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Better Growth, Helping the Paris COP-out? Fallacies and Omissions of the New Climate Economy Report

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Better Growth, Helping the Paris COP-out?:

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by

Clive L. Spash

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INTRODUCTION

As time passes the failure of the Conference of the Parties (COP) on climate change becomes seemingly inevitable. The expectation that a major breakthrough will come from the current vested interests supporting the resource extracting, fossil-fuel driven growth economies of the world seems nothing but a fantasy. Yet this is what the document released in September 2014 called "Better Growth Better Climate: The New Climate Economy Report: The Synthesis Report" would like us to believe. Is this just another copout to help the COP out of their collective political failure?

The opening of this latest bid to claim the capital accumulating economies must continue growing, despite on-going social and environmental crises, is replete with rhetorical flourish. We are told, in no uncertain terms, that this report is "an objective, independent examination", "grounded in reality", using "the best available evidence", "it proposes practical measures". This is a strong set of statements claiming the status of a traditional academic scientific research project untainted by values or interests. Furthermore, the report states that: "The Global Commission on the Economy and Climate [GCEC] was set up to examine whether it is possible to achieve lasting economic growth while also tackling the risks of climate change" (GCEC 2014a p.8); so apparently they were open to the fact that this might not be possible?

Well, think again! The lead persona in the GCEC is a former World Bank economist and corporate executive, Nicholas Stern, who on release of the report made clear:

> "To those who want to knock out growth from objectives, I find they're close to reprehensible ... I think to say that we should just switch off growth is to miss big aspects of what matters about poverty. And so it worries me. It's also politically very naive. If you turn it into a pissing contest between growth on the one hand and climate and environment on the other and say you've got to choose, you're setting yourself up for failure." (Confino 2014)

Indeed, we might suspect that what the GCEC produce are not scientific findings from independent objective research, but rather justifications for a political agenda that was set well in advance of any research. In the Stern review of 2006 the message was: "Tackling climate change is the pro-growth strategy for the longer term, and it can be done in a way that does not cap the aspirations for growth of rich or poor countries." (Stern et al. 2006 p.viii). "The [new] report's conclusion is that countries at all levels of income now have the opportunity to build lasting economic growth at the same time as reducing the immense risks of climate change." (GCEC 2014a p.8). Spot the difference?

Let's just repeat that, the central message in the new report is that: "we can create lasting economic growth while also tackling the immense risks of climate change" (GCEC 2014a p.7). Who are we? Apparently the undefined global 'we' that hides all inequity and power relationships and pretends everyone is on an equal footing, without giving anyone except an elite voice to speak. Well in this case those speaking for the "global we" are a political elite (2 majors and 5 ex-heads of state of whom 2 now work for the UN) backed by (13) financers and bankers and (4) leaders of international organisations (World Bank, IEA, OECD, ITUC), plus Stern (now a Lord and Professor since his last climate economics report was so well received by the UK Treasury and Government of the day). This self appointed group call themselves the "Global Commission on the Economy and Climate", or "the Commission" for short. They are backed-up by another expert elite group, "The Economic

Advisory Panel", comprising 9 professors (all economist and/or Nobel economic prize winners) and 6 other economic/finance experts (in all 2 women and 13 men).

The Committee is clearly heavily biased towards mainstream economics, international finance, business and trade, and far from interest free. Stern himself has built a career based on the necessity of imposing 'development' seen as identical to economic growth. Of course, there is also a disclaimer that none of these people, or the organisations to which they belong, can be blamed for the report because none of them may actually agree with everything, but only "the general thrust of arguments". Who from the GCEC actually wrote the report is not stated. However, the claim to being "independent" begs the question from what? The claim to "objectivity" is purely made to impress and persuade.

This is rather important given that the thrust of the report is not some disinterested search for knowledge, if such a thing were possible, which it is not, but rather a direct assault on the need for radical change in our political and economic systems in response to human induced climate change. The arguments presented are an apologia for the continuity of a capital accumulating political economy that reeks environmental destruction, mass dislocation of people and creation of urban poverty. The rhetoric is one of concern for climate change and the poor, but the essence is to maintain business as usual in a structurally unchanged political economy of war, imperialism and exploitation.

So let me start by putting aside the scientific objective pretensions of "the Commission", and make clear that this report is a lobbying document supporting what has come to be known as Green Growth, a wonderful oxymoron. That is, a new utopian vision of a growth economy to replace the old ones of sustainable development, welfare economy, and plain old growth economy. This is an economy that can accumulate capital while decreasing the amount of materials and energy used; an economy that can achieve social equity and the eradication of poverty without any redistribution policy; an economy where people are made

happy by conspicuous consumption, competing to buy the latest gadgets and owning more ('green') stuff. Not to forget achieving harmony with nature through technology. The Commission makes clear the analysis "rests on a considerable body of experience and research...as well as policy and business reports...work has drawn extensively from this body of applied economic learning" (GCEC 2014a p.16); the related citations are to Green Growth reports by the World Bank, OECD and UNEP. Further support comes from the Global Green Growth Institute, one of the eight institutional backers of the GCEC.

In this paper I look at the New Climate Economy Synthesis Report as a key document aimed at influencing policy in the lead-up to the UN Framework Convention on Climate Change (UNFCCC) Paris COP meeting in December 2015. The synthesis is more important than the extensive online background chapters because of how it summaries and highlights key points while ignoring others. This is the document the policy community is expected to read, and probably many will just glance at its 10 bullet point strategy and executive summary. The hundreds of pages of report chapters, background material and annexes are for academics and technical experts to argue over. So from a public policy perspective the Synthesis Report, like the Intergovernmental Panel on Climate Change (IPCC) Summary for Policy Makers, is the central document of importance for political lobbying, non-experts, public marketing and media coverage.

FRAMING THE TERMS OF DEBATE

An important aspect of any report is how the scope is narrowed down. You might think from the title this report is going to address the problems society faces in preventing climate change. No, that is in fact not the case. The time horizon is too short for that and the objective is not prevention but management.

The report is addressing the next 15 years and no more. Embedded in the report (p.16) are the key definitions for the time scale: short-term 0-5 years, medium term 5-15 years and long term >15years. Recommendations are framed within the short and medium term. So the punch line—"we can create lasting economic growth while also tackling the immense risks of climate change"—is logically also limited to this less than 15 year period, because the policies required, and reductions necessary, after that are excluded from the remit. What can be created in 15 years is a set of decisions about the role of government, business, finance and infrastructure that lock-out civil society and lock-in a "strong growth" economy.

