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Book Review –The Climate Bonus:
Co-benefits of Climate Policy

Alison Smith *(UK). London & NY: Earthscan/Routledge, Jan 2013, 408p, $59.95pb.*

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For several decades, we have heard, over and over, that climate change is a very bad development, and that addressing climate change and evolving to a sustainable or low-carbon society are a necessary response—seemingly painful in the short term, desirable in the long-term however. But how desirable?

Smith, an environmental policy consultant to the UK government and the EC, who has been a lead author for the IPCC, provides a detailed, systematic overview of the many benefits of a green economy, concluding that *"Far from being a burden on society, tackling climate change presents us with an opportunity to move to a cleaner, safer and healthier world."* (p.334)

The climate debate has polarized into one of the pressing immediate economic needs vs. the long-term, uncertain, and largely invisible threats of climate change that are easy to ignore. "Yet this misses the bigger picture. *Low-carbon policies often provide a whole range of additional environmental, social, and economic benefits. These often-overlooked co-benefits can help to offset the financial cost of the technology and boost its political acceptability…*

Many of these benefits are far more immediate and visible than the impacts of climate change, and can provide a much stronger motivation for supporting the move to a low-carbon society. For many low-carbon policies, we might argue that the co-benefits alone would justify their adoption even if climate change did not pose a threat." (p.2)

Great progress has been made in reducing air pollution over recent decades, but these technical advances have been partly offset by the rapid growth in vehicle use and electricity demand, such that "air pollution limits are still being exceeded." Many of the co-benefits of climate policy are linked to reducing use of fossil fuels. The ***main policies*** for cutting the climate impacts of fossil fuels are 1) improving energy efficiency and promoting energy-saving behavior; 2) switching to low-carbon energy sources such as renewable energy and nuclear power, or switching from high-carbon coal to medium-carbon gas; 3) reducing methane emissions from coal mines and oilfields by collecting the gas and using it instead; 4) reducing waste of materials by re-use and re-cycling; 5) carbon capture and storage; 6) geo-engineering to reflect sunlight. The first four options give rise to three major sets of co-benefits: cleaner air, safer and cleaner energy, and energy security (which reduce risks of price spikes, supply disruption, and conflict).

Six chapters enumerate the many co-benefits, while also discussing conflicts and "the way forward."

1. ***Cleaner Air: Cutting Pollution.*** Co-benefits for health, ecosystems, and the economy include: 1) lower incidence of premature death and illness from heart and lung diseases and cancer; 2) lower health costs; 3) less work time lost due to pollution-related illness; 4) healthier forests, streams, lakes, and other ecosystems; 5) reduced damage to buildings from acid rain and soot; 6) increased crop yields due to reduced ozone concentrations; 7) cost savings of installing and operating pollution control equipment.

   Air quality benefits offset much of the climate policy cost, and can even exceed it. However, policies to address climate change and air quality have been separate: air quality has typically been the responsibility of local or regional governments, while climate change is a global issue. "There is an urgent need for a more integrated strategy to maximize the synergies and minimize the conflicts between the two goals." Twelve "win-win options" good for both climate and air quality are listed.

2. ***Greener Land: Forests, Food, and Farming.*** Better land management is essential to meet climate targets. Deforestation and agriculture account for about 24% of GHGs, yet with best practice both could be carbon-neutral by 2030. Co-benefits include: 1) protecting biodiversity, which is currently declining at an alarming rate (the main driver of this decline is habitat loss); 2) water catchment, flood protection, and soil protection (trees perform a vital function in stabilizing soil, providing clean water, and preventing floods); 3) reduced air pollution from forest fires (the risk of fires increases significantly when forests become degraded, leading to lost tourism revenue, healthcare costs, more carbon emissions, etc.); 4) preserving livelihoods for indigenous people and workers in the forestry sector; 5) preserving ecosystem services to poor communities (estimated at >$1 trillion per year); 6) preserving aesthetic, cultural, and spiritual values of forests; 7) reducing soil erosion, as well as air and water pollution; 8) improving farm incomes by cutting fertilizer costs, boosting yields, and enhancing resilience to climate change (by adding organic matter to soils or leguminous cover crops, and conservation tillage); 9) agroforestry (planting trees and shrubs) can diversify and improve farm incomes.

