

“Law, Ethics, and the Livestock-Climate Connection”

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Introduction

The world is in crisis. Worldwide, humanity is sweltering, freezing, thirsting and drowning. This year alone Pakistan and China suffered extensive floods and mudslides. Millions of people in Sahel and Nigeria face famine due to crop failures from drought and extreme high temperatures. Pastoralists and small-scale livestock producers have lost much of their herds due to drought and heat stress. A 100 square-mile chunk of Greenland’s Petermann Glacier broke off this August. Seventeen nations recorded record high temperatures; only one recorded a low temperature. Russia’s forest fires and other extreme heat waves have sent global food prices soaring. Human damage to the earth is estimated to cost between \$2tn to \$4 tn in 2008 according to the UN’s TEEB, while the UN’s Principles for Responsible Investing and Trucost¹ estimate the cost at \$6.6tn, or 11% of global economic output. That equates to one third of the profits of the 3000 companies Trucost surveyed.

Fossil-fuel driven climate change is the greatest challenge in human history. Climate change threatens to become more violent and chaotic every year, unless we act now to reduce greenhouse gases (GHG) in the atmosphere. This is an emergency for all of humanity and particularly for our children. They will grow up in a world where weather will be life threatening, violent storms killing people in one area while unexpected droughts and expanding deserts drive people from their homes in others. Such chaos will cause people to fight over the most basic resources. Food scarcity will become extreme.

Climate disruption tragedies will become commonplace. But we are told these unexpected weather patterns can be modified and the Earth can return to the climates we have known if we can reduce the CO₂ in the atmosphere to approximately 350 parts per million.

As fossil fuels have been the driving force for the development of the modern world, shifting to other forms of energy will not be easy. The transition to renewable energy is certain to be tremendously expensive and depends on international agreements that seem lacking. The failure of the 2009 Copenhagen Climate Summit and the disagreements at Tianjin in October

¹ UN’s TEEB: www.teebweb.org/Portals/25/Documents/TEEB%20for%20Business/TEEB%20for%20Bus%20Exec%20English.pdf. UN’s PRI/Trucost: www.unpri.org/files/uop_press_release_final.pdf. In the interests of full disclosure, I am on Trucost’s Advisory Board.

this year do not presage well for Cancun's November meeting. Such wrangling could jeopardize the 1997 Kyoto Climate Protocol, ratified by more than 187 nations, which expires in 2012. The transition to renewables will require the smooth reduction in the use of coal, oil and gas with the simultaneous replacement of that energy with a rapid growth of wind, solar and other energy sources. It is difficult to even imagine such a transformation, such a balancing act.

The Livestock-Climate Connection

In 2006, the FAO published a 388-page report entitled *Livestock's Long Shadow*, assessing for the first time in a major publication the greenhouse gas (GHG) emissions attributable to livestock's supply chain -- from forests cleared to supermarkets. According to FAO's report, the only way to increase global supplies of meat and dairy products is through more intensification and more deforestation.

That assessment by the FAO was echoed in a recent public statement by the Director-General of the International Livestock Research Institute, Dr. Carlos Seré, who wrote that rich countries feed animals grains that "might instead have fed people." Nobody of such stature in the livestock sector has ever made such a statement before.

Using our backgrounds in environmental assessment at the World Bank Group, Jeff Anhang and I prepared an article for *World Watch* – in which we consider whether any sources of GHG emissions might have been missed in FAO's *Livestock's Long Shadow*. The key ones that we found missing are in the land set aside for both livestock and for feed production, along with several other significant sources. So our article suggests that livestock's shadow is not only long but colossal, responsible for at least 51% of human-caused GHG emissions.

Our analysis has been widely cited, including on the Government of China's official climate change website. Chris Mentzel, the CEO of Clean Energy Maui LLC, has written that our analysis persuaded him that a 1-percent reduction in meat would have the same environmental effect as \$3 trillion of solar energy financing.

We developed our case using our environmental assessment experience at the World Bank Group. In my 23 years there, I wrote most of the Bank's environmental policies and assessed environmental risk in numerous industries, countries, and projects. For my co-author's name to be on our article, it had to be cleared by World Bank Group management, which required extensive peer review.

