐	☐	☐	☐	☐	☐
3) Regiões Autónomas	☐	☐	☐	☐	☐	☐	☐
4) Administração pública central	☐	☐	☐	☐	☐	☐	☐
5) Administração pública desconcentrada (regional)	☐	☐	☐	☐	☐	☐	☐
6) Câmaras Municipais	☐	☐	☐	☐	☐	☐	☐
7) Juntas de Freguesia	☐	☐	☐	☐	☐	☐	☐
8) Empresas / Setor privado	☐	☐	☐	☐	☐	☐	☐
9) Associações da sociedade civil	☐	☐	☐	☐	☐	☐	☐
10) Cidadãos	☐	☐	☐	☐	☐	☐	☐

10. Na sua opinião, como tem sido a ação de cada uma das entidades no que se refere à resolução dos problemas relacionados com as Alterações Climáticas?

	1 Fazem pouco	2	3	4	5	6 Fazem muito	9 NS/NR
1) União Europeia	☐	☐	☐	☐	☐	☐	☐
2) Governo	☐	☐	☐	☐	☐	☐	☐
3) Regiões Autónomas	☐	☐	☐	☐	☐	☐	☐
4) Administração pública central	☐	☐	☐	☐	☐	☐	☐
5) Administração pública desconcentrada (regional)	☐	☐	☐	☐	☐	☐	☐
6) Câmaras Municipais	☐	☐	☐	☐	☐	☐	☐
7) Juntas de Freguesia	☐	☐	☐	☐	☐	☐	☐
8) Empresas / Setor privado	☐	☐	☐	☐	☐	☐	☐
9) Associações da sociedade civil	☐	☐	☐	☐	☐	☐	☐
10) Cidadãos	☐	☐	☐	☐	☐	☐	☐

SECÇÃO IV – INFORMAÇÃO, AÇÃO, PARTICIPAÇÃO

11. Na sua opinião, qual a importância atribuída à temática das Alterações Climáticas neste município? E ao nível nacional?

	1 Não é nada importante	2	3	4	5	6 É muito importante	9 NS/NR
1. Neste município	☐	☐	☐	☐	☐	☐	☐
2. Ao nível nacional	☐	☐	☐	☐	☐	☐	☐

12. De acordo com a sua experiência, como tem sido a participação da sociedade civil/cidadãos nas questões das Alterações Climáticas neste município? E ao nível nacional?

	1 Não tem existido	2	3	4	5	6 Tem sido elevada	9 NS/NR
1. Neste município	☐	☐	☐	☐	☐	☐	☐
2. Ao nível nacional	☐	☐	☐	☐	☐	☐	☐

13. Já participou nalguma iniciativa ou projeto relacionados com as Alterações Climáticas?

1 ☐ Sim 2 ☐ Não

13.1. Se sim, refira o mais importante

14. Já conhecia o ClimAdaPT.Local antes de ter sido contactado para participar neste workshop?

1 Não, nunca tinha ouvido falar	2	3	4	5	6 Já e acompanhava com muito interesse	9 NS/NR
☐	☐	☐	☐	☐	☐	☐

15. Qual é a importância que atribui ao projeto ClimAdaPT.Local para a Estratégia de Adaptação às Alterações Climáticas neste município? E ao nível nacional?

	1 Pouco importante	2	3	4	5	6 Muito importante	9 NS/NR
1. Neste município	☐	☐	☐	☐	☐	☐	☐
2. Ao nível nacional	☐	☐	☐	☐	☐	☐	☐

SECÇÃO V – AVALIAÇÃO DO WORKSHOP

16. Como avalia o presente workshop?

	1 Muito negativa	2	3	4	5	6 Muito positiva	9 NS/NR
1. Importância das matérias discutidas	☐	☐	☐	☐	☐	☐	☐
2. Clareza das ideias apresentadas	☐	☐	☐	☐	☐	☐	☐
3. Capacidade de promover a participação	☐	☐	☐	☐	☐	☐	☐

17. Com este workshop acha que ficou melhor preparado para participar em projetos relacionados com a adaptação às Alterações Climáticas?

1 Não, nem por isso	2	3	4	5	6 Sim, muito melhor	9 NS/NR
☐	☐	☐	☐	☐	☐	☐

2. Enquiries Spain and Morocco.

Enquiry Academia

1.How would you describe the national legislation currently existent on climate change?

1.Do you think that the current national climate legislation is effective?Why?

2. What about local climate legislation?

3. Has academia participated in the elaboration of the national legislation?

3.1 What about you?

1.Does this research center have connection with social movements?

2.Which ones?

3.What connections does it have?

4. Does this research center / unit have connections with private companies?

5.Which ones?

6. What connections does it have?

7. Does this research center / unit participate in any official political body on climate change?

6.1 What about you?

1. Does the research center / unit have any connection to public power?

2. Do you use new methodologies to design public policies?

3. From 1 to 10, how would you classify the importance of climate change in public policy in the State / Region / Municipality?

4. If you had to chose between adaptation policies and mitigation policies as priority, which ones would you choose?

5. Do you believe that climate change may become the biggest problem for the survival of humanity?

6. What are the biggest threats and opportunities that climate change brings at a national level and at a regional level?

7. Do you believe more in a technical solution or in socio-economic change to deal with climate change?

8. Are you hopeful or discouraged about the future?

Enquiry local power

1. Are you familiar with the issue of Climate Change?

2. From 1 to 10, what is the importance of the issue of climate change in your country?

3. What about in the locality of _____?

4. What are the biggest threats and opportunities connected to climate change on the local level?

5. Do you consider that there are good local legislative tools (strategies, partnerships, municipal laws) about climate change?

4.1 Can you describe them?

1. In what area/office do you think there has been a bigger focus on the issue of climate change (transports, industry, agriculture, energy efficiency, etc.)? Do you think the municipality has technical competence on this issue?

2. Is there and office, local council or consultive council focused mainly on climate change? Do you think it would make sense for it to exist? What kind of institution do you think would be more adequate do deal with the issue of climate change locally?

3. When you have to deal with this question, with which state or regional structure do you contact (institutes, national directions, ministries)?

4. From 1 to 10, how often does the municipality of _____ use participative democracy tools?

5. Does the municipality have connections with social movements on the issue of climate change?

1.Which ones?

2.What connections does it have?

3. Does the municipality have connections with private companies?

4.Which ones?

5. What connections does it have?

6. Does the municipality have connections with universities and research centers?

6.Which ones?

7. What connections does it have?

1. Imagine that due to climate change you were faced with the decision to relocalise a part of the population or constructing a territorial defense structure that would cost three times as more. How would you deal with this?

2. Are there enough financial resources to plan and implement public policies on o climate change?

3. Imagine that there was a possibility to give an enormous focus on climate change policies in the municipality. Como acha que isso seria percepcionado socialmente? Which stakeholders do you think would support such a decision and which ones would oppose it?

4. Put in order of priority the following issues:

- Competitiveness
- Well-being
- Climate Change
- Terrorism
- Economic Development
- Investiment
- Social Justice
- Exports
- Economic Growth
- Budgetary balance

5. Has the municipality been involved in any social or legal action connected to climate change mitigation?

6. Imagine that you had to give priority to one of two lines of public climate policy: mitigation or adaptation. Which one would you choose and why?

8. Do you believe that climate change may become the biggest problem for the survival of humanity?

9. Do you believe more in a technical solution or in socio-economic change to deal with climate change?

10. Are you hopeful or discouraged about the future?

Enquiry Social Movements

I) About Climate Legislation

1. Do you know national climate legislation well?
2. Do you think national climate legislation is effective? Why?
3. Which are the positive and negative points of said legislation?
4. Do you think could know climate legislation better?
5. Have you participated in a public consultation regarding national climate legislation?
6. Do you think that the participation in the public consultation had an impact on the final text approved?
7. Do you know if there is local legislation on climate change?
   7.1 What is it?
8. Have you ever been involved in a legislative process: petitions, Citizen's legislative initiative - directly or indirectly connected to climate change?
   8.1 What were the results?
9. About initiatives in the movements you work with, what legislative impacts have you obtained on the issue of climate change? Legislation changes, projects cancelled, projects approved, etc.?
   9.1 Were the results enough to achieve the movement's objectives?
10. On a scale of 0 to 10, how would you classify the importance of climate change in national legislation?
11. Does your movement participate in any consultive body or other political body on climate change?

II) About the movement

1. When did you join the movement?
2. Why did you joy the movement?
3. Which are the tools and strategies of the movement to win?
4. What is the biggest weakness and the biggest strength of the movement?
5. What were the biggest victories and the biggest defeats of the movement so far?
6. How do you perceive the movements' social and popular legitimacy?
7. How many people participate in the movement (Operational core / mobilized) ?
8. On a scale of 0 to 10, how important is climate change inside your movement?
9. Has your movement been invited to take a position on legislative shifts regarding climate change? By whom? Which ones?
   9.1. Were there any changes due to that position taken?

10. Does your movement have connections to oficial and international institutions? Which ones?
    10.1. If not, do you think that it could have?

11. Of the follow six adjectives, which two would you use to describe your movement?
    - Anticapitalist
    - Transition
    - Reformer
    - Environmentalist / Ecologist
    - Altermondialist
    - Libertarian

12. Choose by order of priority which issues to solve in the world
    - Poverty
    - Illiteracy
    - Climate Change
    - Nature Conservation

- Opression of women
- Mass migration
- Religious violence
- Workers's exploitation
- Resource extraction
- Unemployment

13.Imagine that you had to give priority to one of two lines of public climate policy: mitigation or adaptation. Which one would you choose and why?

