

Shortfalls of *Livestock's Long Shadow*

In November 2006, a report from the United Nations (U.N.) Food and Agriculture Organization (FAO) titled *Livestock's Long Shadow* was released. The report's primary publicized finding was livestock production accounts for 18 percent of global greenhouse gas (GHG) emissions.

However, the statistics cited by *Livestock's Long Shadow* differ significantly from those calculated by other reputable organizations, including the U.S. Environmental Protection Agency (EPA)—the U.S. authority on the environment and climate change. The claims made about global livestock production are not relevant to the United States.

Those who claim the FAO report calls for reduced consumption of animal products fail to understand the authors' intentions.

- The FAO report does not call for reduced consumption of animal products and, in fact, projects a doubling of meat production by 2050.
- U.S. livestock production practices should be considered a model for the rest of the world. According to *Livestock's Long Shadow*, intensification provides “large opportunities for climate change mitigation,” “can reduce greenhouse gas emissions from deforestation,” and is the long-term solution to sustainable livestock production.

Livestock Production and GHG Emissions

The report's estimate for livestock's contribution to GHG emissions (18%) is a global estimate, and not applicable to the United States or other developed countries.

- The *entire* U.S. agriculture sector accounts for only 6 percent of annual U.S. GHG emission, according to EPA (<http://www.epa.gov/climatechange/emissions/downloadso9/InventoryUSGHG1990-2007.pdf>). Of this, livestock production is estimated to account for 2.8 percent of total U.S. emissions.
- A 2007 study by the University of Surrey, United Kingdom (U.K.), found that livestock production plus processing accounted for 6.6 percent of U.K. GHG emissions.

The 18 percent figure is far higher than the percentage calculated by other organizations.

- Another *global* estimate of livestock production found worldwide, livestock and manure contribute 5.1 percent to world GHG emissions (World Resources Institute or WRI: <http://cait.wri.org/figures.php?page=/World-FlowChart>). This same group estimated that in the United States, livestock and manure contributed 2.5 percent to U.S. GHG emissions (<http://cait.wri.org/figures/US-FlowChart.pdf>).

Livestock Related Land Changes

Livestock's Long Shadow penalizes the livestock industry for emissions from land-use changes, specifically deforestation for feed production and grazing. Globally, a loss of sequestration due to these land-use changes amounts to roughly 2.4 billion tonnes of carbon dioxide (CO₂) per year (about 48% of total GHG emissions the report attributes to livestock).

- This type of land-use change does not occur in the United States, which actually has 16 million more acres of forestland than a century ago, according to the U.S. Department of Agriculture (USDA) and the U.S. Forest Service (USFS).

The most significant change that affects carbon levels in the United States is the conversion of agricultural lands to development, which reduces land available for carbon sequestration.

Grain Raised for Livestock Feed

The FAO report vastly overestimates the amount of nitrogen fertilizer used in the United States to produce feed grain for livestock and the amount of CO₂ emissions associated with fertilizer use. Using USDA feed grain acreage data and typical nitrogen fertilizer application rates, it is estimated only 690,000 metric tonnes of nitrogen fertilizer is used to produce U.S. feed grains. Based on FAO's conversion factor, this fertilizer use should result in only 1.725 million tonnes of CO₂ being produced—nearly 7 times less than the FAO estimate of 11.7 million tonnes.

Energy Required to Produce Food

The FAO report claims fossil fuel used to produce fertilizer and animal feed and to transport and produce products accounts for the bulk of energy used in livestock systems. Without a comparable figure for vegetables, grains and fruits produced for human consumption, it is impossible to use the FAO statistics as an indictment of livestock production.

- Because food is required for human life, studies like this should analyze not only the energy required to produce a specific food, but also the energy obtained from the food.
- A 1997 University of Exeter study found typical salad vegetables require 45 megajoules (MJ) of fossil fuel energy to produce one MJ of food energy, fish require 36 MJ and fresh fruit requires 10-22 MJ. For meat proteins, beef requires 8 MJ, chicken 7 MJ and lamb 6 MJ. These data accounted for similar inputs as the FAO report (<http://www.newscientist.com/article/mg15621111.400-white-bread-is-green--surprisinglyprocessed-food-is-easier-on-the-planet.html>).

Livestock and Methane Production

Methane emissions in the United States are on the decline. According to EPA, overall U.S. methane levels declined 5.1 percent from 1990 to 2007.

- Methane from livestock accounts for only 2.6 percent of total U.S. GHG emissions (EPA 2009).

At-A-Glance: Critical Analysis of *Livestock's Long Shadow* (LLS)

	CLAIM	REALITY
GHG emissions	LLS: Livestock = 18% globally	EPA: Total U.S. agriculture = 6% in United States EPA: Livestock = 2.8% in United States WRI: Livestock = 5.1% globally WRI: Livestock = 2.5% in United States
CO2 from feed grain production	LLS: 11.7 million tonnes	Estimate from USDA data: 1.7 million tonnes
Deforestation	LLS: "Livestock induced" emissions from deforestation = 2.4 billion tonnes CO2/year	USDA & USFS: United States = 16 million more acres of forestland than a century ago