Our case is the only pragmatic one available for reducing global warming quickly. Most climatologists estimate that few years remain before climate change becomes irreversible. Yet the common idea of replacing fossil fuel infrastructure with renewable energy requires decades to implement. It must still be pursued to keep emissions down over the long term. Meanwhile, alternatives to livestock products can be scaled up and can significantly reduce emissions fast and inexpensively.

Some people will have trouble believing that eating meat can cause any change in climate, let alone imperil humanity. However, they may not know that the world's population of land-based livestock has grown six fold since 1960 – meaning that more than 50 billion animals will be raised in 2010 alone.

- One quarter of land worldwide is now used for grazing livestock.
- One third of all arable land is used for growing feed.
- Livestock, fodder, feed and other crops consume 85% of US water consumption, and similar amounts in other countries.
- Twenty percent of the Amazon forest has been destroyed, fivefold the area of England, mainly for industrial livestock and feed production.
- When tropical forest is burned, not only are greenhouse gases emitted, but the world's largest carbon sink is steadily shrunk.

Lower estimates than ours of livestock-related emissions don't count all of livestock's indirect inputs. They also don't count the direct impact of livestock respiration – or its reflection in foregone carbon absorption in land set aside for livestock and feed production.

Our analysis proposes counting either carbon in respiration or foregone carbon absorption attributable to livestock. That's because reality no longer reflects the old model of the carbon cycle, which proposes that photosynthesis perfectly offsets respiration. That model assumed roughly constant levels of respiration and photosynthesis on Earth. But respiration has increased exponentially with livestock – while these animals have caused a dramatic decline in the Earth's photosynthetic capacity, along with large and accelerating increases in soil carbon volatilization. This means that livestock transform the enormous stocks of carbon sequestered in the soil and emit it to the atmosphere, where it exacerbates climate change. Humanity is now using renewable resources and producing carbon dioxide at a rate 50 percent faster than the Earth can sustain, according to the Living Planet Report 2010, the leading survey of the planet's health.

Some people claim that pasture-raised livestock make meat climate-friendly. But only about 8 percent of meat is produced from entirely pasture-raised livestock, and little land is available to increase this amount without further deforestation. These animals emit up to triple the methane released by factory-farmed livestock, and contribute greatly to soil carbon vaporization.

Some claim that technology can adequately mitigate livestock-related emissions. But available technology can mitigate emissions by only a trivial amount, and is impractical for most livestock.

Some argue that many poor people have no alternative to raising livestock for their livelihoods. But tens of millions of poor people's livestock have died recently due to climate catastrophes. Replacing these animals would risk a similar fate for the new livestock. Meanwhile, supporting new livelihoods for those whose livestock die in climate disasters would be less risky. Microfinance, off-grid electricity, computers, and mobile technology have generated dramatic growth in many poor rural communities.

Most of the land used worldwide for livestock and feed production can regenerate forest. In

woody vegetation and the soil beneath, much more carbon can be sequestered than in grasslands now set aside for grazing and feed – as much as the increase in atmospheric carbon since 1980, according to James Hansen, the U.S. government’s top climate scientist.

Habits form around people’s food choices. But these choices are induced by fiscal measures and marketing, which have strongly promoted livestock products. They can promote alternatives instead.

Trying tasty new foods is commonly considered desirable. Meat and dairy products can be replaced with substitutes such as seitan-based "chicken," soy-based "beef," nut-based milks, and coconut-based ice cream.

Meat and dairy substitutes can be promoted like digital technology. Within a decade, manufacturers have switched almost entirely from analog televisions and telephones to digital versions, propelled by savings in materials and energy use, along with other improvements. Like digital technology, meat and dairy substitutes can deliver better quality at lower cost, while fulfilling the world's priority of reversing climate disruption.

Outdoors to a unique degree, agriculture is exposed to greater risk from livestock-related emissions than any other industry's risk from the same emissions. So the food industry has a compelling commercial incentive to reduce these emissions. Meat and dairy substitutes require no subsidies or offsets. Consumers can buy more of them tomorrow.

In fact, replacing livestock products with substitutes is the only way for industry and the public collaboratively to take a single, powerful action to reduce climate change quickly

Law and Ethics

Some argue that animal activists should partner with livestock producers to improve animal welfare, and create an "enriched environment" for livestock. Yet getting an obsolete industry on board has probably never been required in the entire history of obsolete consumer products. With climate arguments, unlike animal welfare arguments, the obsolete, highly carbon-intensive livestock industry doesn't need to be on board.