In order to make policy recommendations favouring such a growth path as better for the climate, a politically (not scientifically) set target for permissible climate warming is adopted. The Commission take the Copenhagen Accord goal of holding the average global temperature rise to no more than 2°C above pre-industrial times as the basic target. This ignores the fact that, back in 2011, leading climate scientists from the UK's Tyndall Centre warned that:

> "despite high-level statements to the contrary, there is now little to no chance of maintaining the global mean surface temperature at or below 2°C. Moreover, the impacts associated with 2°C have been revised upwards, sufficiently so that 2°C now more appropriately represents the threshold between 'dangerous' and 'extremely dangerous' climate change. Ultimately, the science of climate change allied with the emission scenarios for Annex 1 and non-Annex 1 nations suggests a radically different framing of the mitigation and adaptation challenge from that accompanying many other analyses, particularly those directly informing policy." (Anderson and Bows 2011 p.20)

There is no discussion of climate science in the report, it blindly adopts the scientifically discredited 2°C target. The Commission do not even strictly adhere to even this misguided policy.

Instead their target, like that of international world leaders, is not preventing climate change but rather risk reduction and management. Conflicting with a basic understanding of uncertainty they adopt a probabilistic approach for strong uncertainty and so make this equivalent to risk.[1] As Keynes (1988 [1921]) pointed out long ago there are important distinctions here. Strong uncertainty is not the same as weak uncertainty or risk (Spash 2002). The future is not reducible to a set of objective probabilities and well defined states. Recognising concepts of ignorance and indeterminacy (not least in social, economic and political systems) makes the idea of claiming quantitative probabilities for future states totally absurd. Yet the rhetoric of over optimistic, self-assured, risk management from the business, banking and finance world is prevalent in the technocratic discourse; the same risk management that brought on the financial crises and never saw it coming. Strong uncertainty calls for precaution and avoiding pathways that lead to disastrous scenarios, not deliberately walking down them on the basis of an expert gamblers roll of the risk management dice.

In an essay about the economics behind the report, Stern (2014) summarises and rationalises the GCEC new climate economy approach to the issue as follows:

> "The whole report is essentially about risk management, on an immense scale, in structural transformation, in growth and poverty reduction, and in climate change. ... It provides a way to look at and assess advantages and disadvantages, pros and cons, and costs and benefits, with their associated uncertainties. It is an approach which can

[1] In the associated text on economic theory there is only risk (Stern 2014). In the report, most occurrences of the word uncertainty relate to criticism of government inaction causing "government-induced" policy uncertainty, and again this is meant as equivalent to risk.

> be called structured consequentialism in the sense that it provides a structured framework for decisions in terms of careful evaluation and assessment of possible consequences." (Stern 2014)

At the same time Stern (2014) states that he rejects "attempting to summarise the entire consequences for the world into one model for net benefits and one optimal policy or one number for expected utility." Something of a change from the last report (Stern et al. 2006), where the global cost-benefit analysis of Chapter 6 was employed to support a single number oriented media campaign. Indeed the "review" failed to review the critical literature on economic models and monetary valuation (see criticism in Spash 2007), even in the context of climate change (e.g., Spash 2002; Funtowicz and Ravetz 1994; Daily et al. 1991). However, Stern now regards single model, single number, expected utility, net benefit and optimal policy approaches as "cavalier and often lacking in transparency and honesty as to what is behind the 'results'." (Stern 2014).

While a welcome realisation, the changes here may have something to do with Stern's own contest held with the likes of Nordhaus and Tol over the role of models and discount rates (e.g., Stern 2008). Neither of the protagonists is mentioned in Stern's essay, but their life's work is Integrated Assessment Modelling which gets a good bashing (Stern 2014). However, having delivered his attack, he also backs-off and recommends more research funds and improving economic models that seem no better. In short, some reductionist economic modelling and cost-benefit approaches are now out, but not all. An eclectic pluralism seems to be on the agenda. Indeed cost and benefit calculations pop-up repeatedly in the GCEC's report, as if the harm and damages from pollution were easy to calculate facts.

As quoted above, Stern has made clear the report's own consequentialist reasoning and support for weighing-up costs and benefits. The approach is consistent with the standard economists' belief that choices are trade-offs between know opportunity costs, as if the social

world were a closed well defined system. Thus the report is framed as a matter of justifying government intervention to correct a market failure on the basis that there are 'real costs' (GCEC 2014a p.20) that can be measured in monetary terms, i.e., the Social Cost of Carbon (Stern 2014). Public policy intervention is then aimed at improving the efficient allocation of resources on the assumption that prices allocate resources reflecting costs and government intervention can and should correct prices that are wrong.

GETTING THE PRICES RIGHT

As Stern enjoys reminding people, he regards climate change as the biggest market failure ever, but he also believes it can be corrected. As he states:

> "It [carbon pricing] involves a relatively simple application of widely accepted tax principles and can be applied in a number of ways, including through an explicit tax or cap-and-trade scheme, or by adjusting existing fuel taxes to reflect their carbon content." (Stern 2014)

The exact same solutions are offered as if this were some textbook small smoke stack industry polluting its next door neighbour. Internalise those naughty externalities that are spoiling the perfect market system.

The answer to our climate change problems is then: "a strong and predictable price on carbon" (GCEC 2014a p.9), and the report tells us this can be delivered by emission trading or taxes (GCEC 2014a p.16). Now let's get this right, some of the Noble prize winning and most elite economists around along with a bunch of top flight financiers and bankers want us to believe an emissions trading commodity market is one of the best ways to get price predictability! Have any of them looked at the record of carbon emissions trade prices, not to mention any other commodity in the world? The support given for emissions trading by this report fails to relate to the abysmal performance of carbon emission trading in Europe at

reducing any emissions (Koch 2014), let alone consider the profiteering and racketeering which has been rife (Seager 2009; Inman 2010; Elsworth et al. 2011; Brinded 2012; Jacobs 2013). As for raising public funds, the free distribution of permits has passed billions into the hands of the biggest polluters (Gilbertson and Reyes 2009; Fulbrook 2009; Lohmann 2011; Coelho 2012). There are a whole range of problems with carbon trading (Spash 2010), none of which is mentioned.