14. Do you believe that climate change may become the biggest problem for the survival of humanity?

15. Do you believe more in a technical solution or in socio-economic change to deal with climate change?

16. Are you hopeful or discouraged about the future?

Enquiry Central Government

1. Are you familiar with the issue of Climate Change?

2. From 1 to 10, what is the importance of the issue of climate change in your country?

3. What are the biggest threats and opportunities connected to climate change on the national level?

17.Do you consider that there are good national legislative tools (strategies, partnerships, laws) about climate change?

4.1 Can you describe them?

1.In what office/ministry do you think there has been a bigger focus on the issue of climate change (transports, industry, agriculture, energy efficiency, etc.)? Do you think the government has technical competence on this issue?

2. Is there a ministry, secretary of state, national council focused mainly on climate change? Do you think it would make sense for it to exist? What kind of institution

do you think would be more adequate do deal with the issue of climate change locally?

1. Do you think that if there was a Ministry of Climate, that ministry could be as powerful as a Ministry of Finance?

2. When you have to deal with the issue of climate change, with which structure do you talk to (Institutes, Directorates, Ministrys)?

3. From 1 to 10, how often does the government use participative democracy tools on climate policy?

2.Does the government have connections with social movements on the issue of climate change?

3.Which ones?

4.What connections does it have?

5. Does the government have connections with private companies?

6.Which ones?

7. What connections does it have?

8. Does the government have connections with universities and research centers?

9.Which ones?

10. What connections does it have?

11.Imagine that due to climate change you were faced with the decision to relocalise a part of the population or constructing a territorial defense structure that would cost three times as more. How would you deal with this?

12. Are there enough financial resources to plan and implement public policies on o climate change?

13. Imagine that there was a possibility to give an enormous focus on climate change policies in the country. How do you think this would be socially perceived? Which stakeholders do you think would support such a decision and which ones would oppose it?

14. Put in order of priority the following issues:

- Competitiveness
- Well-being
- Climate Change

- Terrorism
- Economic Development
- Investiment
- Social Justice
- Exports
- Economic Growth
- Budgetary balance

1.Imagine that you had to give priority to one of two lines of public climate policy: mitigation or adaptation. Which one would you choose and why?

2. Do you believe that climate change may become the biggest problem for the survival of humanity?

3. Do you believe more in a technical solution or in socio-economic change to deal with climate change?

4. Are you hopeful or discouraged about the future?

Enquiry Private Companies

1. From 1 to 10, how would you evaluate the consciousness of the impacts of climate change in the country's society?

2. From 1 to 10, how would you evaluate the consciousness of the impacts of climate change in the country's businessmen?

3. How would you describe national legislation on climate change?

4. Do you think the current national climate legislation is effective? Why?

5. Do you think that the current national climate legislation is too restrictive of economic activity? Why?

6. Is there local climate legislation? How would you evaluate it?

7. Have the companies participated in elaborating national climate legislation?

3.1 How about your company?

1. Does your company have good connection with universities / research centres?

2. Which ones?

3. Which connections?

4. Does your company participate in any official body on climate change?

6.1 What about yourself?

1. Does your company have any partnership with public powers?

2. From 1 to 10, how would you classify the importance of climate change inside the national legislation?

3. Imagine that you had to give priority to one of two lines of public climate policy: mitigation or adaptation. Which one would you choose and why?

4. Do you think there is a conflict between a future of climate change and the capacity to produce goods and services while generating profits in many sectors?

5. Do you think that its possible do echo in products and services's prices the impact that economic activities such as energy production have on climate change?

6. Do you believe that climate change may become the biggest problem for the survival of humanity?

7.Quais são para si as maiores ameaças e oportunidades que as alterações climáticas têm a nível do Estado e a nível da região?

8. Do you believe more in a technical solution or in socio-economic change to deal with climate change?

9. Are you hopeful or discouraged about the future?

2. Responses to the Questionnaires in Spain and Morocco

CODES:
S - Spain
M - Morocco
SM - Social Movement
LP - Local Politician
NP - National Politician
A - Academic
PC - Private Company

General questions:

1-10 Are you familiar with climate change?	**Code**	**Reply**
	SLP1	10
	SLP2	10
	SSM1	10
	SLP3	8
	SNP1	8
	SNP2	9
	SNP3	10
	SNP4	10
	SNP5	10
	SLP4	8
	MLP1	7
	MLP2	9
	SNP6	5
	SLP5	10
	SLP6	10
	SNP7	8

SUMMARY

Familiarity with climate change (16): 8,9/10

Do you believe climate change can become the biggest problem for the survival of humanity?	Code	Reply
	SLP1	Yes, clearly
	SLP2	Yes
	MSM1	It will be, when we go beyond 2-3ºC people will finally see what climate change is.
	MSM2	Yes
	SSM2	Yes

	MSM3	I think it already is the biggest problem
	MSM4	In a century, yes. If we fail, other species will colonise the earth.
	MSM5	I don't know, I think its still very far away, it may not be the biggest problem.
	SA1	Yes, I do. Its a fundamental issue, and it aggravates other problems such as poverty and mass migrations.
	SSM1	It will be. It is.
	SLP3	Yes, it can
	SNP1	Yes
	SNP2	Yes
	MSM6	Yes, for sure. It starts with increasing temperature, rising sea levels, more flooding in certain areas and drought in others. Its the recipe for World War III, specially in terms of water resources, because the value of water is unquestionable, without water there is no survival.
	MSM7	Yes, I think climate change is already the biggest problem for the survival of humanity. Only if earth is in good "health" can humanity be in good health.
	SSM3	Yes, I think so, at least everything is pointing in that direction. The consequences are very dire. The question is how you transmit this message, like telling someone they have a very serious cancer, the margin for listening is small, but the alert signs are very very serious.
	SNP3	Yes
	SNP4	It already is
	SNP5	It already is
	SLP4	Yes
	MSM8	Yes
	MSM9	Yes, certainly. All experts reports confirm this beyond any doubts. With climate extremes, the rising sea levels, the coastlines being engulfed, droughts, lack of water and climate refugees that will surpass 600 or 700 millions by 2050. Climate change is more serious than we think.
	MSM10	Yes
	MLP1	No, there have always been climate changes at least during the last 60 years.
	MLP2	Certainly, with droughts, rising sea levels, flooding, the earth is in danger.
	MPC1	Yes, but only for my grandchildren. With rising sea levels, specially in poor regions with precarious housing it will be extreme.
	MSM11	Absolutely. We're already almost out of water.

	SSM4	It already is.
	SSM5	Yes.
	SNP6	No.
	SA2	Yes, no doubts.
	SSM6	It already is one of the most important or the most important.
	SSM7	Yes
	MSM12	Yes
	MSM13	It already is
	MPC2	Yes, if we continue like this its going to be a nightmare.
	MSM14	Yes.
	MSM15	Yes, its the source of many other problems as well: unemployment, recession
	MSM16	If we don't solve things by 2020, everything will worsen.
	MSM17	Yes
	MSM18	Yes, if we don't stop I think we will go extinct.
	SSM8	Yes, accompanying other environmental problems.
	SNP7	It already is

SUMMARY

Biggest Issue for survival (43): 40 yes (and variables such as "It already is" or "In the near future it will be) 93%, 2 no 4,7%, 1 "I don't know" 2,3%.

1-10 Importance of climate change in national legislation	Code	Reply
	MSM1	7 (in theory)
	MSM2	8
	MPC3	5
	SSM2	2
	SA1	2
	SSM1	1

	SNP3	8
	SNP4	4
	MPC1	5
	MSM11	9
	SSM4	2
	SSM5	3
	SA2	4
	SSM6	3
	SSM7	2
	MSM13	5
	MPC2	9
	MSM14	8
	MSM15	10
	MSM16	10
	MSM17	9
	MSM18	10
	SSM8	4
	SNP7	8

SUMMARY

Importance of climate change in national legislation(24) : 5,45/10

Maximum importance (10) in three moroccan activists / Minimum importance (1-2) in five Spanish activists and academics

Do you know national climate legislation well? Do you think its effective?	**Code**	**Reply**
	SLP2	I don’t know it in detail. Its not my subject. I know what’s not being done.
	MPC3	Not effective, specially in terms of biomass.

	SA1	More than a specific plan, legislation is more distributed in different sectors connected to climate change where there have been major changes per example in the question of renewable energies, where there was a phase during the late 90's and 2000's when there was a favourable legislative framework for the development of renewable energy with a feed-in system of guaranteed prices connected to the grid. This stopped with the economic crisis, when there were cuts to the prices and a total moratorium on new installations. Legislation for self-consumption in energy wasn't developed, although it had high potential. Not effective at all: emissions were very high before the crisis, and there was no effort to fulfill Kyoto compromises: it could raise by 15% and it rose 50%. With the crisis emissions dropped, but this was not due to any legislation, no carbon tax, the only thing connected to this was the EU emissions market.
	MSM1	The The ministry of environment is the ministry responsible for issues of climate change. I know some laws, yes. About efficacy, there are two perspectives: we have good laws but in practice, when we talk about applying them, its different. We have some laws that only appeared too late: the law of the coastline that appeared only in 2015 and we've demanded it since 2006, and now it'll take some more time to have it running. In practice, its very different: we talk about global warming, the way to limit the rise in temperature but at the same time the government launches new projects, extends lifetime periods for coal power plants (at least three), and launches new coal plants such as the one in Safi. Also the issue of shale gas and exploration concessions. Morocco says one thing and does another. If we have compromises we should respect these compromises. If the government says that we're going to have a strategy to limit global warming, we need to opt clearly for projects based on renewable energy, like the project in Ouarzazate with its giant plant (although we have some reserves on this), but the objective of having 100% renewable energy is possible, so we shouldn't be discussing the 22, 23 or 24% objective for renewables. We need to follow the example of countries who've made it 100% renewables. There are certain countries who've chosen this path and its even more interesting in economic terms, as renewables are becoming cheaper than fossil fuels. Its advantageous in climatic terms as well as in economic terms. We want Morocco to follow such a strategy.
	MSM2	No, not at all. 2014-2015 saw a lot of new legislation in the domain of energy to allow the private sector's entrance in production, distribution and commercialisation.
	SSM2	No, I don't know it well. The one we know better is the "Sun Tax", because it came out a lot in the press. Also some restriction on automobiles, on circulation, on speed, per example in Madrid. I don't know if its effective, but I think it will be.
	MSM3	Yes, but specially things connected to international agreements, such as the Objectives for Sustainable Development or the Paris Agreement, the United Nations Framework to stop desertification and such. The effectiveness depends on the objective: I've worked in projects to stop soil erosion but many objectives are put into a market perspective and so we end up intensifying production increasing labour precarity and in the long run increasing erosion.
	MSM4	Fairly well, there are three emergency laws, on environmental impact assessments, and Environmental Charter (with objectives on pollution), and a law about solid waste and water treatment. They're not effective: in the country there is still a lot of polluting, territorial management very much against the environment. There's also a new legislation about the coastline which makes it more difficult to build there. But it all lacks application civil society is not involved in this, that is, the real civil society, for there are also predators in civil society, proxy associations created to capture subsidies. We need a real civil society that stands up to power and not a fake civil society that pays lip service to power, associations that do nothing, used to break struggles, to appear as puppets (figurantes), that are formed to participate in international events such as the MED-COP and the COP22 in Marrakesh.
	MSM5	No

