



# Global warming

Its time to change

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# Climate change: An unimaginable calamity

**W**e stride confidently toward a vast catastrophe. Willingly blind to the consequences of our profligate burning of fossil fuels, we speak in hushed tones, if we speak at all, of the accelerating changes in the world's climate that will wreak havoc for humanity and many other species for centuries. We don't want to think about climate change. Energy is a prime need and we'll take it wherever we can get it cheaply, and put off the problems we are making for the future to that future time.

## **Why do we think and act this way?**

One principal issue is the ease with which denial of climate change permeates our society. The media often facilitates such denial by presenting arguments from both sides as if they were equally supported by evidence and knowledgeable opinion, but the sides are not equal. The evidence overwhelmingly supports that climate change is real and accelerating. But to make the story more interesting, the media often presents it as a great wrestling match, giving far too much credence to the position of the climate change denier.

People are left wondering: Is there scientific consensus on climate change? Scientists do

their work by arguing and submitting a variety of hypotheses to explain observations. The hypotheses are tested and the evidence judged. Rarely do 100% of scientists agree on any single explanation. But in the case of climate change it is estimated that 97% of people with expertise in this area agree that global warming is taking place, and that humans are the principal cause. That's about as good an agreement as we're ever going to get. To top it off, no major scientific institution in the world disputes anthropogenic climate change.

Yet people may ask: Hasn't the climate always been changing? The fact is that CO<sub>2</sub> and methane in the Earth's atmosphere are increasing faster than ever. This increase is correlated with a recent rate of warming of about 0.2°C/decade, which is 40 times higher than it was during a warming trend 10,000 years ago. CO<sub>2</sub> is at its highest level in 600,000 years, and it has never changed so rapidly as now.

But sceptics point out that Antarctica is gaining ice, which is not exactly the truth. To understand ice in Antarctica it is necessary to recognise that there are two main forms: "land ice" that has accumulated over thousands of years on the continental land mass; and "sea ice" that forms



in salt water. The real worry about Antarctica ice is the land ice, which is melting at a high rate and contributes new water to the ocean, causing the ocean level to rise. While data may show the extent of sea ice increasing in recent years in Antarctica, data also indicate a significant acceleration of melting land ice. It is the land ice on which we must focus. Don't be fooled by increases in sea ice, which are influenced by the input of cold meltwater coming from the land ice. Sea ice formation doesn't affect the ocean level much, but the melting of Antarctica land ice affects it greatly.

So, if the scientific information is clear, and if the predicted consequences are so dire, then why are people neglecting to take action? Humans, like other animals, respond very well to an immediate crisis. But, despite our ability to plan and analyse, we do not respond well to crises that take a while to develop. One reason for this is that we are currently occupied by many challenges that appear more pressing. Another reason is that our ability to imagine the future is clouded by a belief that we have already experienced bad weather. When we are asked to imagine the global temperatures rising by 4°C, we recall the heat waves we have gotten through. When we are asked to imagine severe

storms, we think of the bad tornados, hurricanes and typhoons we have survived. What we cannot imagine is the unrelenting heat, the increased frequency and severity of storms worldwide, and the scale of flooding or drought in the near future. We cannot imagine hordes of refugees and the absence of food and medical supplies to assist them. We are caught, according to George Marshall, in 'Don't Even Think About It', having confirmation bias, "...leading people to hugely overestimate the dangers of recent events and disregard the threat posed by more distant ones that they have not experienced."

Also impeding our ability to imagine the future is our misplaced reliance on our current economic model of continued growth. We are fully invested in this world economic framework and any threat to it being sustained must be removed rapidly. We do not see that continuing to rely on growth via unregulated industry is itself unsustainable. One way or another, by our own choice or by nature's laws, continuing to burn fossil fuels will stop. Either we start to do it now, or we will be forced to by nature.

Our leaders are absent, and we absent ourselves from them. Kyoto, Copenhagen, and Lima demonstrate that few people are asking their governments to take strong action, and governments themselves are taking little action. Despite hopeful signs like the recent US-China trade agreement, leaders continue to focus on short term economic gains, employment, GNPs, balances of trade, etc. so that they can look good for re-election.