The alternative for "getting the prices right" is taxation, which could provide a source of government revenue for restructuring (amongst other things). However, even here the claims about revenue need qualification because the long-run aim is to phase out greenhouse gas emissions (GCEC 2014a p.25), and that means declining and ultimately little or no tax revenue from this source. Still properly designed taxes could, if the political power existed to oppose corporate interests, be employed to raise funds to aid structural reform of the economy in the short to medium term.[2] This provides a strong role for 'government', but the report is far from positive about 'government', taken to mean a central national authority.[3]

The report repeatedly emphasises 'government failure', and sees such an authority as providing infrastructure and supporting institutions (e.g. free trade agreements, intellectual property rights) to enable corporate profit making and the high returns on invest they deem necessary to get change. That is, government should be performing a role of facilitating the big market players to bring forth the necessary investments. There is little or no mention of industry or corporations getting things wrong, embezzling funds, cheating, creating fraudulent financial instruments, or mis-selling products. There is no recognition here that

[2] Taxes can also be captured or manipulated in design by vested interest groups, as for any policy instrument, e.g. via allowances, exclusions and revenue recycling.

[3] The term 'government' is used generically throughout the report. Issues of multi-level governance are ignored along with the array of types of formal government structures that exist. This is a textbook economic caricature of political systems lacking any depth.

costs are deliberately shifted onto others by economic actors in order to benefit themselves (Kapp 1950, 1978); rather the problem is an externalised environmental reality, so removing culpability. The repeated story is that the blame for the market systems' failures is placed at the door of government, their lack of action, or their actions that distort the market (e.g. subsidies). Again and again the rhetoric is repeated that the policy distortions must be removed, prices are wrong and need to be corrected so that markets can efficiently allocate resources. Deregulation is coded in phrases such as the need for "greater economic flexibility" and the support for US-Europe free trade pact and trade liberalisation on the grounds that this will somehow aid low carbon innovation and trade (GCEC 2014a p.50). That is despite the rather obvious point that international trade entails carbon intensive transportation! Concerns that such 'free trade' agreements will attack European Union labour, social and environmental regulations, and undermine the protection they provide against 'market failure' and corporations, is not recognised.

The new climate economy shows total faith in the textbook economics story that (perfectly) competitive markets will allocate resources efficiently on the basis of price signals.

> "Competitive markets in which prices properly reflect the full costs of production are vital to enable resources to flow to where they are most productive." p.42

So what exactly are those "full costs of production", and who is going to calculate these costs and how? Considering that CO_2 emissions are represented in embodied energy in every product and service in the economy means accepting that every single price in the economy is in need of correction. Then consider that CO_2 is only one greenhouse gas and others cause about half of climate forcing (e.g., CFCs, methane and nitrous oxides). More than that Stern (2014) himself admits:

> "Market failures extend beyond the fundamental one of GHG emissions, to more dynamic failures such as the public spillover of ideas in research and development (R&D), networks, capital markets and information, as well as co-benefits of ecosystems, efficiency, health and so on."

There are indeed a whole range of other environmental problems created by modern production and consumption (e.g., soil erosion, deforestation, water salinisation, insecticides and pesticides, particulates in the air, tropospheric ozone pollution, stratospheric ozone loss, acidic deposition, toxic chemical waste, heavy metals, asbestos, e-waste, nuclear waste, biodiversity loss, acidification of the oceans, hormone discharges into the water supply, and so on ...). Having identified all the environmental impacts of production the next step would be to value all the associated damages, now and into the future, in monetary terms. Without completing this Herculean, and fundamentally impossible, task the market system cannot be made to "properly reflect the full costs of production".

What the Commission is half heartedly admitting in its "market failure" and "getting the prices right" rhetoric is that the current economic system creates a whole array of harms both socially and environmentally. The blind faith they have is in the potential of adjusting market prices "properly" to send new signals in an allocative system that does not actually exist outside of economic textbooks. Even if it did exist, the logical conclusion of 'internalising externalities' on such a scale is to change every single price in the economy with totally unpredictable consequences. What they are really saying is that the price mechanism does not work as economists claim and cannot allocate resources according to its own definition of efficiency. Economic price theory is fundamentally flawed and fails to even begin to address the real nature of the growth economy.

THE REAL GROWTH ECONOMY: ENERGY & MATERIAL THROUGHPUT

The Commission recognises the importance of energy, and the power generating sector, with the report making around 500 mentions on these topics in its 70 odd pages. They state that: "**Energy** systems power growth in all economies." Energy, or rather useful energy, provision is certainly a necessary, not sufficient, condition for all capital accumulating industrial economies to maintain growth. As ecological economists have noted (e.g., Georgescu-Roegen 1971; Mayumi and Gowdy 1999), all human societies create organisation by exploiting low entropy sources of energy. In these terms life is energy.

The growth economy is in reality a reflection of the level of throughout of low entropy materials and energy, and Gross Domestic Product (GDP) is a value measure associated with that throughput. That material and energy throughput causes pollution is a direct consequence of the first law of thermodynamics (energy like mass can neither be created nor destroyed). What goes in, must come out. In the context of industrial society, a key aspect of 'what goes in' are fossil fuels and 'what comes out' are greenhouse gases, and a lot of other pollutants.

At the same time, reducing growth does not reduce emissions by as much as adding to growth increases them. Structural and behavioural factors prevent CO_2 emissions per capita falling in years where GDP per capita shrinks (York 2012a). This means reducing CO_2 emissions depends upon more than reducing the size of the economy, although this helps. Growth locks-in society to energy dependence and so emissions increases. Structural and behavioural factors need to be addressed to reduce emissions.

Strangely, there are few hard-line policies being recommended to address the phase out of coal, gas and oil. A key target for the Commission are coal fired electricity generating power stations. In part this is because of their belief that this will minimise stranded asset

value loss.[4] Targeting coal also permits straight forward substitution possibilities without any need for systems change. However, coal is not to be removed from the global economy but limited to developing countries if, for them, it is cheaper than cleaner alternatives (GCEC 2014a p.45). This seems to leave a rather large door open e.g., India is massively expanding coal use. There is almost no mention of oil, while gas is regarded as cleaner than coal and so a good substitute ready for expansion. There is no mention of tar sands, pipelines or fracking; there is a brief positive mention of shale gas as making a positive contribution to the energy portfolio offered by developing "unconventional oil and gas". The policy picture appears heavily limited and unrealistic.