	SSM1	As far as I know there is no legally binding laws about climate change, so I'm no sure what they're for. No enforcement of legislation. About climate change, yes, they have laws to support global warming, fossil fuel subsidies, preferencial treatment for infrastructure: airports, highways. There is huge amount of legal infrastructure to support fossil fuel industry. These are laws about climate change. The strengthening of imigration laws: those are laws about climate change. They're very effective.
	MSM6	Its very well developed legislation, Morocco is country well ranked in terms of ecology, and its a country that is not an important polluter. There are three major laws on water, environment and the litoral, with polluter payer principles applied to big companies and factories. In terms of the litoral, there are yearly competitions on "blue beaches". I think they're effective, they're well applied, but there are small problems in industrial towns such as Casablanca but Marrakesh, for example, its an ecologic town, with solar energy, water management, hydraulic energy from dams, Morocco is on a very good path on water issues.
	MSM7	I think the laws are well, they're there, regulation as well but the biggest companies in most cases don't respect the law, and that's the problem. The law need to apply to all: big companies as well as small companies, we can't have laws that only apply to small companies.
	SSM3	Well enough, from the transposition of European directives and the Paris Agreement. I don't think they're effective at all.
	MSM8	Yes, and i think its effective but its not well implemented
	MSM9	Yes, but legislation is not enough, we need good governance and the laws need to be respected and abided by everyone.
	MSM10	There's no specific legislation on climate change but I know well the Environmental Charter, which I think is effective.
	MPC1	No.
	MSM11	Partially. I don't think its effective at all.
	SSM4	Yes, there's no climate law directly. There were some plan and programmes but they all collapsed with the PP government. So nothing's effective.
	SSM5	Yes, what exists of the kind. Its not effective at all, the only time when emissions were reduced was during the financial crisis.
	SA2	I know it well. There's no climate law, only plans and strategies. At state level, there's transposition of European directives, until 2010 there was an ambitious strategy, but with the election oPP it all fell. It used to be effective, we were even advanced in fighting climate change, but it all collapsed.
	SSM6	Not very well, but its basically transposition of international agreements and directives, like Kyoto Protocol. It isn't effective at all, emissions only fell during the crisis, otherwise there was an construction boom and an emissions boom as well.
	SSM7	Relatively well, more than laws, there are plans, strategies, nothing global. There's a Basque law of climate change, but nothing of this is very effective.
	MSM12	Yes, there's the Plan Vert, the investment in renewables and water. Its still difficult to measure its effectiveness.
	MSM13	Yes, there are three main ministerial departaments: forests and soil, environment and water. There's legislation on the litoral, water, wetlands, protected areas, but there is no coordination between ministries. There's a push for renewables, both solar and hydraulic. The texts of the laws that exist are effective, but they's implemented without any attempt at public participation.

	MPC2	Yes, there's the Environment Charter, Environmental and Water Law, The Solar Plan, The Masen Plan. They need measures of evaluation and they need severe supervision.
	MSM14	No. Its just papers.
	MSM15	At MENA there's a lot of rich legislation in this area.
	MSM16	I know the Law to stop plastics
	MSM17	We have a good legislation, but we lack governance.
	MSM18	The main objective of these laws is to profit from natural resources
	SSM8	I know something, but not very much. More on a regional/local level. The government's discourse (from PP) is very denialists, accusing us of alarmism.

SUMMARY

Do you know climate legislation (32): Yes (good examples): 15 - 46,9%; Yes (wrong examples):7 - 21,9% Yes (no examples): 4 -12,5% - ; No 6 - 18,8%

Is it effective? No: 17 - 65,4%; Yes: 4 - 15,4% ; No reply: 5 - 19,2%

If you had to choose between adaptation or mitigation policies as a priority, which would you choose?	Code	Reply
	SLP1	Mitigation
	SLP2	Adaptation, because there is already a lot of people suffering from the effects.
	MSM1	Mitigation
	MSM2	Mitigation
	SSM2	Mitigation
	MSM3	Its a bit reductive as a question, but adaptation I think
	MSM4	Both
	MSM5	Adaptation, because this allows to save people's lives directly and immediately
	SA1	Mitigation, because the more we mitigate emissions, the less we will have to adapt, so its a priority.
	MPC3	Both

	SSM1	Mitigation. We're still in a phase where mitigation has exponencial impacts. Energy put into mitigation now will have more impact on the future than adaptation. Also, adaptation is a local issue, mitigation is a global issue. In privileged countries we need to be continuing to prioritise the global, because we are responsible for this problem.
	SLP3	Mitigation because we are causing this situation. Specially in more developed countries we are more responsible to find the solutions.
	SNP1	Both. They both go together. Most of mitigation actions also force you to adapt, they have to do with a life in community, living with less, the forbidden word "degrowth". But I think socially its easier to make a push for mitigation than adaptation.
	SNP2	Adaptation
	MSM6	Adaptation because it touches all population, citizens need to adapt to climate change, while mitigation, for me, is a question of government, or power and policies.
	MSM7	Adaptation, if we start to reduce emissions, its a great job but we need to adapt.
	SSM3	Mitigation, but both are very necessary. With a temperature increase above 2ºC, everything will be very very difficult.
	SNP3	Mitigation
	SNP4	Adaptation
	SNP5	Mitigation, because there's an growing inbalance that can only start to be corrected if we stop adding to the problem.
	SLP4	Adaptation, as we are already living in a mutated climate.
	MSM8	Both
	MSM9	The countries in the south need to focus on adaptation and the countries in the north need to make the big mitigation effort. Our emissions are minimum and we need to adapt to climate constraints, and we need energy to create a new model of development and production different from the one in the north.
	MSM10	Adaptation, because we need to promote authoctonous species in the territories and an agriculture that is not agressive towards the environment
	MLP1	Both.
	MLP2	Adaptation.
	MPC1	Adaptation. We are a developing country and we need to catch up.
	MSM11	Adaptation. We are already desperately in need of it.
	SSM4	Mitigation

	SSM5	Mitigation, its the only thing that goes to the root of the problem. If you mitigate, you're adapting.
	SNP6	Both.
	SA2	I could't, we need both and fortunately many strategies serve both.
	SSM6	Mitigation
	SSM7	Mitigation
	MSM12	Adaptation
	MSM13	Adaptation in the short-term, mitigation in the Long term
	MPC2	Mitigation before adaptation
	MSM14	Mitigation, if we want to do anything, we need to stop worsening the situation.
	MSM15	Mitigation
	MSM16	Adaptation
	MSM17	Adaptation
	MSM18	Adaptation
	SSM8	Mitigation
	SNP7	Adaptation, because we are not big emitter, we can't mitigate much

SUMMARY:
Adaptation or Mitigation (44): Adaptation 17 Mitigation 20
Other (Both - refused to reply): 7

Meaningful responses:

- Mitigation, if we want to do anything, we need to stop worsening the situation.
- Adaptation in the short-term, mitigation in the Long term
- Mitigation, its the only thing that goes to the root of the problem. If you mitigate, you're adapting.
- Adaptation. We are a developing country and we need to catch up.
- The countries in the south need to focus on adaptation and the countries in the north need to make the big mitigation effort. Our emissions are minimum and we need to adapt to climate constraints, and we need energy to create a new model of development and production different from the one in the north.
- Adaptation, because there is already a lot of people suffering from the effects / Adaptation, because this allows to save people's lives directly and immediately

- Adaptation because it touches all population, citizens need to adapt to climate change, while mitigation, for me, is a question of government, or power and policies.
- Mitigation. We're still in a phase where mitigation has exponencial impacts. Energy put into mitigation now will have more impact on the future than adaptation. Also, adaptation is a local issue, mitigation is a global issue. In privileged countries we need to be continuing to prioritise the global, because we are responsible for this problem.

There is a clear divide. Out of the 20 people that chose Mitigation, 14 are from Spain and 6 from Morocco and out of the 17 people that chose Adaptation, 12 are from Morocco and 5 from Spain.

