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I am supposed to give a slightly broader picture about the impact of economic activities on nature. Having attended many conferences recently, it would not be surprising to you that the most-quoted term today is “crisis”. At this conference we have been talking about global crisis, economic crisis, financial crisis, debt crisis, climate crisis, water crisis, and you name it. It always reminds me of something that was said by the great French philosopher Descartes, -- you should call things by their proper names, and you would avoid half of the misunderstandings.

I must say that there is no such thing as climate crisis, there is no such thing as water crisis, and there is no such thing as economic crisis, because these are all but the demonstrations of a much deeper problem we are all facing, and the problem is not about the world; it is about us, it is about our inability to change our eternal belief that we will always be able to shape the world according to our needs, and we are demanding more than the earth can sustainably provide. The Earth Overshoot Day - the day when we have consumed the sustainable portion of resources -was reached this year on 27 September.

Yesterday I was listening to many interesting and insightful statements, and the idea that we are on a collision course with nature is absolutely correct. However, I am a little surprised with the conclusions drawn from these statements. We are on a collision course with nature, and that is why we need to save the banking system! That was said yesterday.

I am not anti-banking. My daughter works for a bank, by the way. For me it is simply not obvious why we need to save the system and not the way of life that this system should serve. There are lots of questions that need to be clarified to arrive (if at all) at such conclusions.

The biggest problem, as I understand it, is that our creative capacity has largely bypassed our adaptive capacity in the world. What are the environmental consequences of our economic activities? Generally and broadly speaking, current estimates of global GDP for 2010 were around USD60 trillion, and even at a modest per capita growth rate, if the emerging economies are to reach poverty targets, we are doomed to reach USD200 trillion in the next 30 years. That means three worlds sitting on the resources of the current world, stretched with regard to the production and consumption limits.

The world increased its fossil fuel use over the 20th century by a factor of 12, whilst extracting 34 times more material resources. Each person in the European Union today consumes 16 tonnes of materials annually, and six of them are waste; half of this waste goes to landfill. Some 65 billion tonnes of raw materials, in absolute figures, entered the economic system in 2010, and this figure is expected to grow to about 82 billion tonnes in 2020. The result of this activity is that half the world's tropical forests, the lungs of our ecosystem, are gone already; by 2030, at the current rate of harvest, we will have only 10% of tropical forest standing. 90% of the big fish in the sea is gone, and we are polluting our lakes, rivers and seas with two million tonnes of sewage and industrial and agricultural waste every day.

Obviously, there is no possibility of proving the linkage between economic activity and natural disasters, but the frequency and intensity of the natural disasters have so increased in recent decades that it would be a little incautious to deny such a link. There were 78 recorded disasters in 1978; last year there were 385, and during this last year we have already witnessed five mega-disasters. This year, Hurricane Sandy was a reality check in the United States, putting a very clear climate change imprint on the results of the electoral campaign for the first time.

Before 1988, there had never been a single disaster event for which the insurance industry had to pay out over USD1 billion in claims; since then there have been over 20 such events. We should not get the impression that catastrophes are primarily for other parts of the world to worry about, or that Europe has fewer disasters: in the ten years of this century, 80,000 EU citizens were killed by natural disasters, and these natural disasters cost the EU economy EUR100 billion.



A lot has already been said about climate change, and I think we need to realise that if we fail to put a price on and reduce carbon emissions now, and if we continue to rely mainly on fossil fuels, we are damaging our economy. This is not just an assumption; those who argue the converse are failing to account for the costs of damage already caused by climate change. I can give you a very interesting illustration. Just five years ago, Stern Report assumed that by the year 2100, 1-2% of global GDP would be gone if temperatures increased by 2.5 degrees Celsius. Last month a new report was published that was commissioned by 20 governments, and in this report it was disclosed that climate change is already contributing to the deaths of nearly 400,000 people a year, and costing the world more than USD1.2 trillion annually, wiping 1.6% from global GDP every year. Therefore, the costs of failing to price carbon and reduce emissions are already very real.

I will skip some points related to water problems and move on to conclusions. It is clear that efficiency alone will not be enough to solve the problems we are talking about today. Euphemisms like 'green economy' or 'shared sustainable growth' will also not help. What we need today is a transition to a circular economy. We need to decouple economic growth from the use of energy and materials; simply increasing resource efficiency will not get us where we need to be. I am not questioning the objective of increasing energy and resource efficiency; essentially, we have no choice. What has to be questioned, however, is how production and consumption are being organised today. Throughout all the evolution of our industrial civilisation it has been a very linear process, based on a simple formula – take, make, dispose. We take natural resources, business produces goods, and then the consumer gets the goods and disposes of them when life time is over.

A first important step in the direction of a circular economy would be recycling, significantly increasing recycling rates that are ridiculously low. According to a report released last year by UNEP, recycling rates of metals are in many cases far lower than their potential for reuse. 34 out of 60 metals are at below 1% of recycling; that is incredible. While CO2 emissions are reduced by more than 90% when aluminium scrap is used instead of bauxite, only a third of aluminium demand is supplied by secondary production. While CO2 emissions are reduced 65% by using copper scrap, less than a third of copper production comes from copper scrap. It is even worse with lead and other metals.

That means that we will need to develop new business models for the circular economy, and that is very important. Today business models are based on maximising the volume of sales of various products; in the circular economy model, sales of products should be replaced by leases, coupled with exceptional services. Since responsibility for the material used in a product remains with manufacturing companies, strong incentives are created to fully exploit the material to earn money on what has been produced for as long as possible. For example, Rolls-Royce has replaced sales of jet engines to various airlines with leases. Michelin rents car tyres to heavy vehicles and is responsible for their maintenance, upgrading and recycling as waste products. Xerox offers copying services instead of selling photocopiers. The list is growing and is already very long.

The crucial question is how we can move society in the direction of the circular economy, because pricing mechanisms alone will not be enough. That means that there should be governmental intervention, and in my view there are three areas that need attention today. One is binding targets for resource efficiency: by setting such targets well above the expected growth rate in the economy, it would send the right signals to focus on the maximum reuse and recycling of materials. Secondly, by giving priority to sustainable design and closed material loops, the research community would give maximum attention to the principles of circular economy. Finally, by lowering taxes on labour and raising them on the use of virgin materials, similar incentives would be at play, as in the case of binding resource efficiency targets.

Therefore, returning to Descartes, environmental acceptability properly understood means to ask whether we are intelligent enough to accept changing ourselves in order to reverse the trends in the right direction.