The whole premise of the new climate economy is that technology will enable production to be divorced from energy and materials, i.e. absolute decoupling. That can only occur if the same product or service uses less inputs. As physical objects cannot do without physical matter there are some problems here and because organisation requires energy there are more problems. Typically discussions of decoupling generally then fall back on GDP value per unit of output. This is totally irrelevant for the biophysical impacts because the concern is absolute physical energy and material flows into the environment not the GDP money value created. Analysis should focus on what gets produced (including waste), on what scale and how it is produced, consumed and disposed-of. The report too easily slips into discussing more GDP value per unit of energy used, i.e. economic efficiency.

The report's central policy aim is to stimulate low carbon energy alternatives and efficiency. The emissions reductions from improvements in efficiency of use or by developing substitutes depends upon whether net fossil fuel use actually declines. Merely adding energy alternatives to the generation capacity does not necessarily result in removing

[4] The finance chapter of the main report states that: "Over the next 20 years, reducing the use of coal can achieve 80% of the required energy-sector emissions reductions at only 12% of the total potential stranded asset cost, supporting a focus on coal in climate policy." GCEC, 2014b.

fossil fuels. York (2012b) shows that "the average pattern across most nations of the world over the past fifty years is one where each unit of total national energy use from non-fossil-fuel sources displaced less than one-quarter of a unit of fossil-fuel energy use and, focusing specifically on electricity, each unit of electricity generated by non-fossil-fuel sources displaced less than one-tenth of a unit of fossil-fuel-generated electricity."

So the idea of developing lower carbon alternatives is a limited means of emissions reduction. Directly shutting down existing, and banning any new, fossil fuel use capacity is necessary, and sufficient, for emissions control. There are additional qualifications as to likely effectiveness of low carbon alternatives. The substitutes will require material and energy inputs. For example, switching to solar in a national grid system entails massive material and energy use both in construction and running the system, as well as loss of energy in transmission.

The analysis as presented is amazingly poor given the supposed body of experts. There is no mention of energy return on investment (EROI). That is the simple point that more and more energy is being used to get less and less back. The double talk of increased efficiency and productivity and falling prices fails to even address this basic physical reality. The concern for the future is that the age of easily accessible high EROI (mainly fossil fuels) is soon over because we cannot afford to burn the stuff.

Then there is the failure to address the Jevons paradox, or rebound effect; only mentioned once and dismissed (GCEC 2014a p.39). This means all those lovely efficiency gains get eaten up by ever more consumption. As ecological economists have noted for a long time, there is no means of addressing the scale of the economy on the basis of an efficiency goal (Daly 2007).

How about another missing aspect, material reality? The report is big on energy but makes no mention of that other low entropy source essential for the growth economy namely

minerals. Yes all those solar panels feeding into a national grid, all those new digital devices, all those building materials, they all come from somewhere and get dumped back into the environment. The lower the grade of minerals the more energy used in recovery and waste created. They also happen to be finite and some of them very rare. Yet there is not one single mention of any issues relating to the materials necessary to make Green Growth and the new climate economy operational, let alone "sustainable".

Instead materials are brought in briefly using what was called in the 1970s material balance theory and today has been resurrected as a circular economy. The report discusses this as some relatively minor materials reuse from post-consumer product recovery. The ideal for a sustainable economy is that material cycles can be perfectly closed so all materials are recovered at high enough quality for reuse. The fallacy of this position has been repeatedly discussed in ecological economics over the years (e.g., Georgescu-Roegen 1975; Tsuchida 1999; Ayres 1999). The basic physical problem is the energy required for recycling and reuse as well as the need for an adequate stock of quality recyclable materials to be kept available. There is also an assumption that the knowledge exists as to how to recover all the necessary materials at an industrial scale. Recycling, reuse and increased product durability can all be positive things, but that depends on the energy and materials used in the process and the associated pollutants produced. In addition, none of this takes into account the contradiction of promoting a growth economy that thrives on fashion and a throwaway consumer culture.

What is revealed by discussions of the need for low entropy energy and minerals is that they are all limited and being run down rapidly. The resulting pollution along with land use change is degrading ecosystems functions and reducing the capacity for life[5]. The capital

[5] The Living Planet Index (LPI), which measures more than 10,000 representative populations of mammals, birds, reptiles, amphibians and fish, has declined by 52 per cent since 1970 WWF, 2014..

accumulating growth economy involves what Brand and Wissen (2013) term the 'imperial mode of living'.

> "Ecological crisis phenomena, like the erosion of biodiversity and climate change, have been caused by the spread of production and consumption patterns that fundamentally rely on unlimited access to resources, space, labour power and sinks, which implies a globally unequal appropriation of nature. Exclusive access to resources, guaranteed by contract or through open violence, and the externalisation of the socio-ecological costs that using these resources entails, are the *conditio sine qua non* of the global North's mode of living, which we therefore call 'imperial'." (Brand and Wissen 2013 p.699)

The imperial mode of living is deeply rooted in the growth economy through its exploitative definitions of Society-Nature relationships, every day practices, institutions and portrayal of material hedonism as an attractive life style. The global North was able to shift social and ecological costs on to others in order to maintain its imperial mode of development and avoid or ameliorate the worst consequences. However, times have changed as countries of the global South have increasingly claimed their share of global resources and 'environmental space'. Hence,

> "international environmental institutions such as the UNFCCC become more important because negotiations about emission reductions – including about 'rights to pollute' – also touch upon the question of who can continue on a resource-intensive development path and who has to leave it." (Brand and Wissen 2013)

The lie of the new climate economy is that we can have a stable and just society based on more competition, more growth, more trade and more throughput, when this entails a fight for energy, materials and ecological space. This is not and cannot be some inclusive project

where rich and poor all obtain global North imperial modes of living. Indeed, as Josef Ackermann, the CEO of Deutsche Bank has made very clear, this is a race for leadership:

> "Make no mistake: a new world order is emerging. The race for leadership has already begun. For the winners, the rewards are clear: Innovation and investment in clean energy technology will stimulate green growth; it will create jobs; it will bring greater energy independence and national security." (Statement made December 2010, cited by Jaeger et al. 2011)

Make no mistake, where there are winners there will be losers, as there always have been in the competitive industrial growth economy, Green or otherwise. Germany wins, Spain, Portugal, Italy, Greece lose; China wins America loses; America wins Europe loses; and so on.