Climate change is the defining challenge for the next few generations. In her book 'This Changes Everything', Naomi Klein writes: "...the real truth we have been avoiding: climate change isn't an "issue" to add to the list of things to worry about, next to health care and taxes. It is a civilisational wake-up call... telling us that we need an entirely new economic model and a new way of sharing this planet. Telling us we need to evolve."

Are we listening or are we asleep?





## A need for leadership

Our global human society is at a crossroads. By continuing straight ahead on the current road we will adhere to the behavior of indiscriminate burning of fossil fuels. This behavior will cause CO<sub>2</sub> in the Earth's atmosphere to rise to 450 ppm (parts per million) by 2050, which, together with other greenhouse gases like methane, will cause the Earth's average temperature to increase by at least +2°C compared to its pre-1850 average. Without severe cutbacks in greenhouse gas emissions, by 2100 the CO<sub>2</sub> will reach 550 ppm and it is estimated that the average temperature will rise by +3°C compared to its pre-industrial level. These temperature increases are very high, meaning our society, as we know and desire it, will be unsustainable. Essentially, the road we are on ends at a cliff. We are already far along this road of severe increases and climate change, which will only become worse in the decades to come.

Over the last 400,000 years the CO<sub>2</sub> concentration in the Earth's atmosphere (as preserved in deep ice cores) has varied between 200 ppm and 275 ppm. At no time during that period has CO<sub>2</sub>

been above 300 ppm. For 1000 years prior to circa 1850, the Earth's atmospheric CO<sub>2</sub> averaged narrowly around 275 ppm and the global climate during that time was relatively constant. Such stability allowed a flowering of the human community from 0.1 to 1.5 billion people and expansion to virtually all habitable land masses. In the last 150 years since 1850 we have grown to a society of over 7.3 billion people and are increasing at about 1 million every week. In the next 25 years we will add 2.5 billion more people. At the present time, as CO<sub>2</sub> shoots past 400 ppm (about 2.0 ppm increase per year), all ice forms on the Earth are melting to add freshwater to the oceans. This added water, together with the large thermal expansion of water already there, means that humans living in coastal areas (over 100 million within 1 meter of sea level) will have to relocate to higher elevations, resulting in a massive number of climate refugees to be cared for. They will have to move or else build expensive dikes to keep the water out.

Ocean rise is only one calamity that awaits us on this current road. More frequent and

intensive storms will occur; food production will be complicated by droughts on one hand, or excessive flooding of cropland on the other; the spread of disease will occur more easily; energy requirements will skyrocket causing yet more CO<sub>2</sub> emissions; conflicts between people, both local and international, will become commonplace between people fighting for the necessities of life.

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**“What do we require for changes to happen? One central need is for leadership. Such leadership cannot be the result of simply occupying a position that exists, but rather is the result of a person who acts with conviction and dedication toward an unselfish goal and on behalf of the common good.”**

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The net result of going down this road and over the cliff is an unsustainable society in chaos, one in which our children and their children will suffer much lower standards of living than we hope for them, their lives will be insecure and they will inevitably be forced to deviate from the values that mark a civilized society.

We need to take an alternate road, one different from the one paved with deregulated for-profit constant growth with its excessive reliance on burning fossil fuels to meet its insatiable appetite for energy. We have to cut back on our dependence on energy from fossil fuels and this means reducing our consumption of energy. We have to ramp up existing technologies which are based on renewable energy sources. And we must do this quickly. Each year we do not act hurls us closer to the cliff.

What do we require for changes to happen? One central need is for leadership. Such leadership cannot be the result of simply occupying a position that exists, but rather is the result of a person who acts with conviction

and dedication toward an unselfish goal and on behalf of the common good. Leadership in climate change requires intelligence and imagination, both of which are necessary for proper vision. A leader must be a visionary, seeing clearly how people can get from point A to point B, and articulating this in terms that are understandable and suitable for the values held by the people being led. A leader is able to explain the “why” and the “how” of the needed changes and inspires others to work for the stated goal.

We know from past examples of leaders that they are people who have charisma. We mean by this that the leader has the strength of character, integrity and a deep and obvious dedication to do what is right. Like all human activities, however, there will be some people who view the leader as too aggressive in his/her desire for change. We do not need to look very hard for examples like Jesus and Gandhi, who were opposed because they were devoted to making changes certain people could not accept. The response to climate change will not be immune to such potential conflict. The changes needed for our society to turn away from systems and beliefs that have permeated virtually every aspect of our society will be significant; there will be groups of people, often powerful and entrenched in the current paradigm, who will be unwilling to follow a new road. And that means that the leader of society’s response to climate change will have to have courage, and must be able to stand with resolve as others try to tear their vision down.