Consider, for example, that when Ralph Nader waged his successful campaign against the Corvair in his 1965 book *"Unsafe at any Speed"*, neither he nor any Japanese diplomats ever negotiated with U.S. government officials for a phase-in period for superior autos. Nobody advocates for an "enriched environment" that would allow tube TVs or analog phones to survive in the marketplace.

Now, this may be provocative with animal rights activists. However, in general, the best strategy to promote veggie foods will involve advocating to policymakers, industry, and individuals to do something that fits their existing priorities, rather than something that requires them to change their priorities. The main four shifts necessary to help prevent climate disaster are standard, good economics. First: for many of us individually to consume traditional grain-based diets or meat substitutes, with no government intervention. Second, we environmentalists must fast collaborate on broad education campaigns about the grand opportunity of a 25% reduction in livestock production. Third, it would help mightily if governments insisted on full cost pricing or internalizing the external costs of livestock

production. Fourth, phasing out current subsidies to livestock production also would help. It matters greatly whether the human population is 8, 9 or 10 bn in 2050. Slowing population growth profoundly reduces GHG emissions. Beyond those five measures, some form of GHG emissions tax would improve the climate, while demoting livestock and deforestation for ranches and feed. Some governments and jurisdictions already tax meat but not other foods, commensurate with their environmental and social impacts of production and consumption.

Animal welfare ranks nowhere on most policymaker's lists of priorities. Conversely, climate change is among the very top few priorities for many policymakers, industries, and individuals across the world. Activists can implement a quick, global strategy of educating these audiences on how climate change endangers life on earth in the near term, but can be reversed through better alternatives to meat and dairy products.

The recommendation in the *World Watch* article by Jeff Anhang and me is to create a world that reverses climate change beginning with a minimum 25% reduction in greenhouse gas emissions attributable to livestock products by 2017. Many veggie and animal advocates have told us that our recommendation is more ambitious than anything they've ever heard or imagined before.

Our recommendation would create tremendous momentum, likely leading much higher. It would likely mean a substantial number of veggie heads of state, legislators, business executives, investors, and other leaders. It would mean many meat companies going out of business, and financiers of veggie businesses becoming the envy of investors everywhere. A somewhat analogous phenomenon has occurred in the mobile phone industry. In many poor countries, only a few percent of people had telephones; after a few years 25% had mobile access; a few years later the figure was 70-80%.

Surveys consistently show that consumers buy food items primarily on the basis of price and quality. Quality includes ease and speed of preparation and delivery, cleanliness of retail outlets, and good taste. Only a few consumers have ever chosen food on the basis of animal welfare. It's unlikely that will change. Activists have a long track record of agitating for change in animal welfare that has resulted in more meat-eating -- year after year -- not less.

Most consumers seem unwilling to rank veg and animal activists anywhere on their lists of moral authorities. People usually recognize their parents as their moral authorities, plus a small circle of other people in their lives who they've grown to trust over a period of years. People generally aren't open to accepting new moral authorities – particularly in the age of social media, when practically everyone promotes themselves as a moral authority (which may have the perverse effect that fewer people than ever are actually accepted as such).

If a climate strategy is as good as its brief track record so far suggests, then there may be no need to advocate around animal welfare. Climate-friendliness has a good chance of being accepted as part of the quality of food products – in part because there is no practical alternative for consumers to reverse climate change. In other words, in this arena, we have practically no competition – either in terms of claims for reversing climate change, or any claim of being a moral authority for consumers.

Not making an ethical claim around a climate strategy doesn't mean that we're not moral

authorities, or that a climate strategy might not be the most ethical strategy to win a vegan world. Rather, our work succeeds best when it is seen as scientifically objective. Also, according to an overwhelming consensus of thousands of climate experts, the world has only 5-10 years to stop irreversible, catastrophic climate disruption. Allowing climate change to continue unabated is unethical.

When animal activists aim for "culture change" in the age of climate change – only 5-10 years before irreversible climate disruption – it would seem ethically sound for them to recognize that culture change is normally generational, taking typically 50-100 years to achieve, under the best of circumstances, with reversals not uncommon (e.g., think of the "Dark Ages" or today's "Tea Party"). So working toward culture change could be profoundly unjust to animals, if activists could better succeed with a climate change strategy. A strategy of culture change might not only extend the misuse of animals for decades longer than under a climate change strategy, but mean that activists are resigning themselves to the possibility of extinction of most life on earth.