Lest we not forget, that competition is backed by aggression and military force as and when necessary to secure resources and markets for trading. The current political economy is built on fossil fuel expansion. Current government plans are to pour trillions of dollars in that direction (International Energy Agency 2014) to secure a traditional leadership position in the growth race; a strategy backed by military concerns over security and demands from the fossil fuel and associated industries (e.g. aerospace, automobiles). The new climate economy, like Green Growth, brokers no discussion of how resources are secured via land grabbing, political and military intervention and ultimately war.

GROWTH VERSUS HUMAN HEALTH AND THE ENVIRONMENT

What should be made explicit is that protecting economic growth limits the possibilities for emission reduction to a few percent, which is totally inadequate to address the problem even when redefined as allowing extreme climate change and limited to a 15 year time horizon. Consider this statement by Stern et al. (2006 pp.203-204):

> "However, there is likely to be a maximum practical rate at which global emissions can be reduced. At the national level, there are examples of sustained emissions cuts of up to 1% per year associated with structural change in energy systems ... whilst maintaining strong economic growth.
>
> However, cuts in emissions greater than this have historically been associated only with economic recession or upheaval, for example, the emissions reduction of 5.2% per year for a decade associated with the economic transition and strong reduction in output in the former Soviet Union. These magnitudes of cuts suggest it is likely to be very challenging to reduce emissions by more than a few percent per year while maintaining strong economic growth."

This makes very clear that economic growth is in conflict with preventing climate change! There is no absolute decoupling of emissions from economic growth because the modern growth economy relies upon low entropy fossil fuel energy and minerals. Indeed there is a choice here between continuing the growth economy and restructuring society to avoid both growth and the extreme climate change it causes.

The Commission deliberately choose to ignore this in the rhetoric about strong growth and reductions being compatible, although it does sneak in at one point. After outlining the IPCC 2°C target they state (GCEC 2014a p.23):

> "To achieve this target, the carbon productivity of the world economy (defined in terms of US$ of world output/ tonnes of GHG emissions) would need to increase by about 3–4% per year until 2030, compared with a historic 25-year trend of around 1% per year. In 2030–2050, the improvement in carbon productivity would need to accelerate again, to around 6–7% per year, to stay on track."

This language of "carbon productivity" and the trick of converting the whole discourse into reductions relative to GDP hides the basic conclusion. In plain language the necessary

emissions reductions are outside of all historical experience of a growth economy. In addition, the problem is cumulative and absolute emissions, not emissions per unit of GDP. Absolute not relative decoupling would be necessary to maintain growth while reducing greenhouse gas emissions. More "carbon productivity" totally ignores the scale of the problem and does not therefore address climate change.

The report goes on to state that achieving IPCC 2°C targets is consistent with cutting emissions by 26 Gt CO2e per year by 2030, while current emission are around 50 Gt CO2e per year; making necessary an approximately 50% cut in emissions on today's levels (p.23). The level of reductions expected from the Commissions strategy, on their own admission, is highly uncertain and may only address half of the requirements (GCEC 2014a p.24), and this is only for their own weak risk management target within the 15 year period, not beyond. As they confess:

> "The low-carbon transition will not end in 2030. Much deeper reductions will be required in later years, to take global emissions down to less than 20 Gt CO2e by 2050 and near zero or below in the second half of the century." (p.25)

In fact the growth economy is the cause of these, and many other, pollution problems not the solution, or perhaps the way to look at this is that economic growth as a measure of well-being is an illusion.

There is no need to get philosophical, or psychological about this, or go into happiness research, just take some basic data from the report itself. The topic of associated harms and pollution from greenhouse gases is actually in the report but converted into the cost-benefit language so they become co-benefits of pollution reduction. One of those co-benefits is human health (mortality and morbidity). The report then states:

> "As noted earlier, rapid economic growth based on fossil fuels has led to severe air pollution in many middle-income countries. New analysis for the Commission values

> the health and mortality burden of air pollution in the 15 top GHG-emitting countries at an average of 4.4% of GDP (see Figure 3). In China this rises to more than 10% of GDP." (GCEC 2014a p.20)

Now, taking those 15 countries, data from the World Bank shows they had an average annual GDP growth of 3.1% from 1990-2000 and 4.2% from 2000-2012. If we look at China they had by far the highest growth rates at 10.4% and 10.6% for the two periods, but even this is wiped-out by the estimates of damages from only particulate (PM 2.5) air pollution mortality given by the report. On the basis of the Commission's own data, approach and arguments the growth economy is a myth because growth rates are in fact negative across the globe on the basis of health impacts alone.

Playing this orthodox economists game of commensurating life with consumption, the world would be better-off without growth. The fact is, even if the figures were positive, consumer and capital goods would be bought at the expense of health and premature death. The commensuration allows mainstream economists to make trade-offs and clearly hides gross inequity as well, because those who suffer most from pollution are the poor and low status racial groups, and this is true even in developed industrial economies (e.g. people of colour in the USA). If all the other environmental damages and social costs of this system were added into the picture the fallacies of the benefits from a growth economy would be overwhelming. However, gross inequity in the system rewards a rich global minority who maintain it to consume luxuries and trivia at the expense of necessities for the current poor and future generations.

WHAT ARE THE ETHICS OF A GROWTH SOCIETY?

The report does not discuss its ethical basis but, as noted, claims to be independent and objective. Yet Stern readily proclaims his values to journalists and on the internet. On

release of the report, in the Guardian's Sustainable Business section, a journalist recounts Stern's conviction that "it's vital we go back to recognising the importance of Aristotle's belief in the need to understand what it means to be a virtuous person and to whom we owe a duty of care" (Confino 2014). We might speculate that institutions supporting a virtuous society and creating a good life for all (not just an elite) might follow, and they would certainly contrast with those of a society, where desire knows no bounds, based on hedonism, consumerism, materialism and wanting ever more. Self-control, sufficiency, sharing and caring are the kind of virtues required, but these are the traditional values and norms pushed out by 'development' as strong competitive growth.

That this report has nothing to do say about virtue ethics is hardly surprising. Instead it relies upon consequentialism, universal commensurability and weighing-up costs and benefit. As in Stern et al. (2006), commensurability allows dead people to be shown as equivalent to lost consumption goods (i.e. GDP). Of course such commensurability is a normal unquestioned part of everyday economics, where ethics has long since been pushed into the background. Economics has become a profession where more dead people can be compensated by better growth, that is a net benefit can be calculated if the value of the growth in output makes consumption goods worth more than the people killed in their production.