   Badly-designed policies, however, can undermine the co-benefits or even make the situation worse, e.g. support for biofuels can lead to clearing natural habitats, and payments for forest carbon can lead to land grabs, corruption, and fraud. The way forward is to expand protected areas (some 14% of forests are currently protected—in theory), put an economic value on forest carbon through a well-designed REDD system (Reduced Emissions from Deforestation and forest Degradation), cut perverse subsidies, curb rising demand for paper and timber, clarify ownership of forests and improve governance, support certification schemes (promoting sustainable timber, paper, and food), reduce emissions from nitrogen fertilizers and methane, eat less meat and dairy products, and increase carbon in agricultural soils by burying biochar and by integrated pest management.

3. ***Secure and Safe Energy. Adapting to Peak Oil.*** Dependence on fossil fuels poses risks for energy security. There is a consensus that we face a future of rising oil prices, more frequent supply disruptions, and escalating oil-related conflict. The "drill, baby, drill" approach to energy security, including exploitation of shale gas, will not prevent dangerous climate change. Gas supplies are more secure than oil supplies, but "Peak Gas may be closer than we think" (p.121) because data on gas reserves are less reliable than for oil reserves.

   The co-benefits of a strategy based on cutting energy consumption and waste, and shifting to low-carbon energy: 1) more secure energy (fewer blackouts and brownouts; reduced rationing, long queues, and steep price increases); 2) more affordable energy (lower prices in the long term), cheaper energy services, better price stability; 3) safer and cleaner energy (reduced risk of oil spills, coal mine accidents, and ecosystem damage from fossil fuel extraction); 4) reduced use of water for fracking shale gas (about ten times more than the quantity used for conventional drilling); 5) clean energy access for all (1.3 billion people still have no access to electricity, and 2.7 billion people rely on traditional biomass for cooking); 6) switching to shale gas will not keep us within safe climate targets, and displaces development of renewable energy; 7) "total coal production could peak between 2020 and 2050" (p.123); 8) "peak uranium" is possible: the best reserves are becoming depleted and rising demand for nuclear power could lead to a major risk of short-term supply shortages.

4. ***Less Waste: A Resource-Efficient Economy.*** Material efficiency is just as important as energy efficiency, because over half of GHGs come from making material goods such as houses, cars, food, clothing, and appliances. We can choose low-impact materials, cut waste, minimize packaging, and increase recycling, reuse, and repair.

   The co-benefits: 1) avoiding resource-related conflict and instability; 2) reducing impacts of extracting and processing resources (e.g., pollution, landscape danger); 3) reducing costs and impacts of waste disposal in landfill sites and incinerators; 4) saving money for households by improving the durability of goods and reducing food waste; 5) making businesses more competitive by saving money on materials, water, energy, and waste disposal; 6) conserving scarce resources as we face possible "Peak Minerals" and increasing cost of extraction.

   A consensus is emerging on several priority areas: the growing problem of electronic waste, construction materials (the bulk of waste in most countries), food waste (large amounts of food are wasted due to storage problems and wasteful consumer habits; cutting this waste can alleviate a wide range of problems such as use of land, water, fertilizers, and energy), eco-design of products and processes, etc.

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5. ***A Stronger Economy: Long-term Stability and Prosperity.*** For most of the 20th century, the economy and the environment were seen as being in conflict. "This old view of climate policy as an economic burden is giving way to a new vision of a dynamic, prosperous green economy" (p.222). Co-benefits include: 1) more jobs because low-carbon businesses are often more labor-intensive (fear of job losses has been a major barrier to climate action); "compared to fossil fuels, renewable energy creates more jobs per dollar invested, per unit of installed capacity, and per unit of power generated" (p.227); 2) cost savings to households and businesses (likely to become more important as prices for energy, materials, food, and water continue to rise); 3) a low-carbon future will encourage rapid introduction of smart, clean, and efficient technologies; 4) protection from resource price shocks and shortages, which lead to economic and social instability.