Even fewer people in developing countries than in developed ones will tend to subscribe to principles of animal welfare/rights. After all, the lives of livestock – especially free-range ones in developed countries – are in many cases better than the lives of poor people.

The legal status of animals needs need to be decided upon legislature by legislature, country by country – at best. At worse it would be province by province, or even city by city. Further, a new legislature controlled by a new party often reverses laws passed by a previous legislature. But there is no time to lobby all the world's legislatures, as climate risks are global and urgent.

An emergency often requires suspending society's normal focus on justice, until the emergency is quelled. But in this case, justice for animals can actually be achieved through the quick action proposed in our *World Watch* article.

Thank you. Your questions and comments are most welcome.

Technical Annex: Sources of Further Information

1. Especial thanks to my co-author and friend Jeff Anhang for 20 years of great help and mentoring. Keith Akers generously commented on an earlier draft. Sources and resources for our analysis at [/www.worldwatch.org/ww/livestock](http://www.worldwatch.org/ww/livestock); responses to readers at: [awellfedworld.org/files/pdf/WWMLivestock-Climate Responses.pdf](http://awellfedworld.org/files/pdf/WWMLivestock-Climate%20Responses.pdf). Reprinted as: Goodland, R. & Anhang, J. 2010. Livestock and climate change (Ch.15: 193-204). In: Monique van Dijk Armor & Nico Koffman (eds.) *Meat the Truth: Essays on livestock production, sustainability and climate change*. Amsterdam, Nicolaas G. Pierson Foundation, 240 p.

2. Coverage by *NY Times* / *International Herald Tribune*: www.nytimes.com/2009/11/17/business/global/17iht-rbofcows.html?_r=3.

3. A Chinese friend wrote: "I am very excited to tell you that your (WorldWatch) article has been posted on the Chinese Government's official Climate Change Website

(www.ccchina.gov.cn/cn/NewsInfo.asp?NewsId=20278)... This is a huge honor, because only high-level Chinese policymakers' articles or speeches are allowed on the website. The website attracts millions of eyeballs every day."

4. Coverage by the UN World Business Council for Sustainable Development: <http://www.wbcsd.org/plugins/DocSearch/details.asp?txtDocTitle=goodland&txtDocText=goodland&DocTypeId=1&ObjectId=MzYyMjU&URLBack=result%2Easp%3FtxtDocTitle%3Dgoodland%26txtDocText%3Dgoodland%26DocTypeId%3D%2D1%26SortOrder%3D%26CurPage%3D1>.

5. Science & Development quotes: "it is estimated that livestock farming contributes 18–51 per cent of the world's greenhouse gas emissions" at: www.scidev.net/en/news/reducing-carbon-hoofprint-can-be-done-saysstudy.html?utm_source=link&utm_medium=rss&utm_campaign=en_news.

6. The United Nations concludes: "In November 2009, Goodland and Anhang of the World Bank... [published] new calculations ... [showing] at least 51% of all GHG emissions are attributable to livestock production... This represents an enormous shift in perspective... They concluded their report by explaining that companies with sound plans for increasing sales of meat or dairy analogs will likely find sufficient commercial financing available from investors that are seeking opportunities that promise to help slow climate change and through development finance institutions. These are signs of what may be a large-scale paradigm shift in the approaches to mitigating climate change." (From pp. 14-15 at: [www.unescobkk.org/fileadmin /user_uploadshs/Energyetics/ ECCAPWG13rpt_Final.pdf](http://www.unescobkk.org/fileadmin/user_uploadshs/Energyetics/ECCAPWG13rpt_Final.pdf).) "Energy Flow, Environment and Ethical Implications for Meat Production". Bangkok: UNESCO, 2010. Robert A. Kanaly, Lea Ivy O. Manzanero, Gerard Foley, Sivanandam Panneerselvam, Darryl Macer, 75 p. ISBN 978-92.