So, let's reflect upon ethics for a second. Are the following ethical acts: driving a car and flying on planes? Under the terms of the report these acts can be seen as leading to harm of innocent others, both human and non-human, both now and in the future. In a free society, they are volitional acts totally within the control of the individual. They are unnecessary to live a good life, and can be seen as violating rights of others. Yet in the growth economy all consumers are encouraged by marketing to regularly engage in such acts. Consumerism normalises a set of acts, legitimised by society and embraced by the populous who enter into

a dependency relationship, where they then demand reinforcement of the system of provision. No such acts can be seriously questioned or discussed, because the basic ethic is preference utilitarian. That means what the individual prefers is best and if they are willing to pay then supply is justified. More than this the political liberal ideal is that what individuals choose to do is right. The neoliberal ideal is that what they demand the market will provide.

Individual choice under the Green Growth advocated by the GCEC is totally consistent with allowing the rich to act as they please. For example, consider the Global Green Growth Institute, a backer of this report. The head of the Institute, Lars Lokke Rasmussen, thought nothing of spending US$180,000 on first class flights and food during 15 trips for the organisation (Associated Press 2013). Rasmussen heads Denmark's liberal party Venstre and served as the country's prime minister in 2009-2011. He might have thought justifying personal excess and massive greenhouse gas emissions is what Green Growth is all about, and why not?

Certainly there is nothing in this report to suggest otherwise. There is no mention of airplanes, airports or flying as problematic. There is no mention of ethics. There is no mention of the wealthy, excessive consumption, income inequity, the super rich or redistribution.

The poor and poverty are mentioned quite a lot, because the message is that growth will “reduce poverty”. Here the implicit argument is the old and discredited concept of ‘trickle down’. Indeed, traditional economic development has been heavily criticised for failing to deliver basic needs to the global majority while creating greater national and international inequity. There is no necessary reason why growth should reduce poverty especially if it increases inequity (Stiglitz 2009), and growth has in fact been consistent with increasing inequity (OECD 2011). The high concentration of wealth amongst the top 1%,

mainly in the global North, then acts to exacerbate social divisions and feelings of injustice within and between nations.

The hope for some decades now has been that a type of sustainable development can be achieved which allows for rapid economic growth while avoiding environmental degradation (World Commission on Environment and Development 1991), improving social justice and raising living standards for the 80% of humanity living on less than $10 a day (Chen and Ravallion 2008). The global South (e.g. G-77) aims to achieve 'development' in the tradition of the global North via high rates of economic growth, leading to higher material and energy consumption. This has been exemplified by China, India and Brazil. The contradiction is that the growth economy also increases pressure on resources and the environment and impacts human health with the poorest most susceptible to harm. As Stern (2014) himself notes: "Climate change is deeply inequitable in both its origins and impacts". Much like all cost shifting exercises of the growth economy. In the growth process people are dislocated, removed from traditional practices and communities and forced into urban poverty, which is deemed an improvement because they now earn money that can be measured and placed into statistical accounts as successful reduction of 'rural poverty'.

As the report makes clear "we cannot manage what we cannot measure" (GCEC 2014a p.42), and the global "we" is ready to push for a world run by technocratic managers who can only see what can be measured.

> "The Commission recommends that, with technical support from public international institutions such as the OECD, World Bank and IMF, national governments accelerate the deployment of metrics and models that provide a more comprehensive, reliable analysis of potential climate risks to natural and societal capital, as well as the costs and benefits of climate action."

However, the money metrics and models of the growth economy only account for what is profitable, gives a rate of return and can be converted into the terminology of economics (e.g. social capital, natural capital, human capital, spiritual capital) and made commensurable.

Meanwhile growth does not seem to have been increasing the happiness, or self-reported life satisfaction, of those in the richest nations (e.g., Easterlin 2003). There have then been calls for different macroeconomic measures of economic performance to the dominant GDP indicator (Stiglitz, Sen, and Fitoussi 2009). The measurement of poverty using dollar income, purchasing power parity or even the human development index can prove highly misleading. For example, increasing income from $1.00 to $1.25 a day being taken as removing people from poverty while moving them from rural communities and social networks into urban slums and pollution to work under dehumanising modern factory conditions. Indicators only signify where we have been. The key issue is what vision of human development is in prospect (e.g., inequitable material affluence in a competitive individualistic society or human flourishing which enables living a good life in communities of sharing with and caring for others).

Keynes (1930), advocate of the growth economy, wanted to maintain capital accumulation for no more than 100 years, because he recognised it would institutionalise behaviour that is unethical and undesirable: greed, usury, and the desire for ever more money. Keynes wanted such behaviour to be removed on reaching the end goal. That is, on solving the economic problem which was to meet people's absolute needs:

> We shall be able to rid ourselves of many of the pseudo-moral principles which have hag-ridden us for two hundred years, by which we have exalted some of the most distasteful of human qualities into the position of the highest virtues. We shall be able to afford to dare to assess the money-motive at its true value. The love of money as a possession—as distinguished from the love of money as a means to the enjoyments

> and realities of life—will be recognised for what it is, a somewhat disgusting morbidity, one of those semi-criminal, semi-pathological propensities which one hands over with a shudder to the specialists of mental disease.
>
> But beware! The time for all this is not yet. For at least another hundred years we must pretend to ourselves and to everyone that fair is foul and foul is fair; for foul is useful and fair is not. (Keynes 1930: 97)

He is recommending the blind pursuit of future wealth, ignoring our actions "own quality or their immediate effects on our own environment" (Keynes 1930: 97). The prescription also requires that we value the useful over the good. This unpleasant society was one that Keynes regarded as a necessary evil to operate a growth economy. He believed (or hoped) we could transition out of it in two generations. Unfortunately he never considered the potential for lock-in, or the powerful vested interests growth would create.

CORPORATE INTERESTS, GOVERNMENT AND CIVIL SOCIETY

What is interesting in a political lobby report like this, as much as what gets put in, is what gets left out. There is, rather surprisingly given the number of politicians involved, no discussion of political structure or political power. An interesting question would then be why the five ex-heads of state on the Commission failed to implement its recommendations when they were in power?

Of course there is the little problem of corporate power. The total lack of any mention of the power and influence of the multi-national mining and resource extraction corporations or their role in obstructing policy on greenhouse gas mitigation is astounding. Just look at what goes on in Australia, Canada and the USA. Instead the report tells us that policy indecision is the cause of our woes, implying weak politicians alone are to be blamed. The idea that corporations along with bankers and financiers have been influencing

politicians and political process, and for some time now, seems too fanciful perhaps, despite the billion dollar bailouts.