   To facilitate the transition to a low-carbon economy, new economic thinking is needed that expands the definition of progress and well-being beyond the GDP measure. Alternatives to GDP are briefly discussed (p.277). "Because of our fixation on growth as the means to solve all problems, we have not even started to discuss and research the best method of adapting our economy to fit within the ecological limits of the planet" (p.279). Conventional economists have avoided debate, and "lack of debate is in fact the main obstacle to achievement of a prosperous low-carbon economy" (p.282).

6. ***Health and Well-Being: Benefits of a Low-Carbon Lifestyle.*** Active travel (walking, cycling), a low-carbon diet, and less materialistic lifestyles can mitigate public health problems related to physical inactivity, poor diet, and stress. Co-benefits include: 1) health and fitness (1 billion people eat too much or too much of the wrong type of food and are physically inactive; low-carbon diets tend to be healthier); 2) walking and cycling can lead to safer and quieter streets; 3) shifting toward shorter working hours (rather than more material consumption) can reduce unemployment, redress the work-life balance, and improve community cohesion.

   The way forward involves promoting lifestyle changes (to make sustainable behavior easy, cheap, and attractive compared to the alternatives), encouraging low-impact diets, enabling sustainable travel choices, and highlighting the benefits for well-being of a less materialistic lifestyle.

Conclusion

"For too long, governments have looked at climate change in isolation, failing to consider the impacts of climate policy on other areas and missing the co-benefits and conflicts" (p.322). To reap the full benefits of *The Climate Bonus,* we must look at the big picture and integrate it fully with other concerns such as energy security. "We need to take all the co-benefits and conflicts of different policy options into account, and set up an integrated policy framework" (p325). This is illustrated with two visions of the future: one in which we continue with isolated policy initiatives and fossil fuel lock-in (business as usual), and one in which we move to joined up policies for a green economy, after listening to scientific advice on safe levels of greenhouse gas emissions. In this scenario, carbon emissions by 2050 are

reduced to the point where the worst impacts of climate change have been avoided, and the natural world is thriving, with vibrant forests, clean air and water, and abundant wildlife. Total costs of a strong and coordinated climate policy are affordable (about 2% of GDP) and are outweighed by the co-benefits.

COMMENT

Many books have been published on sustainability; this one is different because of its strong positive focus on "the climate bonus." It is an excellent example of the much-needed integrative thinking, identifying some 37 overlapping and reinforcing co-benefits in six major categories: cleaner air, greener land, safe and secure energy, less waste, stronger economy, and improved lifestyle. Many of these arguments for sustainability have been made extensively, but in relatively piecemeal fashion and without the emphasis on positive co-benefits, as well as conflicts and cautious ways forward. This synthesis is backed up with some 450 references, including recent thinking by OECD (e.g., *Towards Green Growth;* GFB Book of the Month, August 2011), the International Energy Agency, the World Bank (e.g., *A Smarter GNP: Factoring Natural Capital into Economic Decision-Making*), and the UNEP's 2011 report *Towards a Green Economy.*

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The 37 co-benefits, taken together, make a powerful case for sensible climate-relevant policies. The major problem, however, is that this encyclopedic work is difficult to digest and communicate, compounded by the $59.95 price which will deter many would-be users. The message of many attractive co-benefits needs to be widely disseminated in a number of ways so that it enters general political discourse, with this book ideally serving as a foundation. A more popularized version of this message, for example, is James Gustav Speth, **America the Possible: Manifesto for a New Economy** (Yale University Press, Sept 2012, 272p; brief version in Solutions journal, 4:1, April 2013). Also see the Worldwatch Institute, **State of the World 2013: Is Sustainability Still Possible?** (Island Press, April 2013, 441p), with 34 chapters on getting to sustainability—but without Smith's focus on co-benefits.

Diversity is often a strength, but too many fragmented approaches to promoting sustainability may weaken progress in realizing this necessary and desirable transition.

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