1-10 Importance of climate change in the country (perception)	**Code**	**Reply**
	MSM1	8
	MSM2	6
	MPC3	9
	SSM2	7
	MSM3	1
	MSM4	3
	MSM5	3
	SLP3	9
	SNP1	8
	SNP2	8
	MSM6	6
	MSM7	10
	SNP4	6
	SNP5	5
	SLP4	7
	MSM8	10
	MSM9	8
	MSM10	6
	MLP1	5
	MLP2	10

	MPC1	9
	MSM11	9
	SNP6	4
	SLP5	5
	SLP6	4
	MSM12	8
	MSM13	5
	MPC2	6
	SSM8	5
	SNP7	10

SUMMARY

Importance of climate change in the country (perception) (30): 6,8/10

Maximum (10) LP from Spain and Morocco and SM in Morocco

Do you believe more a technological solution or in a socio-economic change to deal with the issue of climate change	Code	Reply
	SLP1	Socio-economic
	SLP2	Socio-economic
	MSM1	Socio-economic
	MSM2	Technology only at the service of another socio-economic system
	SSM2	Socio-economic
	MSM3	Socio-economic change, serious. There's not trick to solve this, we need a systemic change.
	MSM4	Socio-economic
	MSM5	Clearly a socio-economic change is what we need to fight climate change, but I'm flabbergasted on how we will get there.
	SA1	Both. I don't believe in a merely technological solution, we will need to change lifestyles, and another energy model. We need to walk towards less unequal societies and have more austere lives
	MPC3	Both
	SSM1	Socio-economic

	SLP3	Socio-economic. Technology is important but you can develop any technology you want, if you keep to a capitalist model of development that only looks for private benefit and personal interests and economic interests over the common good, you won't get to the root of the problem.
	SNP1	A socio-economic change, but technology can help after that
	SNP2	Socio-economic
	MSM6	Socio-economic. For me, technological changes will not fix climate change, what will help fight climate change are socio-economic changes.
	MSM7	Socio-economic. For me it clear, technology is very important to face climate change, innovations and projects to reduce impact, but only a socio-economic change will have a direct effect to face climate change.
	SSM3	Socio-economic. If you have to treat a disease or prevent it, you need to start with preventing it getting worse.
	SNP3	Socio-economic change
	SNP4	Socio-economic. Either we change the economy or nothing will work.
	SNP5	Socio-economic
	SLP4	Socio-economic. I think we need a socio-economic, as well as cultural change is needed, not only because of climate change, but also due to waste, plastics and loss of biodiversity. We are living a global ecological crisis
	MSM8	Both are complementary
	MSM9	Socio-economic. The ecological crisis is at the same time environmental and social, which is why socio-economic changes are the main responses. We need to end the productivist and consumerist mode and choose another life philosophy. A new system that will create its own technologies.
	MSM10	Socio-economic.
	MLP1	Social changes.
	MLP2	Socio-economic
	MPC1	In the end we will need a socio-economic change, a change in conscience, a systemic evolution, then technology can accompany.
	MSM11	Socio-economic change
	SSM4	Socio-economic change
	SSM5	Socio-economic
	SNP6	I think they're interconnected. There's technological impacts on social questions.
	SA2	A socio-economic change, technology is not enough.
	SSM6	Socio-economic

	SSM7	Socio-economic
	MSM12	I think both are essential
	MSM13	We need a socio-economic change, using technology
	MPC2	Much more a socio-economic change, before technology can work. We need a change in culture and attitudes also.
	MSM14	Socio-economic
	MSM15	Technology
	MSM16	Technology and education
	MSM17	Technology for mass transportation, for example
	MSM18	The technological advance, we need to stop the speed of economic growth
	SSM8	Socio-economic change
	SNP7	Socio-economic change, evidently

SUMMARY

Do you believe more in a technological solution or in a socio-economic change to deal with the issue of climate change (44): In a socio-economic change 35, technology 4, they're complementary 5.

Meaningful responses:

- Socio-economic. Technology is important but you can develop any technology you want, if you keep to a capitalist model of development that only looks for private benefit and personal interests and economic interests over the common good, you won't get to the root of the problem.
- Both. I don't believe in a merely technological solution, we will need to change lifestyles, and another energy model. We need to walk towards less unequal societies and have more austere lives.
- Socio-economic change, serious. There's not trick to solve this, we need a systemic change.
- Technology will only work at the service of another socio-economic system.
- We need technological advances to stop the speed of economic growth.

Are you hopeful or discouraged about the future?	Code	Reply
	SLP1	Optimist
	SLP2	Discouraged

	MSM1	What a question… Oh my god. In principle I always have a little hope, but I see the recurring bad decisions from our leaders and its difficult. We make appeals to leaders, to Heads of State to respect their commitments on climate change. Unfortunately, while the system is in place, its very difficult to have hope. The system needs to start changing for us to have hope. We need people to be aware of this, industrials, the most responsible for GHG emissions, the ones of produce the chemicals, they need to know that there will be no profit if there is no planet. What do they want to take with them when they meet god?
	MSM2	Depends on the days. If I didn't have hope I wouldn't be a militant, but movements and civil society are not very listened to, so its very complicated.
	SSM2	Depends on the day, but mostly catastrophist.
	MSM3	I don't know, but I have no confidence in the COP processus.
	MSM4	I'm full of hope, man is ingenious and will eventually understand.
	MSM5	I'm not very hopeful.
	SA1	I'm very pessimistic, although I believe in the high potential of renewables, the fossil fuel sector is still very strong.
	MPC3	Hopeful
	SSM1	I was a big optimist for a long time. I thought not only that we were going to deal with this but that it would bring us together on a scale never seen and provoke a transformation. Now I think we're too late, I think we're in a tipping point right now. In 10 years the world we live in will be unimaginable to the present. That being said, humans are incredibly ingenuitive and resilient. What I'm starting to work on now is the human culture that might survive this crisis, which might be 200, 300, 3000 years into the future, but I think humans will survive.
	SLP3	About climate change, discouraged
	SNP1	Very Hopeful
	SNP2	I'm an optimist. We've been fighting for a long time, and we wouldn't be doing it if we weren't hopeful. On climate change, this is the moment. Maybe we're late, we will only know that in the future. If I wasn't hopeful, I would've given up everything years ago.
	MSM6	Optimist. I'm very hopeful, we can do a lot of things if we're all united and if we work hand in hand maybe our surroundings will be saved from climate change and all the problems of lack of water, desertification, flooding, we can solve this in a movement between the youth of the world.
	MSM7	It's too late to be pessimistic, so I'm always hopeful. There are a lot of things to do. We are young, we need to do something, we can't cross our arms and say, well, let's make the temperature drop. We need to make something, specially young people.
	SSM3	Neither. I don't like those definitions, I want to do things. The most important thing is that you act.

	SNP3	Hopeful because I believe in the people.
	SNP4	I'm not despairing, I think we are moving onwards, but slowly, so I have some hope.
	SNP5	I'm worried
	SLP4	Discouraged. I'm a pessimist because of reason and an optimist because of will. Jane Goodall says there are three reasons to be optimistic, though: nature has the ability to self-regenerate, there are movements and collectives all around the world working on a change and human being is a rational entity.
	MSM8	I'm restless
	MSM9	Without hope i wouldn't keep on fighting.
	MSM10	I'm hopeful.
	MLP1	I'm full of hope.
	MLP2	I'm very hopeful.
	MPC1	I'm hopeful, but in my view I won't be here to see. I think Man is good, but i don't know if the transition will be smooth. I predict conflicts between the North and the South.-
	MSM11	Very Hopeful
	SSM4	I don't know, we have a survival issue, we need to act.
	SSM5	I'm an active pessimist.
	SNP6	I'm worried but not catastrophist
	SA2	I'm hopeful. Reality will force us into action. No one expected something like the COP-21 to be possible a few years ago.
	SSM6	I'm a pessimist in my analysis, but I'm optimist in action. We need to be pragmatic and act but no be deluded.
	SSM7	Hopeful but not full of illusions, we need to believe in change and if we become catastrophists, we won't motivate others.
	MSM12	Hopeful
	MSM13	Full of hope.
	MPC2	Hopeful
	MSM14	I'm discouraged but I hope humanity protects the planet and the environment and that companies figure out money is not a end but a means.
	MSM15	Hopeful
	MSM16	Hopeful

	MSM17	Hopeful
	MSM18	I would be more optimist if all states dropped egotism and profit obsession.
	SSM8	Catastrophist
	SNP7	I'm not discouraged, because we can never quit.

SUMMARY

Are you hopeful or discouraged about the future? (44): Hopeful 22; Discouraged 14; Others: 8 ("Depends on the day", "I don't know", "Neither")

Meaningful responses:

- What a question… Oh my god. In principle I always have a little hope, but I see the recurring bad decisions from our leaders and its difficult. We make appeals to leaders, to Heads of State to respect their commitments on climate change. Unfortunately, while the system is in place, its very difficult to have hope. The system needs to start changing for us to have hope. We need people to be aware of this, industrials, the most responsible for GHG emissions, the ones of produce the chemicals, they need to know that there will be no profit if there is no planet. What do they want to take with them when they meet god?
- Hopeful but not full of illusions, we need to believe in change and if we become catastrophists, we won't motivate others.
- I'm a pessimist in my analysis, but I'm optimist in action. We need to be pragmatic and act but no be deluded.
- I'm hopeful. Reality will force us into action. No one expected something like the COP-21 to be possible a few years ago.
- I'm hopeful, but in my view I won't be here to see. I think Man is good, but i don't know if the transition will be smooth. I predict conflicts between the North and the South.
- I was a big optimist for a long time. I thought not only that we were going to deal with this but that it would bring us together on a scale never seen and provoke a transformation. Now I think we're too late, I think we're in a tipping point right now. In 10 years the world we live in will be unimaginable to the present. That being said, humans are incredibly ingenuitive and resilient. What I'm starting to work on now is the human culture that might survive this crisis, which might be 200, 300, 3000 years into the future, but I think humans will survive.