The whole vision of the new climate economy places corporate interests at the centre. Stern (2014) is committed to a neo-Schumpeterian view, on the role of innovation in the transformation of society, that empowers corporations as key drivers of change. This places emphasis on creating change using government taxes and subsidies (elsewhere heavily criticised in the report) and institutions of private property rights to stimulate entrepreneurs to produce the goods. A process that in the current context promotes the role of future technology and the need for more innovation to solve our problems. In short, techno-optimism that delays using current technology and low-tech existing solutions to reduce demand and so energy and material throughput. Low tech and reducing demand are inconsistent with strong growth and making money for the big players. R&D is a central and urgent issue for the Committee.

The matter is urgent not because of impending damages from climate change but because of the impending loss of value to the fossil fuel industry due to its toxic assets, or as the Commission prefers "stranded assets". The fossil fuel sector are sitting on carbon resources they cannot burn without pushing climate forcing through the roof. Leaving fossil fuels in the ground means their major company assets are worthless and, unless they diversify, they are bankrupt. This might also help explain why so many bankers, financiers and insurance companies are now so interested in climate change and specifically the carbon assets side of the picture.

> "The financial impact of stranded assets is not about lost production, but lost value. For example, under our evaluation scenario, even oil producers whose output is unaffected by the [GCEC recommended] transition could see the value of their oil

production fall by up to 60% due to falling wholesale oil prices that result when demand declines." (GCEC 2014b)

It also explains why corporate interests that normally oppose government regulation would favour taxes that keep the system running and funnel the funds back to them via R&D and new infrastructure investments and subsidies for new technologies. As the finance chapter reports, the right policy can turn oil industry stranded asset risk into a net economic benefit (GCEC 2014b p.42).

Those toxic assets are also an issue for governments around the world because of the related revenues and taxes. In addition, governments retain ownership of 70% of oil and gas reserves, and operate half the world's power generating capacity (International Energy Agency 2014 p.4). One member of the Commission works for Vattenfall AB a Swedish state owned power company running 16 coal fired power stations internationally. The company website states: "Coal is a cornerstone of the European energy system due to its economic attractiveness and characteristics that allow stable and secure large-scale electricity generation." Vattenfall is working to optimise its production portfolio that includes nuclear and supports expansion of natural gas. "Natural gas is a growing energy source within Europe that provides flexibility and security of supply".

In India major expansion of the coal sector has been pushed by government financing and support from the World Bank. According to the IEA (2014) "New coal-fired power plants are projected to dominate future investment in generation capacity in India, as in many other parts of Asia: this is the main driver for the $1 trillion in global coal-supply investment over the period to 2035." Increasing fossil fuel investment is a potential liability if COP would act stringently and countries could be brought to account. However, the expansion expected shows neither is deemed likely. The assumption of the need for growth even pervades some of those claiming the conflicting need for a post-growth society because they

recommend a contract and convergence agenda (Jackson 2009). This helps justify such massive expansion of coal burning as has occurred in China and India, and further expansion elsewhere on the basis of a traditional 'development' model.

Carbon capture and storage (CCS) is the great hope of many because some fossil fuel assets can then still be burnt and then expansion might also be 'justified' further expost. However, CCS projects have proven too expensive and long term so have been cancelled in both Norway and the UK. Promoting massive R&D holds the hope that a miracle technology will appear and all those toxic fossil fuel assets will suddenly be valuable again. Much is made in the report of governments creating policy uncertainty and so not sending strong (price) signals, but the recommended government spending of $100 billion a year for energy R&D will do the same; holding the hope that fossil fuels can be retained and expanded.

In terms of governance everything recommended in the report is top-down. Perhaps we should recognise that the interests of corporate, banking and finance groups represent an elite position that sees civil society as something subservient to their own interests and consider that the Commission (given its constituents) shares this view. There is certainly a total absence of any role for civil society and public decision processes.

A member of the Committee has explained such an approach quite well. Caio Koch-Weser is Vice Chairman of Deutsche Bank Group, Non-Executive Director of British gas and oil multinational BG Group, and Chairman of the European Climate Foundation (a business lobby group that the unaware might think was an environmental NGO). He stated, in an article entitled "Let Business Find the Solutions" published by Deutsche Welle, 26th October 2013, that:

> "I think we cannot rely on civil society demanding government setting the policy framework and then business coming in. We need a different sequence in future also, where you have civil society rightly demanding, you then have big private sector

> players coming together and generating the transformative ideas and concepts and then going to the politicians and saying 'for that to happen we need this and that regulatory reform or this and that incentive or policy.'"

That is the real picture behind this report. The environmental lobby having their serious concerns over climate change impacts converted into the concepts of economics and finance to help provide a business opportunity for the "big players", who then put politicians under pressure to fund them and change the regulations and institutions to ensure they can make more money. Of course, in many (if not all) countries the political and ruling elites are totally on board already and happily promoting the growth economy without any need for coercion. In Galbraith's (2007 [1967]) terms, the technostructure is well integrated into the political and regulatory systems that are meant to control them.

Related to this is the question of which institutions that can achieve a better, more socially just and environmentally less degrading mode of human conduct? Nation states remain powerful players globally but the role and power of corporations cannot be underestimated. Ranking countries by GDP and corporations by revenue shows 48 corporations are in the top 100 on such a list (Dietz and O'Neill 2013 pp.144-145). Much concern is shown for governance of nations, but what of the hierarchical dictatorships of the corporations that control billions of people's lives? As Goodwin (2008 p.25) has noted:

> "the long term success of the human race will be much endangered if corporations continue to be, as they are now, the world's most powerful group of institutions, and if their motivations continue to drive them to strive short-sightedly for economic growth as it was defined in the 20th century. That model has motivated corporations to act vigorously to blind consumers to the realities of what makes for a good life—e.g., drenching the culture with messages suggesting that all troubles can be solved by going shopping, and elevating money-dependent status to the highest cultural goal"

Keynes, who promoted the whole idea of modern government backed growth, recognised a deep ethical and psychological malaise lies at the heart of any growth economy.