So where are such potential leaders today? I believe they exist in all levels and sectors of our society. They must be encouraged to step forward by the cries they hear from common people. When potential leaders appear, we must quickly evaluate their strengths of character and visions and, if found compelling, support them. Do we really have any other choice? Continuing the way we are headed is unsustainable and is doomed to chaos and extensive human suffering. Changing our path gives us the chance to create a new sustainable way of living.



# Promoting fair and sustainable growth



**Karmenu Vella, Commissioner for Environment, Maritime Affairs and Fisheries at the European Commission gives an overview of his priorities for the coming year...**

**T**he overall aim of the new European Commission, in office since November 2014, is to help improve the everyday lives of people across the continent. Creating and investing in quality jobs is central to this task. As a Member of this Commission, I have been given a specific mandate by President Juncker. That is a mandate to assure the sustainability of our environment, the preservation of our natural resources, the conservation of our marine biological resources and the management of our fisheries policy.

The challenge, which I think we can meet, is to ensure that these responsibilities compliment the growth and jobs agenda. I strongly believe that growth will be impossible if it is not fair and sustainable. The contribution that the green and blue economy can make to stimulating investment is therefore hugely significant. This is why I am so encouraged that President Juncker decided to combine the Environment portfolio with

that of Maritime & Fisheries. To promote good environmental standards, and for strong green and blue growth, there is no point in drawing lines between land and sea. There is, after all, only one planet – 70% of whose surface is water.

The EU has had a sustained period of economic travails. Yet despite this, 95% of its citizens still care deeply about the environment. I intend to use my mandate to promote innovative ways to reflect the expectations of citizens.

I think that if we are going to look at the future we cannot talk about the economy in isolation: we have to start talking about a more affordable and resilient economy. It means looking at the long-term viability of a business model by ensuring the continuity of resources. This is why the concept of the circular economy is so exciting. The commission has committed, in its work programme, to tabling a more ambitious proposal in this area during 2015.



Karmenu Vella, Commissioner for Environment, Maritime Affairs and Fisheries

Success can only be achieved by us working together, as EU institutions, as policymakers with member states, and, most importantly, as fellow citizens. I have already started working with my fellow commissioners towards a European energy union.

We have, with my colleague Neven Mimica, the Commissioner for Development, already adopted the Communication on eradicating poverty and boosting sustainable development. This year is the European Year of Development (EYD), which provides an excellent focus as we move towards the definition of the post-2015 sustainable development goals.

With our global partners, I will be leading in defining the management and governance of our planet's oceans. Ocean governance should include both an environmental aspect and an economic aspect. This will mean strong cooperation within the Commission, and

internationally, on security, research, innovation and energy issues.

The 'blue' economy' represents roughly 5.4 million jobs and generates a gross added value of almost €500bn a year. There is a lot of potential and we are already working to multiply those numbers. Blue growth and the green economy will be key building blocks of the competitive Europe of jobs, growth and fairness, both because of the jobs that they will create and because of the potential for reducing Europe's dependence on imported resources.

The issue of marine litter is one that needs to be addressed. With the right political focus and international cooperation, progress can and will be made. Increasing evidence of the damage done by litter, and particularly micro-plastics makes tackling this issue ever more urgent.

2015 is the Year of Natural Capital. To make this fully visible, there will be an important sequence of events, starting with the State of Nature Report in spring, consultations on the Fitness Check of Nature Legislation at different points of the year, and the mid-term review of the EU Biodiversity Strategy in the autumn.

The plans for this year are rich and varied and already well underway. My responsibility, like my fellow Commissioners, is to meet the needs of Europeans. I am delighted to play my part in defining and ensuring a sustainable green and blue future.

**Karmenu Vella**  
**Commissioner for Environment, Maritime Affairs and Fisheries**

The European Commission  
[www.ec.europa.eu/commission/2014-2019/vella\\_en](http://www.ec.europa.eu/commission/2014-2019/vella_en)

Bruce Conard  
President  
BRConard Consulting, Inc.  
Tel: (905) 844 8155  
bconard@sympatico.ca  
www.brconard.com

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**Consulting, Incorporated**

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