Responses in National/Local Politicians questionnaires:

Is there a ministry, secretary of State, National Council or office focused mainly on the issue of climate change? If not, do you think there should be? What kind of institution do you think would be more adequate to deal with the issue of climate change? PP / R	**Code**	**Reply**
	SLP2	There is no concrete law on climate change in Barcelona. Create a local directorate for climate change, under ecology and urbanism that works transversally through all the areas. We've been able to act on climate change through other issues, like the fight against air pollution with programs to limit and reduce the use of cars in the city, but specially through issues of health, of public space and planning.
	SLP1	We have a department of Ecology, Planning and Mobility, addressing different issues at the same time, such as transports. Transportation needs to be sustainable, public, we have issues with CO2 emissions but also with particles and nitrogenous oxides which create public health issues, and so we have a plan in this double direction: by 2020 we will permanently forbid the most contaminating cars in Barcelona and since 2017 we are doing temporary restrictions for passage in times of higher contamination. Urban planning is also central, because it sends out the rules of how the city is and will be. You can draw a city in which you will prioritise cars or a city in which people can walk, take a bike, to live differently. We created a project called Supermanzanas in 10 neighbourhoods, which is a redrawing of public space in which we prioritise daily life taking space away from cars. Cars occupy 60% of our public space, there's an unbalance and we want to revert it. We are saying how we want the city to be in the next 20 years with less cars, more people and space for children, with more green spaces. There's a Council for Sustainability in Barcelona where there are about 50 fixed organizations and a rotation of other organizations that participate in all environmental policies we develop. This was created through Agenda21 in 2001/2002
	SLP3	There's a sectorial council for the environment, which then has commissions, one of which is of climate change. But climate change crosses transversally many areas (food sovereignty or biodiversity). I think there should be a Climate Change Office inside the environmental council just to address climate change issues, but fully manned with specialized staff with climate as the main focus.
	SNP1	I I think what we need is a brave government, supported by a population aware of this issue, making for a brave political program and a brave execution of this program. We can't think about fictitious scenarios. What should be done is in all political areas take the possible steps
	SNP2	We We need to fight the power, the big companies, the responsible for our current situation, and being brave sometimes is exactly that: face them and stop them. We will start changing the model, you will stop earning so much money and society will be fairer. Until we have a government brave enough to do these things, nothing will change.

	SNP3	Yes, the ministry of Ecological Transition, focusing on energy, environment and social issues. This ministry aggregates issues that used to be divided in Agriculture, Environment, Industry and Energy. And this aggregation allows for a planification of an ecologic transition. All adaptation and mitigation strategies need to be integrated in different sectorial public policies, in all areas of public action. I think that in terms of institution now we are well, uniting energy and environmental policy, prioritising an environmental objective through energy and social tools is the formula we need. But we also need to have a government that gives priority to environmental objectives over other type of objectives.
	SNP4	TThere is a Regional Commissariat for Climate Change, assembling people from all departaments but it is only consultive and not executive. There should be, at the very least, a General Direction for Climate Change with executive power.
	SNP5	There could be another type of institution, we in fact proposed to create and Agency. Inside the ministry there is now a Climate Change Office, but it doesn't have political independence or autonomy, so we think it might be good to have a more independent Agency to assure that there is priority in climate change policies independent of which government manages it.
	SLP4	Yes, there's an office of Energy and Climate Change inside the department of Environment
	MLP1	Yes, there's and environmental bureau and in that bureau there are experts on climate change. I don't think we need more institutions.
	SNP6	Yes, there's a chancellery, but not a ministry. I don't think there should be any specific new institution.
	SLP5	There is a Climate Change Council and there's a sustainability department that crosses energy, rehabilitation, efficiency and energy poverty.
	SLP6	There's a National Office of Climate Change to supervise policies and plans.
	SNP7	Observatory of Climate Change. I think that at the moment its working well. Its not necessary for this Observatory to depend on the president, but it aggregates different areas connected to climate change so I think that at this moment its na adequate tool. In the future, we'll think about creating an Institute.

Do you think that there could be a Climate Ministry with a power equivalent to that of a Finance Ministry? PP / R	Code	Reply
	SNP3	Well, I think what we have now, the Ministry of Ecological Transition, that includes fighting climate change, renewable energy integration and efficiency, protection of limits of our environmental and the planet and just transition, with these four axis, it an agenda that really has a status and an importance that is key. Its true that the ministry of finance in all countries has the key that all public budgets area adequate to governments' policies, so that we, with the ministry of finance, what we have to work is to integrate those conditions of context that are not only political but are also accompanied by public financing. This year was the first time we've had an important financing through the state budget and it corresponds to what I was telling you: to have clear policies and then fight for them to have public financing. But the transition we need will not be solely solved by the state budget, but we are catalysing all the private sector. In the project of Climate Law we are working in this idea, with a clear sign that public budgets and all sectorial departments integrate climate change.
	SNP4	Now there's a Secretary of State for Climate Change and a National Office on Climate Change, but it is mainly focused on international negotiations. The ministry's very focused on climate change, but there is no Law regarding it.
	SNP5	We call for a vice-presidency, while currently there are economical vice-presidencies, we think there should be one for sustainability and climate change.
	SNP6	No, I think it would be crazy to have something like that, it would be like a ministry of propaganda.
	SNP7	I think that the important is not to decide if there are big structures, but to assure that the government policies are applied. Evidently if this isn't working we should have a ministry to coordinate all of them.

Do you think that the government/municipality has technical competence in this area?	Code	Reply
	SLP2	There is no local data on climate change, makes it more difficult to justify concrete action, with concrete numbers and scenarios for impacts.
	SLP3	Yes, what we miss is political will
	SNP3	Yes, I think it does
	SNP4	Yes, i do.

	SNP5	There's no problem with technical competency in the government, but rather a lack of political will.
	SLP4	Yes
	MLP1	No, we need to ask NGOs, or the ministry to help us with studies.
	SNP6	Yes, specially in the transports area.
	SLP5	Yes
	SLP6	Yes, but it used to be better.
	SNP7	Yes, i do, but its important that the people from the government work directly with scientists.

SUMMARY

Do you think that the government/municipality has technical competence in this area? (11): Yes 9, No (lack of studies and climate data): 2

Imagine that due to climate change you were faced with a decision to displace a part of a population or constructing a defense structure that would have three times the financial cost. How would you deal with this situation? PP?	**Code**	**Reply**
	SLP1	The cost is not the biggest issue, we should talk to families and the community, as the structure would probably be a temporary solution and so we would only be delaying which is to displace population.. Introduce justice in this process.
	SLP3	Well, its a difficult situation, we would need to look at the concrete situation. But I would be for displacement. Here concretely, we've occupied riverbeds during the last years with agriculture, houses, social utilities, farms. There's a total lack of acknowledgment of planning: a few years back a house for older people was approved inside a flood area, and it floods every few years. We can't move a whole population, but in an area which you know is gonna get flooded often

	SNP1 SNP2	We should decide this collectively, no matter the cost. A clear example of climate change effect is intense rain, river overflowing and flooding, which is happening more and more frequently here. We defend the protection of some populations which are currently in these areas. I don' know if it costs three times as much, but we defend that in some cases we should install engines to pump water out and avoid flooding of houses in some places where floods are now occurring every three years. Another contradictory issue is mining towns. The mines are closing down and we want the people to continue living there, but they are miners and there will be no more mines, so we need projects and jobs for these people.
	SNP3	When facing climate risks its usual to have diverse strategic options. For example, to focus on the exposure to dangers (for example, with displacement), but it is also possible to focus on sensitivity to risks or adaptive capability (for example improving systems of fast alert or measures of self-protection). Before choosing one or the other possibility, its important to have a good technical evaluation to be able to identify and adequately characterise technically viable options, with its strong points and limitations (effectiveness, economic, social and environmental costs). Nonetheless, when the actions on the table clearly impact communities, its mandatory that you open processes of information, awareness and social participation, so that the "options" can not only be understood but (if necessary) changed so that the definitive "solution" is well adapted to specific conditions for each case (not only physically but also socially) and obtain the maximum level of social support and legitimacy. Its important to remind us that many "solutions" proposed for climate risk may be inviable in practice if they don't have citizen's support and cooperation.
	SNP4	We need to evaluate things, how many people would be affected, it's different if you're talking about a small village or a big city. Here in the delta of the Ebro, we've had to liberate the margins an expropriate lands for the sea to be able to rise (but they were few). In the long-run, its much more sensible to let nature act, otherwise the cost will be huge.
	SNP5	I don't have to imagine, this is already happening in different places, like Murcia. There's really no choice, we need to take preventive action and dislocate people before the strength of nature and the ocean destroy many houses.
	SLP4	I think its a complicated issue, but I would probably would lean towards displacement. We are already seeing this trend internationally, with the massive surge of refugees coming from Syria and North Africa, but the south of the Iberian Peninsula is very vulnerable to desertification.
	MLP1	We would try to reserve a specific budget for climate change impacts.

	SNP6	We have to be careful not to precipitate action before its required. There can be a lot of confusions on private interests. We would need to negotiate and propose a deal to the population, with a lot of dialogue.
		I would try a public-private cooperation, and choose what would be the best option. But obviously the first option would be to protect the population.
	SLP6	I would choose the displacement, but I'd try the most participative process possible and recuperate the area to be a public space, used as green infrastructure, for example.
	SNP7	We would need to weigh on the whole situation. We need to understand where we live, the environmental impact of having contention walls. We would probably opt for the displacement.

SUMMARY

(12) Displacement 7; Protection 3; No Reply 2. How to deal with it? All except one have described a process of evaluation, and populational involvement and participation in the decision.

Imagine that you had the possibility to give an enormous focus on climate change in the country. How do you think this would be perceived socially? Which stakeholders do you think would support and attack this? PP + R	**Code**	**Reply**
	SLP2	We don't have an enormous focus because there is no social claim for it, from the streets or in protest that ask for this or that look at it as a social problem that calls for immediate action
	SLP1	I think we've done this (Compromisso por el Clima) with a lot of support, also with the excuse of the COP-21. The press didn't echo this. People understand globally there's a problem with climate change and that it can impact them in the long run but they don't feel it directly and don't understand it directly so we have to do a lot of pedagogy with clear examples of what climate change implies with day-to-day impacts and also for the future of your life. We're working to strengthen this discourse. There wasn't much opposition.
	SLP3	For: Ecologists, health sector, collectives for sustainable mobility, agroecology, organized social movement, neighborhood associations. Against: Private companies, automobile manufacturers, would be much more afraid. I think all that would see their privileges threatened would look at it with agression.

