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# **Obesity, Public Health, and the Consumption of Animal Products. Ethical Concerns and Political Solutions**

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**Abstract** Partly in response to rising rates of obesity, many governments have published healthy eating advice. Focusing on health advice related to the consumption of animal products (APs), I argue that the individualistic paradigm that prevails must be replaced by a radically new approach that emphasizes the duty of all human beings to restrict their negative “Global Health Impacts” (GHIs). If they take human rights seriously, many governments from nations with relatively large negative GHIs—including the Australian example provided here—must develop strategies to reduce their citizens’ negative GHIs. As the negative GHIs associated with the consumption of many APs are excessive, it is my view that many governments ought to adopt a qualified ban on the consumption of APs.

**Keywords** Animal ethics; Bioethics; Ethics; Food; Obesity; Public health

## **Introduction**

As more than one billion people are overweight, we are experiencing an “obesity pandemic” (McMichael et al. 2007). One of the worst affected nations is Australia. Its Department of Health and Ageing has described the country as “one of the fattest developed nations” (Department of Health and Ageing 2009). The possible health consequences of obesity are wide-ranging. The Department of Health and Ageing mentions an increased risk of more than 30 conditions associated with being overweight or obese (Department of Health and Ageing 2009). Overall, risks of morbidity and mortality are increased significantly.

Accordingly, public health advocates (whose business it is to prevent disease and to promote health) have developed strategies to prevent obesity and to promote better health for those whose weight is not ideal. In spite of these, the number of overweight and obese people has doubled since 1980 (World Health Organization 2012). Moreover, many governments have developed “healthy” eating advice that is skewed toward high consumption of animal products (APs), even though many APs have been linked with obesity because they are relatively high in total and saturated fats, low-density lipoprotein (LDL) cholesterol, and calories. It is unclear why this bias exists, but a wide range of historical and cultural factors may offer some explanation. One reason relates to the fact that, historically, animal foods may have been highly valued amongst populations that struggled to meet dietary needs because they are relatively dense in nutrients, particularly calories and protein, compared to other foods. People may continue to prize APs highly because they have not modified historical ideas in light of the fact that many populations can enjoy a much greater level of food security because of modern technology. A second factor that may be relevant is that many APs are associated with greater power over nature. Animals are symbols of power for many cultures as many possess features, such as the ability to run fast or to climb, that are coveted by human beings. By consuming APs, some people may generate the illusion of acquiring those features themselves, and by killing and consuming animals, humans may even imagine gaining control over their own mortality (Wilber 1983, 154). A third factor is that, in a patriarchal culture, consuming APs enacts and thus helps to perpetuate the objectification of women and the existence of male dominance over women, thus reinforcing the status quo. This is so because women are associated more with nature, which is being controlled by culture, the realm that is primarily associated with men (Adams 1990). Because of some of these factors, the farm animal sector may possess more political power compared to horticultural and other agricultural sectors (Steinfeld et al. 2006, 222).

Although much more could be said about this bias, clear examples of its existence are *The Australian Guide to Healthy Eating* (Kellett, Smith, and Schmerlaib 1998), the United States Department of Agriculture’s (n.d.) “My Plate,” and the “Eatwell Plate” advice provided by the English Department of Health in association with the Welsh Government, the Scottish Government and the Food Standards Agency in Northern Ireland (2011). These examples also testify of the individualistic approach that prevails in the literature on nutritional advice. This paradigm focuses on what consuming X, a particular item of food, does to the body of the person eating it. In this article, I argue that a more holistic approach must be adopted that focuses on the duty of all human beings to restrict their negative “Global Health Impacts”

(GHIs), a concept the moral relevance of which I defended elsewhere (Deckers 2011a). GHIs are morally important because, when we conceive of health holistically, bioethics is essentially about health protection and health promotion, and a minimal moral theory demands that we embrace a prima facie duty to protect the health of others. Many human actions, however, produce negative GHIs that harm others' health. The word "Global" is added to the words "Health Impacts" to underline that many actions produce consequences that may not be immediately apparent as they stretch through space and time, as well as across different species. Before discussing the political strategies that could be adopted, I shall argue that the consumption of many APs appears much more troublesome through the lens of a holistic approach that focuses on their GHIs: The negative GHIs associated with their consumption are grossly disproportionate to the positive GHIs they provide. Any dietary advice must reflect these wider concerns if it is motivated by the desire to promote human health.