CONCLUSIONS

According to Stern somebody who questions growth is “reprehensible”, and questioning the compatibility of growth with environmental quality is to enter a “pissing contest”. A pissing contest is a macho competition to see who can urinate the farthest or highest, and as a metaphor refers to a contest that is futile and purposeless. Of course there are plenty of such matches going on in economics all the time, probably due to an excessive number of alpha males in the profession and their obsession with self-aggrandising, but otherwise pointless, mathematical modelling. Stern has engaged in his own schoolyard competitions over economic models and discounting. So perhaps there is no surprise in his aggressive pre-emptive strike against anyone critical of the growth dogma.

The debate over growth and who it benefits is far from pointless and to try to ridicule and close the discussion is the antithesis of democratic process, and I might add scientific rigour. A growth economy has been repeatedly highlighted as problematic by many economists, and others. The conflict of a growth economy with the environment is not going away just because an economic elite refuse to discuss it. From John Stuart Mill onwards great minds have been troubled by this system, its consequences, its inequity and yes its environmental exploitation and destruction. Some have sought alternatives, such as Mill’s steady-state economy. Keynes also wanted growth to end after a century. Perhaps the likes of Mill and Keynes are also to be regarded as “reprehensible” for suggesting the growth machine be turned-off?

The structure of the current growth economy poses serious and on-going problems, many of which the Commission themselves discuss, but of course as market failures to be

corrected at little or no net cost. The fact that the Commission is only looking at one environmental problem is also an indictment of any claim to be considering the real impacts of the growth society. They do not even address the full reality of climate change.

The whole new economy report is framed in a way that avoids the problem of climate change. The time horizon is less than 15 years, the policy goal is minimizing risk, the target is 2°C, the aim is managerial control using metrics and models, the ethic is consequentialist and utilitarian, harm of the innocent is equated to lost output, and the core issue is reduced down to a market failure correctible by 'getting the prices right'. This methodological reductionism is a standard mainstream economic approach (shared by the Stern et al. 2006 report), i.e. talking about the problems in grand terms and then reducing them down to something else, something that fits within a standard economists frame of thought. Strong uncertainty becomes weak risk assessment, cost shifting becomes externalities, Nature becomes capital, poverty becomes income level, intergenerational ethics become discounting, catastrophic disaster becomes a benefit of pollution control to trade-off with a cost. This report follows suite.

There are some extremely valid and important points in the report. The energy sector faces a major turn-over in physical capital stock that provides an opportunity for a change away from fossil fuel dependency. The economy does need serious restructuring and is in danger of continuing down a totally destructive path. However, the restructuring is not merely a matter of transition to more nuclear, gas, solar and wind rather than coal in electricity generation, or more electric and hybrid cars, or more subsidies for R&D, or more free trade to spread new technologies. If the authors really believe their own statements then the fossil fuel sector is dead, as their concern to save the value of toxic assets recognises. Their numerous references to market failure, calls for government intervention and changing all the prices in the economy mean recognising the need for planning. That many

governments are not trustworthy and are removed from accountability to the people is far from encouraging for a new phase of planning. However corporations are themselves undemocratic institutions and their promotion a threat to democracy. What goes unrecognised is the need for new and accountable democratic institutions and the role of civil society in representing the people against the vested interests of corporations. Instead the top down recommendations aim to empower corporations and a technocratic elite.

There is so much that is left out, readily dismissed or just not discussed in this report. The oil industry, transportation besides new cars and buses, the EROI, the power of corporations, the contribution of industry to greenhouse gases, the impossibility of decoupling, the Jevons paradox, urban poverty driven by growth, other environmental problems created by growth, resource extraction, rare minerals, resource wars, the role of the military, the losers in the competitive race for more, the imperial mode of living, quality of life, and so on. There is in short more left-out than put-in.

What all this points towards is that if the COP meetings continue down this route they will never address the fundamental causes of climate change. Indeed, judging by the September 2014 meeting in New York, much of the financial and economic thrust of the report is already on the UN agenda for Paris. This is a discourse captured by the rhetoric of a growth economy left unquestioned and unanalysed. COP will then produce policy recommendations for sure, and it will produce actions to spend trillions of euros, dollars, yuan, rupees, reals and roubles. The actions will indeed maintain “strong growth” by investing in R&D for new technologies, implementing financial mechanisms to salvage the value of toxic assets, creating new financial instruments for trading on the market, making loans available for more debt, replacing old products and production processes with new ones stimulating more production and consumption.

Will any of this address climate change? The answer is quite simply no. As climate scientists Anderson and Bows (2011) have made clear:

> "Put bluntly, while the rhetoric of policy is to reduce emissions in line with avoiding dangerous climate change, most policy advice is to accept a high probability of extremely dangerous climate change rather than propose radical and immediate emission reductions."

The earlier Stern review from 2006 was no different but did admit that sustained growth was not going to be compatible with radical emissions reductions. The new report by framing the debate in obtuse ways tries to hide this basic fact. The push for strong growth, competition and efficiency will increase the use of materials and energy, because, even if the economists' claim to improving efficiency in such a system were realised, this does not address scale. The absolute cumulative emissions matter and the scale of throughout of low entropy energy and materials is key to the ongoing environmental and social crises growth creates.

What the Commission unintentionally highlights in its synthesis report is the need for planning on a massive scale, in order to achieve transformation of the structure of the economy and its physical infrastructure. The need to address cities, their size and operation, transportation, land use and, what they do not discuss, the structure and functioning of the industrial sector. Energy is only one aspect of the problem and the Commission ignores both materials and the need for functioning ecosystems. What they also shy away from is the discussion of demand management. They tentatively talk of nudging people along. They propose changing all the prices in the economy but discuss this as if it were a minor issue of a simple tax. Taking social and environmental problems seriously means questioning what is produced, why, and who gets it.

The basic issue to be addressed in all this is the human relationship to the biophysical world and the relationship of humans with each other. Development seen as an imperative to be achieved by exploitation of low entropy materials and energy purposefully creates a dependency culture both for society and the individual. What is necessary for transformation away from greenhouse gas emissions fundamentally questions the traditional development model and its concept of progress as material affluence. The new climate economy aims to protect and preserve that model and avoid any questioning of its validity.

So what is the real concern in this report, climate change and the harm it poses to poor people and the planet or corporate profits, capital accumulation and a continued comfortable life for the global rich? Well, apparently the ultimate concern is the threat to the growth economy and that is what needs protecting above all else. As the report makes clear:

"In the long term, if climate change is not tackled, growth itself will be at risk." (p.9)

That's right. It's the growth economy and those who are dependent upon it that are at risk and need protection. Better growth, better climate for business.

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