	SNP1	I think the people will become aware that our lives are threatened, that we are not proposing a painful rupture of our society, but rather positive solutions, dignified, happy, that most of what we enjoy is not material and we're not asking for people to stop enjoying life, quite the opposite. We wish that there's still football, cinema, dances, music, love, but that on an economic level we have a model that is radically different. Our current economy is pushing us towards a total disaster.
	SNP2	I think that if we were able to have this focus, most of society would be against it. Its clear for me, but we should be brave to push on despite it. Lobbys are very strong, they would tell the people that it would be the apocalypse, the world would end because of what we would do, but I think that in a few years people would be thankful. I think that media is very important, but those who are benefitting from the current situation will not support any new focus, but the majority of society does not benefit from this.
	SNP3	Studies indicate that social perception of climate change here created ample citizen's support for mitigation and adaptation measures. In the private sector there are though companies which are better prepared for change. We need a stable financial sector, because the ability to finance this process is essential. There are sectors that will need a radical transition such as the fossil fuel industries, other will need a more "adaptive" transition, such as transports and cars, but there is a transition that is technological, that is important in terms of jobs. In any case, its clear that climate change measures will affect legitimate interests and it is necessary that these measures have the necessary mechanisms for a just transition.
	SNP4	I think the general public would support such actions if everything was well explained. We did some adaptation measures in school due to rising temperatures. I also think industries and companies would not be totally adverse to it. I think people would even accept closing down some industries, but of course, big corporation such as oil and energy companies would oppose (they are opposing right now even the existence of climate legislation).
	SNP5	There are already important actions underway. In the center of Madrid, for example, there's strong limitation for cars. Politically, the right-wing parties support the cars under the idea of "freedom to drive". Also the big automobile and fossil fuel lobbys are strongly opposed to even this. Part of the left also opposes it and looking at trade union, the CCOO are open to these measures, while UGT is more pro-industry and so opposed many of these policies.
	SLP4	I think neighbourhood associations, environmentalists, unions and some companies would support this focus, while there would be staunch resistance from companies affected by this focus, namely automobile, oil and electric companies.
	MLP1	I think we would have support from farmers, associations and elected officials and I don't see that any one would oppose this focus.
	SNP6	I don't see that anyone could be against it, but like in any public policy there would be winners and losers, and this could define the fields of pros and cons.

	SLP5	I think it would be very well received. Young people and more informed people would be more supportive and those most affected and oldest would be less so.
	SLP6	It would need a very big job of explanation of vulnerabilities, risks, concrete measures. I think human being is selfish by nature. We would need to turn urban soil in flooding areas, which would conflict very much with landowners. Constructers and real estate promoters would be strongly against it and even municipalities would have difficulties due to lack of budget and their usual preference of roads over green infrastructures. Its still a very marginal issue.
	SNP7	In this moment, for measures of mitigation and adaptation to climate change there wouldn't be a lot of opponents, quite the opposite. The economic sectors are very interested that we work on this issue, including industrial sectors that might oppose it. We have a problem with oil platforms, with the coral reefs, and the companies are working with us to save this, because there a potent tourism sector that depends on nature and biodiversity. The issue of clash between economic development and saving nature is not relevant anymore.

SUMMARY

Imagine that you had the possibility to give an enormous focus on climate change in the country. How do you think this would be perceived socially? Which stakeholders do you think would support and attack this? (14) Well received 7; Badly received 1; Other 6.

Meaningful responses:

"We don't have an enormous focus because there is no social claim for it, from the streets or in protest that ask for this or that look at it as a social problem that calls for immediate action";

"Like in any public policy there would be winners and losers, and this could define the fields of pros and cons."

Stakeholders against: Private companies, automobile manufacturers, all that would see their privileges threatened would look at it with agression, big companies and their lobbys, sectors that will need a radical transition such as the fossil fuel industries, oil and energy companies, Right-wing parties, part of the left specially very pro-industry unions. Staunch resistance from companies affected by this focus, namely automobile, oil and electric companies. Those most affected by this focus and oldest people. Landowners, constructers and real estate promoters. Municipalities that budget and that usually prefer roads over green infrastructures.

Stakeholders for: Ecologists, health sector, collectives for sustainable mobility, agroecology, organized social movement, neighborhood associations. People would even accept closing down some industries, but of course, big corporation such as oil and energy companies would oppose. Neighbourhood associations, environmentalists, unions and some companies would support. Farmers, associations and elected

officials. Young people and more informed people. Economic sectors are very interested that we work on this issue, including industrial sectors that might historically oppose it.

Order by priority

(C-Competitiveness, W-Wellbeing, CC-Climate Change, T-Terrorism, ED-Economic Development, I-Investment, SJ-Social Justice, E-Exports, EG-Economic Growth, BC-Budgetary Control)

Code	C	W	CC	T	ED	I	SJ	E	EG	BC
SLP1	8	3	2	9	4	5	1	6	7	10
SLP3	-	3	2	5	-	-	1	-	-	4
SNP1	9	2	3	6	4	5	1	7	10	8
SNP2	6	2	3	10	4	5	1	9	8	7
SNP3	8	2	1	7	4	10	3	9	5	6
SNP4	9	2	3	5	4	6	1	7	8	10
SNP5	7	2	1	8	6	5	3	4	9	10
SLP4	7	3	1	4	6	5	2	8	10	9
MLP1	4	3	1	2	7	9	6	8	10	5
SNP6	7	1	4	-	3	5	2	-	-	6
	7,2	2,3	2,1	6,2	4,7	5,6	2,1	7,25	8,4	7,5

SUMMARY

CC/SC 2,1; W 2,3; ED 4,7; I 5,6; T 6,2; C 7,2; E 7,25; BC 7,5; EG 8,4

Most priority (1): Climate change (4 times) and Social Justice (5 times)

Least priority (10): Budgetary Control (3 times) and Economic Growth (3 times)

Local Politicians questionnaires:

Do you think there are good legislative tools for climate action in the municipality? Which ones?	Code	Reply
	SLP1	We have many plans: Compromise for Sustainability since 2002 where we have a meeting place for government, citizens and social movements. In this place we have configured the agendas for the city in the last 20 years: Plan for Air Quality, Energy Plan, Climate Plan. But we need to push it forward, because up till now we had a big commitment from environmental organizations and neighbourhood association, but we lacked political support. So we did the Climate Commitment (Compromis por el Clima) with over 800 entities and concrete actions: the growth of 1 square kilometer of green areas, the support for renewable energy with a municipal and public supplier of energy based on renewables and a municipal and public commercialiser of energy for the municipality. This will allow us to substitute the big companies of the electricity oligopoly based on fossil fuels.
	SLP3	Yes, coming from previous governments even. We have a local strategy for climate change, a strategy for energy and a strategy for biodiversity, a director plan for green infrastructures and also action on the mitigation side. What we have missed for the last decades was the application of these strategies, because although they existed, the city kept on growing, consuming more energy and spending more on transportation, the city spread while the center has a lot of abandoned houses with all the consequences this implies.
	SLP5	Yes, PAES and the PACT of Mayors, for example. We've reached good results with CO2 emissions reduction.
	SLP6	Yes, the Basque Strategy of Climate Change, the PAES and now there will be in 2018 an Adaptation Plan
	SNP7	There's a Climate Change Law, also the Strategy for Waste, the Energy Model

1-10 Use of participative tools	Code	Reply
	SLP1	10
	SLP4	6
	SLP3	8
	SLP5	10
	SLP6	5
	SNP7	10

SUMMARY

Use of Participative Tools: 8,2/10

Academia questionnaires:

Has the scientific community participated in developing national legislation on climate change? PA	**Code**	**Reply**
	SA1	Yes, we have done environmental policy assessment for the Catalan government, for environmental taxation, waste management and water prices.
	SA2	Yes, we've helped write the project of climate law, We've helped to draw its structure and mechanisms of evaluation

Does your research center/ university participate in any council or official body about climate change?	**Code**	**Reply**
	SA1	Only informal assessment to municipality
	SA2	I'm a vice-councillor of Environment in the Basque Country Government and in the Climate National Council

Does your research center/ university have any direct connection to public powers? PA	**Code**	**Reply**
	SA1	No
	SA2	Yes, we have connection to some departments in the autonomous communities.

Social Movements questions:

Have you ever participated on a public consultation on national climate legislation? If yes, do you think that participation had any impact on the final approved legislation?	Code	Reply
	SLP2	In the Sustainability Pact, weak process.
	MS M1	We participate from time to time in public consultations in the national councils. But often the government does not consult organizations directly connected to the issue they legislate about. Per example on the issue of the litoral we had a lot of proposition to make but were not consulted.
	MS M2	No
	SSM 2	No
	MS M3	No
	MS M4	Yes, I've participated as a regional technician in landscape planning, and I was also present when we presented some of these laws to civil society: everyone was satisfied that now there were these laws but everyone wanted to know how the implementation would go, as there were few if any financial resources to implement them, and no tools for popular participation. I don't know about final results and also I don't think there was any evaluation of the level of social acceptance on these laws. I think that's the most important.
	MS M5	Yes, in the PRE-COP in Oujda to establish a connection between social movements and local power. Not really, it was a good project but difficult to put in place because local powers were not very interested and this struggle jeopardised the project. [pedir ajuda à Joana].
	MPC 3	No
	SSM 1	No
	MS M6	No
	MS M7	No
	SSM 3	Yes, in the reform of legislation on environmental protection and prevention, as well as environmental impact assessment. I don't think it resulted in any modification, as for example our proposal to include special requisites for fracking was not adopted.