7. Governments are concerned about the negative impacts of industrial livestock on climate, the environment, the water crisis, the food crisis, poverty and health. Sweden taxes meat high, while grains, roots and fruits are taxed very low or not at all (See: Nutritionist Monika Pearson, National Food Administration, Stockholm). For one of the best and most recent, Norway, See: 2010 (September) "A viable food future". Oslo, Utviklingsfondet, 68 p. "Cut the meat economy and change to healthier diet. Industrial meat production must be transformed and meat consumption reduced in the industrialized countries. Meat production should be an integrated part of a small-scale farming system, based on individual countries' own natural resources. Consumption patterns, especially in the industrial countries, have to change to less meat consumption and more fruit, vegetables, roots and cereals". See also: UNEP (2010) Assessing the Environmental Impacts of Consumption and Production: Priority Products and Materials, A Report of the Working Group on the Environmental Impacts of Products and Materials to the International Panel for Sustainable Resource Management. Hertwich, E. et al. (eds.): 110 p. [www.unep.org/resourcepanel/ documents /pdf/Priority ProductsAnd Materials_ Report_ Full.pdf](http://www.unep.org/resourcepanel/documents/pdf/PriorityProductsAndMaterials_Report_Full.pdf).

8. Our work has been cited in one of the top tips by the Sierra Club (America's oldest and largest grassroots environmental organization) at www.huffingtonpost.com/avital-binshtock/how-to-green-your-2010_b_414041.html.

9. The CEO of a solar power company writes that our article shows a 1% effort in what we

recommend would have the same effect as \$3 trillion of his solar panels:
www.mauiveekly.com/page/content.detail/id/500866/The-Copenhagen-Fools.html.

10. The Beyond Copenhagen Conference, included a video showing our conclusions (Introduction at the 29 min. 30 sec. mark): chapmannews.wordpress.com/2010/04/23/beyond-copenhagen-conference-update-expertsopinions-sobering-hopeful/.

11. San Francisco is 1st US city with "Veg Days," citing our analysis as the #1 reason: <http://www.vegsource.com/news/2010/04/san-francisco-is-first-us-city-to-declare-mondays-as-veg-day.html>. Veggie chains are burgeoning: e.g., (a) Nature's Express, (b) Falafilo has 1300 outlets, and (c) Amsterdam's Maoz chain has arrived in the USA. www.alternet.org/story/148479.

12. IPCC Chair Dr. Rajendra Pachauri recommended National Public Radio's David Freudberg to work with us on climate change (Mar 1, 2010).

13. Goodland, R. 2010. The overlooked climate solution: Joint Action by Governments, Industry, and Consumers. *Journal of Human Security* 6(3): 50-60. Goodland, R. 1997. Environmental sustainability in agriculture: Diet matters. *Ecol. Economics* 23:189–200. Goodland, R. & Pimentel, D. 1999. Livestock sector environmental assessment (239-261) in Hardtlein, M., Kaltschmitt, M., Lewandowski, I. and Wurl, H. (eds.) *Nachhaltigkeit in der Landwirtschaft: Landwirtschaft in Spannungsfeld zwischen Ökologie, Ökonomie und Sozialwissenschaften*. Berlin, E. Schmidt Verlag [for] Umwelt Stiftung: Deutsche Bundesstiftung Umwelt 421 p. Goodland, R. 2001. The Westernization of Diets: The Assessment of Impacts in Developing Countries – with special reference to China. 30 p. sanctuary.bravebirds.org/wp-content/uploads/2009/05/goodlandchina.pdf.

14. About the Author: Dr. Robert Goodland, a tropical ecologist, lived and taught in the Amazon forest and elsewhere in Brazil. He served as the lead environmental adviser to the World Bank Group based in Washington DC for 23 years during which time he wrote and persuaded the Bank to adopt most of its mandatory social and environmental safeguard policies. He was elected president of IAIA, and Metropolitan Chair of the Ecological Society of America. The Library of Congress lists 40 of his books and monographs. Last year, the World Conservation Union awarded him the Coolidge Medal for outstanding achievements in environmental conservation. He led the campaign to get the Bank out of financing industrial livestock, especially those entailing deforestation for ranches or feed. (It briefly resumed large-scale Amazon ranching soon after he retired). He recently published with Jeff Anhang the most frequently cited WorldWatch article ([www.worldwatch.org/files/.../Livestock% 20and%20 Climate % 20 Change.pdf](http://www.worldwatch.org/files/.../Livestock%20and%20Climate%20Change.pdf)) estimating that the industrial ranching chain in tropical forest emits 51% of global greenhouse gas emissions, so that a 25% reduction in such ranching would be the fastest and cheapest way to reduce climate risks.