Chapter 3
Livestock’s Near–Term Climate Impact and Mitigation Policy Implications

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ABSTRACT
Human consumption of livestock remains a marginal issue in climate change debates, partly due to the IPCC’s arbitrary adoption of 100-year global warming potential framework to compare different emissions, blinding us to the significance of shorter-term emissions, namely methane. Together with the gas it reacts to form - tropospheric ozone - methane has been responsible for 37% of global warming since 1750, yet its atmospheric life is just 10 years. Neglecting its role means overlooking powerful mitigation opportunities. The chapter discusses the role of livestock, the largest anthropogenic methane source, and the need to include reduced meat consumption in climate change responses. Looking beyond the conventional focus on the consumer, we point to some underlying challenges in addressing the meat-climate relationship, including the climate science community’s reluctance to adopt a short-term focus in its climate projections. Policy options are presented.

INTRODUCTION: A FRESH LOOK AT LIVESTOCK PRODUCTION AND CLIMATE POLICY

Enteric fermentation and manure from livestock are the largest source of methane (Ciais et al., 2013). Although methane is a highly significant greenhouse gas, it is marginal in mainstream climate change debates relative to CO₂ because of its ill-fit with dominant CO₂-centric greenhouse gas accounting methodologies. As a result, the climate change significance of livestock production – as well as other methane-producing processes such as amassing waste in landfill, fracking unconventional natural gas and burning biomass – has been under-recognised. A growing number of initiatives designed to reduce

DOI: 10.4018/978-1-5225-4757-0.ch003
meat consumption for climate change reasons are emerging, but these are predominantly run by non-
governmental organisations and remain outside of mainstream policy. What is needed, we argue in this
chapter, is far greater public awareness that choosing alternative proteins over red meat could slow down
global warming by more than 15 years (Bryngelsson et al., 2017).

Why has the powerful role of methane and thus meat consumption in generating near-term climate
change been neglected until late? One problem is the entrenched nature of livestock production and meat
consumption in society (McGregor & Houston, 2017; Smil, 2013). Despite rising public awareness of the
link between livestock and climate change, interlocking factors on both the production and consumption
side mean that a large-scale shift towards a lower-meat diet is proving difficult. However, as indicated
above, there is a further significant reason for meat consumption’s neglect in climate change mitigation
discussions: the seemingly mundane, technical question of greenhouse gas accounting protocols. Current
protocols use CO₂ as the “standard” and an arbitrary 100-year period to assess the global warming signifi-
cance of all greenhouse gases. While pragmatic, this approach downplays the importance of short-lived
gases such as methane. It frames and filters our understanding of and responses to the climate change
problem away from important methane-reduction measures, obscuring the need to radically reduce meat
consumption. As we argue in this chapter, however, one immediate way of helping to rectify this blind
spot in the climate change mitigation portfolio is to improve greenhouse gas accounting conventions.

The chapter begins with an overview of the relationship between livestock and climate change,
highlighting the growing problem of livestock-based greenhouse emissions, notably short-lived or “near-
term” ones. We then turn to the neglected issue of how such emissions are under-accounted in existing
greenhouse emission accounting and policies and conceal the role of livestock in climate change. To
end, some specific improvements to accounting for greenhouse emissions are suggested as one of many
steps needed to address the issue of livestock’s role in climate change.

CLIMATE CHANGE AND LIVESTOCK

Climate change is underway and accelerating. In 2015, Earth’s average global surface temperature
reached a full degree above the pre-industrial era (WMO, 2016). The period 2011 to 2015 was the warm-
est five year stretch on record. Extreme high temperatures are now 10 times more likely in places such
as southern Europe, which by 2050 will face at least one severe climate hazard every year of the scale
previously occurring once a century (Forzieri et al., 2016). Between 2011 and 2015 more than half the
major extreme weather events were in part due to human-induced global warming (WMO, 2016). This
includes droughts, floods and their complex flow-on effects, interacting with slower moving variables,
multiplying other pressures and threatening numerous types of security. Temperatures may increase
more rapidly in the future as major positive, reinforcing feedbacks in the Earth system lead to an am-
plification of climate change, potentially triggering abrupt shifts in climate conditions. Tipping points,
causing abrupt and irreversible change, are increasingly acknowledged as a growing threat and reality
(Kopp et al., 2016; Lenton et al., 2008). Forty-one cases of regional abrupt changes to ocean, sea ice,
snow cover, permafrost and terrestrial biosphere have already been documented (Drijfhout et al., 2015).
Alarmingly, many more are predicted for global warming even below 2°C. Tipping points include the
melting of permafrost which is releasing trapped methane – a powerful greenhouse gas discussed fur-
ther below – from newly exposed soil. The existence of such positive feedbacks (that is, climate change
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