	MS M8	Yes, i participated in organizing several conferences about public policy regarding water. I think water managers are more and more open to proposals by NGOs.
	MS M9	No
	MS M10	Yes. Relatively, yes.
	MLP 2	Yes, there is a local law in Tensift against oil catchout which we were able to approve, now there's much less pollution.
	MS M11	Yes, we've participated in the Ministry of the Environment's strategy and in the integration of UNFCCCs treaties into national legislation
	SSM 4	Yes, in the National Climate Council, in the Catalan Climate Law and in the Climate Pact. I don't think there was an impact in the final legislation.
	SSM 5	Yes, in the National Climate Council, in the Catalan Climate Law and in the Climate Pact. No impact, I think.
	SSM 6	No
	SSM 7	No.
	MS M12	No.
	MS M13	Yes, i participated in the Environmental Charter process. There were some modifications to the project of law, but in the end its not civil society which votes.
	MS M14	Yes, in our region we've had a project on environment and the Oasis
	MS M15	No
	MS M16	No
	MS M17	No
	MS M18	Yes
	SSM 8	No.

SUMMARY

Have you ever participated on a public consultation on national climate legislation (29)? Yes 14; No 15.

Do you think that participation had any impact on the final approved legislation? Of the 9 that replied, 3 think there was an impact and 6 think there was not.

Have you ever been directly involved in a legislative process such as a petition or a citizen's legislative initiative connected to climate change? If yes, what were the results?	Code	Reply
	SLP2	No. Not in legal terms, but I wrote the climate program for Barcelona en Comú: assume the gravity of the situation and make it central in terms of energy, agriculture, animal farming, culture, consumption and food habits, promotion of renewable energy, change the transport system, local ecological agriculture.
	MSM 1	We We've been engaged in legislative processes for many years. Now the moroccan constitution (2011) gives power no NGOs and civil society to take up this role, to propose amendments, to make petitions, to even propose legislation. We've been involved with legislation on roads and with the coastline. We may think that the government hasn't listened to us, but in reality, if we hadn't mobilised for the coastline, the law would have taken another decade to appear. When civil society is there, when it participates, when it makes events, when its in the press, when we talk about the laws, the coastline that was approved, in the parliament and in the council of ministers, it makes a difference. We are now proposing a law against hydraulic fracturing to stop fossil fuels and shift to renewables
	MSM 2	No
	SSM 2	Yes. Petition in Ayuntamiento for divestment in fossil fuels and invest in green politics. We also demanded that the Caixa Bank to divest from fossil fuels.
	MSM 3	Yes, in my job at the platform we have projects to promote participation for civil society and designing legislation in climate and other areas. Per example we tried to set up a regional plan for climate change in the MENA region.
	MSM 4	No. Its something very new with the 2011 constitution that is still not very used. Its a very difficult process still.
	MSM 5	Yes, my work is directly connected to legislative processes. We don't know the final results but at least we got a lot of people involved in the process.
	MPC 3	I proposed two laws to the moroccan government, I organized a petition subscribed by 26 thousand people, a law about biocarburants and about biomass, fábrica Jatrofa para produção biodiesel (falta quadro legislativo). The legislation on renewable energies in Morocco has omitted to detail on how to valorise biomass.
	SSM 1	No

	MSM 6	No, I've only participated in an initiative called "Marrakesh without cars" that happens every year in April.
	MSM 7	No
	SSM 3	I participated in a European campaign "People for Soil" to have a soil law, I participated in a Popular Legislative initiative in 1997/1998 on Energy and more recently on the call for a national climate law. The first ones were dismissed and the last one was withdrawn by the promotion committee, as the parliament had disfigured it beyond recognition. I also participated in an initiative to propose a ban on hydraulic fracturing and it has been approved in Cantabria, La Rioja, Navarra, Catalunya, Basque Country and Castilla La Mancha. In most of these cases the laws were blocked by the constitutional court and opened a clash between regional power and central powers.
	MSM 8	Yes, I organise encounters between deciders and civil society to provide a space of communication between both sides. I think it made the sides understand each other better.
	MSM 9	Yes, i'm a founding member of the Morrocan Coalition for Climate Justice, member of the coalition for the respect of the litoral and road laws an also of a coalition to preserve wet areas RAMSAR. Through all of these coalitions, i've had the chance to sign and organize petitions and protests, namely against the governments will to explore shale gas, on issues of water, the dunes of Mohammadia and others. The results were not very encouraging.
	MSM 10	Yes. The results were positive.
	MLP 2	Yes, we participated in action to stop plastic in the entire city of Marrakesh, and now there much less one-use plastic bags in circulation.
	SSM 4	Yes. We proposed citizens legislative initiatives on Energy, Transportation and Taxation. Nothing substantial resulted from the process.
	SSM 5	Yes, an initiative on mobility, it produced a law. Also the mobilization against fracking produced regional fracking bans.
	SSM 6	I participated in the multireferendum consultation on water, energy and food, for the control of energy in Catalunya. I also participated in a Citizen's Legislative Initiative against Energy Poverty and Housing Emergency. It created a law on these issues.
	SSM 7	I organized a Citizen's Legislative Initiative against fracking, we got more than 100 thousand signatures and got it approved in the Basque parliament, but the central government is disputing in the constitutional court.
	MSM 12	No

	MSM 13	Yes, We proposed changes to the laws on water and the litoral. We weren't very pleased, we felt that there was a need to converge with other political movements and create and environmental political subject, that can influence agendas.
	MSM 14	No
	MSM 15	I've participated in an initiative for schools and teachers to increase education on climate change
	MSM 16	No
	MSM 17	No
	MSM 18	No
	SSM 8	There was a popular consultation planned, but the central government blocked it legally. We dd complaints against the government in the EU parliament on oil drilling, the sun tax and the blocking of renewables. We also did a petition with regional government called "Save Canarias". With oil drilling offshore, this petition together with many other actions led to the cancellation of prospection, and with other thing, the process is still evolving.

SUMMARY

Have you ever been directly involved in a legislative process such as a petition or a citizen's legislative initiative connected to climate change (28)? Yes 17, No 11.

If yes, were there results? Yes 10; No 3; No clear reply 4.

Does you movement participate in any consultive council or another political body connected to the issue of climate change?	Code	Reply
	MSM1	No, the Social and Economic Council does not invite us.
	MSM2	No
	SSM2	Not directly, but its connected with groups that do, like per example energy cooperatives like SOM Energia and the EQUO Party.
	MSM3	No, some people from the platform yes, but not the platform itself.
	MSM4	No.
	MSM5	Yes, I think so.
	MPC3	No

	SSM1	No
	MSM6	Yes, We participated in a National Council called “The climate changes, the university acts” but it was only a one-time event.
	MSM7	No
	SSM3	Yes, we participate on the national Climate Commission and in the Office of Climate Change.
	MSM8	Yes, these structures allow us to participate in study encounters.
	MSM9	No, we participate more on the civil society level
	MSM10	Yes.
	MLP2	Yes, we are an observant member of the COP-22
	MSM11	Yes, we’ve been consulted in the Regional Council, by local and provincial authorities and by the technical departments of the Plan Maroc Vert
	SSM4	Yes. National Climate Council, Environment Consultive Council, Hidrocarbons Consultive Council, Electricity Consultive Council, Gas Consultive Council
	SSM5	Yes. National Climate Council, Environment Consultive Council, Hidrocarbons Consultive Council, Electricity Consultive Council, Gas Consultive Council
	SSM6	Not directly.
	SSM7	No
	MSM12	No
	MSM13	Yes, after the 2011 Constitution, we’ve been invited by political parties do talk about climate change
	MSM14	Yes, as part of the CMCD coalition
	MSM15	We participate in UN events
	MSM16	We participate in UN events
	MSM17	We participate in UN events
	MSM18	We participate in UN events
	SSM8	We participate in an Insular Council on Energy.

SUMMARY

Does you movement participate in any consultive council or another political body connected to the issue of climate change (28)? Yes 16. No 12.

Some of the entities indicated may not be exactly official bodies "Yes, We participated in a National Council called "The climate changes, the university acts" but it was only a one-time event."; "Yes, these structures allow us to participate in study encounters.", "Yes, as part of the CMCD coalition" or "We participate in UN events".

1-10 how important is the issue of climate change in your movement?	Code	Reply
	MSM1	10
	SLP2	2
	MSM2	8
	SSM2	10
	MSM3	8
	MSM4	4
	MSM5	7
	SSM1	8
	MSM6	10
	MSM7	10
	SSM3	9
	MSM8	5
	MSM9	5
	MSM10	8
	MLP2	10
	MSM11	9
	SSM4	5
	SSM5	7
	SSM6	8
	SSM7	5
	MSM12	8

	MSM13	10
	MSM14	10
	MSM15	10
	MSM16	10
	MSM17	10
	MSM18	10
	SSM8	7

SUMMARY

How important is the issue of climate change in your movement (28)? 7,6/10

2 adjectives to describe your movement	Code	Reply
	MSM1	Environmentalist / Altermondialist
	SLP2	Human Rights
	MSM2	Anticapitalist / Altermondialist
	SSM2	Environmentalist / Reformist
	MSM3	Altermondialist / Reformist
	MSM4	Libertarian / Anticapitalist
	MSM5	Reformist / Environmentalist
	MPC3	Transition / Environmentalist
	SSM1	Environmentalist / Libertarian
	MSM6	Environmentalist / Libertarian
	MSM7	Environmentalist / Anticapitalist
	SSM3	Transition / Anticapitalist
	MSM8	Transition / Environmentalist
	MSM9	Environmentalist / Anticapitalist
	MSM10	Environmentalist / Anticapitalist

	MLP2	Environmentalist / Reformist
	MSM11	Transition / Anticapitalist
	SSM4	Environmentalist / Anticapitalist
	SSM5	Environmentalist / Anticapitalist
	SSM6	Environmentalist / Anticapitalist
	SSM7	Transition / Environmentalist
	MSM12	Transition / Environmentalist
	MSM13	Transition / Environmentalist
	MSM14	Reformist / Environmentalist
	MSM15	Transition / Environmentalist
	MSM16	Transition / Environmentalist
	MSM17	Transition / Environmentalist
	MSM18	Transition / Environmentalist
	SSM8	Environmentalist / Anticapitalist

SUMMARY

Environmentalist 23
Transition 11
Anticapitalist 11
Reformist 3
Libertarian 3
Antiglobalisation / Altermondialiste 3
Human Rights 1

Most common pairs: Transition/Environmentalist 9; Anticapitalist/Environmentalist 7; Reformist/ Environmentalist 4; Transition/Anticapitalist 2; Libertarian/Anticapitalist

If you could a set a list of priorities to solving the following issues on a global scale, what would it be?

