

by Robert Jawitz

In 2006, Livestock's Long Shadow was published by LEAD, The Livestock, Environment & Development Initiative, sponsored by The Food & Agricultural Organization of the UN, The World Bank, and representative agencies of the EU, France, Germany, UK, US, Denmark and Switzerland and the International Fund for Agricultural Development.

In its executive summary, it states "The livestock sector emerges as one of the top two or three most significant contributors to the most serious environmental problems, at every scale from local to global." These problems include:

## Land Degradation

"The livestock sector is by far the single largest anthropogenic user of land. The total area occupied by grazing is equivalent to 26 percent of the ice-free terrestrial surface of the planet. In addition, the total area dedicated to feedcrop production amounts to 33 percent of total arable land. In all, livestock production accounts for 70 percent of all agricultural land and 30 percent of the land surface of the planet.

Expansion of livestock production is a key factor in deforestation, especially in Latin America where the greatest amount of deforestation is occurring – 70 percent of previous forested land in the Amazon is occupied by pastures, and feedcrops cover a large part of the remainder. About 20 percent of the world's pastures and rangelands, with 73 percent of rangelands in dry areas, have been degraded to some extent, mostly through overgrazing, compaction and erosion created by livestock action. The dry lands in particular are affected by these trends, as livestock are often the only source of livelihoods for the people living in these areas."

## Atmosphere And Climate

"With rising temperatures, rising sea levels, melting icecaps and glaciers, shifting

ocean currents and weather patterns, climate change is the most serious challenge facing the human race.

The livestock sector is a major player, responsible for 18 percent of greenhouse gas emissions measured in CO<sub>2</sub> equivalent. This is a higher share than transport.

The livestock sector accounts for 9 percent of anthropogenic CO<sub>2</sub> emissions. The largest share of this derives from land-use changes – especially deforestation – caused by expansion of pastures and arable land for feedcrops. Livestock are responsible for much larger shares of some gases with far higher potential to warm the atmosphere. The sector emits 37 percent of anthropogenic methane (with 23 times the global warming potential (GWP) of CO<sub>2</sub>) most of that from enteric fermentation by ruminants. It emits 65 percent of anthropogenic nitrous oxide (with 296 times the GWP of CO<sub>2</sub>), the great majority from manure. Livestock are also responsible for almost two-thirds (64 percent) of anthropogenic ammonia emissions, which contribute significantly to acid rain and acidification of ecosystems.”

### Water

“The world is moving towards increasing problems of freshwater shortage, scarcity and depletion, with 64 percent of the world’s population expected to live in water-stressed basins by 2025.

The livestock sector is a key player in increasing water use, accounting for over 8 percent of global human water use, mostly for the irrigation of feedcrops. It is probably the largest sectoral source of water pollution, contributing to eutrophication, “dead” zones in coastal areas, degradation of coral reefs, human health problems, emergence of antibiotic resistance and many others. The major sources of pollution are from animal wastes, antibiotics and hormones, chemicals from tanneries, fertilizers and pesticides used for feedcrops, and sediments from eroded pastures. Global figures are not available but in the United States, with the world’s fourth largest land area, livestock are responsible for an estimated 55 percent of erosion and sediment, 37 percent of pesticide use, 50 percent of antibiotic use, and a third of the loads of nitrogen and phosphorus into freshwater resources.

Livestock also affect the replenishment of freshwater by compacting soil, reducing infiltration, degrading the banks of watercourses, drying up floodplains and lowering water tables. Livestock’s contribution to deforestation also increases runoff and reduces dry season flows.”

### Biodiversity

“We are in an era of unprecedented threats to biodiversity. The loss of species is estimated to be running 50 to 500 times higher than background rates found in the fossil record. Fifteen out of 24 important ecosystem services are

assessed to be in decline.

Livestock now account for about 20 percent of the total terrestrial animal biomass, and the 30 percent of the earth's land surface that they now pre-empt was once habitat for wildlife. Indeed, the livestock sector may well be the leading player in the reduction of biodiversity, since it is the major driver of deforestation, as well as one of the leading drivers of land degradation, pollution, climate change, overfishing, sedimentation of coastal areas and facilitation of invasions by alien species. In addition, resource conflicts with pastoralists threaten species of wild predators and also protected areas close to pastures. Meanwhile in developed regions, especially Europe, pastures had become a location of diverse long-established types of ecosystem, many of which are now threatened by pasture abandonment.

Some 306 of the 825 terrestrial ecoregions identified by the Worldwide Fund for Nature (WWF) – ranged across all biomes and all biogeographical realms, reported livestock as one of the current threats. Conservation International has identified 35 global hotspots for biodiversity, characterized by exceptional levels of plant endemism and serious levels of habitat loss. Of these, 23 are reported to be affected by livestock production. An analysis of the authoritative World Conservation Union (IUCN) Red List of Threatened Species shows that most of the world's threatened species are suffering habitat loss where livestock are a factor."

Other reports show that while we get only 1/3 of our protein from Livestock, we devote 70% of our agricultural land and 30% of our planet for it. We get 940 calories from 1 12 oz steak while it took 32,900 calories of fossil fuel to raise it. 1 # of meat takes 8 times more energy and many times more arable land to provide 1# of vegetable-sourced protein (like Tofu).

These environmental costs are mainly because of Western tastes. Most of India, population 950 million, doesn't eat meat and most of China, population 1,250 million, doesn't eat dairy. But, as Asia adopts Western culture, so will its food tastes change.

The LEAD report states:

"Growing populations and incomes, along with changing food preferences, are rapidly increasing demand for livestock products, while globalization is boosting trade in livestock inputs and products. Global production of meat is projected to more than double from 229 million tonnes in 1999/01 to 465 million tonnes in 2050, and that of milk to grow from 580 to 1 043 million tonnes. The environmental impact per unit of livestock production must be cut by half, just to avoid increasing the level of damage beyond its present level."

In "Quantification of the Environmental Impact of Different Dietary Protein Choices" (Reijnders & Sore, American Journal Of Clinical Nutrition) the authors state: "Many scientists and even policymakers have begun to question the sustainability of agriculture as practiced today. Particular skepticism has been directed at supporting the increased demand for animal products in the diet of the economically advantaged persons of the world. Throughout the world, there appears to be a direct link between dietary preference, agricultural production, and environmental degradation."

At some point we must ask ourselves if the Western culture of eating meat and dairy is worth it.

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