(Poverty P; Illiteracy I; Climate Change CC; Nature Conservation NC; Oppression on Women OW; Mass migration MM; Religious violence RV; Workers exploitation WE; Resource depletion RD; Unemployment U)

Code	P	I	CC	NC	OW	MM	RV	WE	RD	U
SLP2	7	9	1	2	4	5	10	6	3	8
MSM1	4	2	6	3	1	8	9	10	7	5
MSM2	4	5	1	8	3	6	10	2	9	7
MPC3	1	9	2	4	8	5	6	7	10	3
SSM2	3	9	4	2	6	5	8	7	1	10
MSM3	1	6	3	9	4	2	7	5	10	8
MSM4	1	4	6	5	7	9	8	2	10	3
MSM5	2	3	4	10	1	8	7	6	5	9
SSM1	7	10	1	8	5	3	9	6	2	4
MSM6	3	4	1	2	8	5	10	6	9	7
MSM7	3	4	2	1	7	9	8	5	10	6
SSM3	4	10	1	2	7	6	8	3	5	9
MSM8	4	1	2	3	7	8	9	5	10	6
MSM9	2	3	1	5	4	7	6	8	10	9
MSM10	1	2	3	4	7	5	9	6	10	5
MLP2	10	1	4	5	7	8	2	6	9	3
MSM11	1	3	2	-	4	8	7	6	-	5
SSM4	1	8	2	7	3	9	10	4	5	6
SSM5	8	9	1	4	2	7	10	6	3	5
SSM6	2	-	1	-	-	-	-	-	3	-
SSM7	-	-	2	1	3	-	-	-	-	-
MSM12	1	2	3	4	-	8	5	6	-	7
MSM13	-	-	1	-	-	-	-	-	-	-
MSM14	5	2	1	7	8	3	4	9	-	6
MSM15	-	4	8	6	3	1	2	5	-	7

MSM16	3	4	5	6	7	2	1	-	-	8
MSM17	1	5	2	7	8	3	4	9	-	6
MSM18	2	8	1	9	7	4	3	6	-	5
SSM8	3	-	2	-	4	-	-	-	1	-
	3,23	5,1	2,5	5,36	5,27	5,68	6,88	5,79	6,6	6,24

SUMMARY

CC (2,5), P (3,2), I (5,1), OW (5,27) NC (5,36), MM (5,68), WE (5,79), U (6,24), RD (6,6), RV (6,88): Climate Change, Poverty, Illiteracy, Oppression on Women, Nature Conservation, Mass Migration, Workers Exploitation, Unemployment, Resource Depletion and Religious Violence

Three groups:
Most important: Climate Change and Poverty
Important: Illiteracy, Oppression on Women, Nature Conservation, Mass Migration and Workers Exploitation
Least important: Unemployment, Resource Depletion and Religious Violence

Most to least importance given
(1) Climate Change (11 times); Poverty (8 times); Illiteracy (2 times)
(2) Climate Change (8 times); Poverty (4 times); Illiteracy (4 times)
(9) Resource Depletion (3 times), Religious Violence (4 times)
(10) Resource Depletion (7 times); Religious Violence (3 times); Illiteracy (2 times)

<u>Private Companies questions</u>

Do you think that the current national climate legislation is too restrictive to economic activity? Why?	Code	Reply
	MPC3	Yes, specially on the issue of biomass, not restrictive but rather omission of legislation, in the current state of this law we can't sell biodiesel
	MPC1	I don't think so. I think big companies support the government on this issue.
	MPC2	No, I don't think so.

SUMMARY:

Of the three interviewees from private companies two (belonging to big companies) don't judge current national climate policy as being to restrictive of economic activity.

Do you think there is conflict between a future of climate change and the ability to produce goods, services and generate profits from different sectors?	Code	Reply
	MPC3	No
	MPC1	I think there is a partial conflict. We need to think better and do different. We can't profit like before. We can't move on to the same mistakes of destruction that happened in the past. We can't copy Europe, we need a new prototype. Innovation will be very important, with longer horizons. We need to do a lot of things very fast, and profits are not urgent. Through innovation I think we can have big and unexpected jumps.
	MPC2	All our projects need the ministry of Environment's approval, after independent studies and also Meteorology Direction, and also a study of impacts on climate change.

Do you think it is possible to pass onto prices the climate impact of economic activities such as energy production? PP.	Code	Reply
CER	MPC3	No
NAREVA	MPC1	Its difficult. We are being penalised in some areas. We may not pollute as much as others, but we still have to pay. The price of the carbon tax is very low, so that makes no difference, but if it rises, we won't be able to reflect on prices, or 6 million people would be without electricity.
MASEN	MPC2	No

Annex 2. Data of emissions (MTCO2) for the Climate Policy Gap

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Portugal (historical)	60	62	66	65	66	70	68	71	76	84	83	83	87	82	85
Portugal 1,5ºC															
Portugal 2ºC															
Portugal PNIEC 2019 (45%)															
Portugal PNIEC 2019 (55%)															
Portugal EU Roadmap 2011															
Spain (historical)	288	296	305	295	312	327	319	333	343	370	386	383	402	409	424
Spain 1,5ºC															
Spain 2ºC															
Spain (PEEC/INDC 2015)															
Spain EU Roadmap 2011															
Morocco (historical)	43	38	40	43	48	50	53	55	58	61	63	66	69	72	75
Morocco 1,5ºC															
Morocco 2ºC															
Morocco (INDC 2016 uncond)															
Morocco (INDC 2016 cond)															
Morocco (PEC)	33	33	34	33	35	37	38	40	42	44	47	51	51	51	62
Morocco (CAT)	33	36	38	41	46	48	51	53	56	59	61	64	67	70	73

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Portugal (historical)	87	82	80	77	74	70	69	67	65	65	69	68	73	
Portugal 1,5ºC														59,1
Portugal 2ºC														59,4
Portugal PNIEC 2019 (45%)														71,1
Portugal PNIEC 2019 (55%)														70,4
Portugal EU Roadmap 2011														71,15
Spain (historical)	439	432	443	410	371	356	355	349	322	324	336	324	340	
Spain 1,5ºC														287
Spain 2ºC														288
Spain (PEEC/INDC 2015)														330
Spain EU Roadmap 2011														331,4
Morocco (historical)	80	81	85	90	91	94	97	101	105	108	112			
Morocco 1,5ºC												87,5	90,6	93,7
Morocco 2ºC												89,3	91,7	93,8
Morocco (INDC 2016 uncond)												112,2	112,4	112,6
Morocco (INDC 2016 cond)												110,2	108,4	106,6
Morocco (PEC)	66	67	69	69	69	70								
Morocco (CAT)	77	78	83	88	89	92	95	97						

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Portugal (historical)												
Portugal 1,5ºC	57,8	56,4	54,2	52	49,9	47,8	45,7	43,6	41,6	39,6	37,7	35,8
Portugal 2ºC	57,8	56,3	54,6	52,9	51	49	46,9	44,9	42,8	40,8	38,8	37
Portugal PNIEC 2019 (45%)	69,2	67,3	65,4	63,5	61,6	59,7	57,8	55,9	54	52,1	50,2	47,85
Portugal PNIEC 2019 (55%)	67,8	65,2	62,6	60	57,4	54,8	52,2	49,6	47	44,4	41,8	39,15
Portugal EU Roadmap 2011	69,3	67,45	65,6	63,75	61,9	60,05	58,2	56,35	54,5	52,65	50,8	48,95
Spain (historical)												
Spain 1,5ºC	280	273	262	251	240	230	219	209	199	189	179	170
Spain 2ºC	280	272	264	255	245	235	225	215	205	195	185	176
Spain (PEEC/INDC 2015)	320	310	300	290	280	270	260	250	240	230	220	210
Spain EU Roadmap 2011	322,8	314,2	305,6	297	288,4	279,8	271,2	262,6	254	245,4	236,8	228,2
Morocco (historical)												
Morocco 1,5ºC	96,8	99,8	98,1	96,4	94,8	93,3	91,7	90,3	88,8	87,4	86	84,7
Morocco 2ºC	95,8	97,7	99,1	99,7	99,7	99,1	98,1	96,9	95,6	94,3	93,2	92,4
Morocco (INDC 2016 uncond)	112,8	113	116,2	119,4	122,6	125,8	129	132,8	136,6	140,4	144,2	148
Morocco (INDC 2016 cond)	104,8	103	103,2	103,4	103,6	103,8	104	106,6	109,2	111,8	114,4	117
Morocco (PEC)												
Morocco (CAT)												

The emissions reductions for PNIEC (Portugal) imply a 45% or 55% compared to 2005, year in which Portugal's emissions were 87 MTCO2. The cut implies a reduction of 1,9 MTCO2/year between 2017 and 2030 for the 45% cut and a reduction of 2,6 MTCO2/ year between 2017 e 2030 for the 55% cut.