### **Recognizing the Wider Negative GHIs Associated With the Consumption of APs**

Many farmed APs include substances that are harmful to human health, including antibiotics, pesticides, dioxins, and metal compounds. A wide range of bacterial and parasitic diseases also thrive in farm animals. Partly through drug overuse, many bacteria have become resistant to the drugs that have been developed to fight them (Anomaly 2010). Some of the most worrying diseases may be viral, such as bird and swine flus. Since viruses such as these can spread through the air and are able to mutate very quickly, they present formidable health hazards in an urbanized and globalized world wherein large numbers of people meet and move over great distances. Almost three-quarters of recently emerged human diseases are zoonoses—that is, diseases that can spread from other (nonhuman) animals to human animals (Woolhouse and Gowtage-Sequeira 2005).

Apart from causing disease directly, the farm animal sector also has come under increased scrutiny because of its contribution to ecological changes that may trigger human disease. A highly influential study in this regard is *Livestock's Long Shadow*, published by the Livestock, Environment, and Development Initiative, a group coordinated by the Food and Agriculture Organization of the United Nations (Steinfeld et al. 2006). The report argues that the farm animal sector puts great strain on a wide range of environmental resources. These negative impacts include: soil degradation through compacting by hoofs and agricultural machinery, erosion, the accumulation of toxic metals, salinization, and nutrient loading (the

localized accumulation of nutrients through excessive use of manure and fertilizers); deforestation; freshwater use; and water and atmospheric pollution (Steinfeld et al. 2006). Another concern relates to the sector's contribution to climate change. The Steinfeld et al. (2006) study estimates that the farm animal sector produced 18 percent of all anthropogenic greenhouse gas emissions in carbon dioxide (CO<sub>2</sub>) equivalents in 2002. These include emissions of carbon dioxide from energy use, methane released by manure and digestive systems, and reactive nitrogen, particularly the nitrous oxide that is emitted from soil changes, manure, and fertilizers. The claim has been made that climate change has already affected Australian harvests through the severe droughts that occurred in the last decade, resulting in significant price increases (Friel 2010). Climate change also is likely to aggravate a problem I identified elsewhere: the human hunger that is caused by the fact that the farm animal sector uses large quantities of resources that could be used more efficiently (Deckers 2011b).

Many APs also have a relatively large ecological footprint. Although plant-based diets can also have large ecological footprints—for example, if they are heavily processed or rely on foods that are imported from far away—many studies have shown that diets that include APs tend to have much larger ecological footprints (Carlsson-Kanyama and González 2009; Eshel and Martin 2009; Davis et al. 2010). This concept captures the “amount of biologically productive land and water area an individual, a city, a country, a region, or all of humanity uses to produce the resources it consumes and to absorb the waste it generates under current technology and resource management practices” (Kitzes and Wackernagel 2009, 813). The World Wildlife Fund has estimated that the 1.8 global hectares (ha)<sup>1</sup> of bio-capacity that was available per person in 2007 was exceeded by the 2.7 global ha that were used (World Wildlife Fund 2010). Accordingly, William Rees—the founder of the ecological footprint concept—has concluded that the world is in “overshoot”: Biological resources are consumed faster than they are replenished (Rees 2006). Although human health is affected by many factors other than the availability of bio-productive space, the ecological footprint has been described as “the most comprehensive and most widely adopted overall measure of threats to environmental sustainability” and as one of the most important ways to measure the impact of “environmental stressors” on human health (Dietz, Rosa, and York 2009, 118; Dwyer 2009). Therefore, the ecological footprint provides useful information to determine negative GHIs.

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<sup>1</sup> The amount of bio-productive capacity at average global productivity.

Unsurprisingly, Rees used the concept of “human impact” before he had conceived of the “ecological footprint” concept (personal communication).

In a review of the influences of large-scale farming operations on communities in the United States of America, Kanaly et al. identified a range of socioeconomic concerns, including “less participation in democratic processes” and “an emerging rigid class structure” (Kanaly et al. 2009, 25). The number of large, intensive farms is rising in many countries, presenting significant health challenges. Lower social strata frequently appear to be disadvantaged in relation to where these farms—as well as slaughterhouses—are situated and who works within them (Loughnan 2012).

Although I have focused mainly on the negative GHIs on human beings, McLeod-Kilmurray (2012) also expresses concern over the commoditization of other animals. Clearly, any moral theory that is concerned with the effects of human actions cannot ignore their effects on the nonhuman world. Although ethicists continue to debate what we owe to the different organisms that make up the nonhuman world, I have argued elsewhere that we ought to avoid killing animals for food where doing so does not jeopardize the human need to enjoy adequate nutrition (Deckers 2009). If the argument developed there survives ethical scrutiny, it adds further weight to the argument that, in many situations, the negative GHIs of diets that include APs are considerably greater than diets that exclude such products.

### **Why Should We Be Concerned About the Magnitude of Our Negative GHIs?**

This brief sketch highlights that many diets that include APs impose a wide range of negative GHIs upon others. Dietary patterns are not alone in this regard. Much of what we do is associated with some or other negative GHI. For example, the fossil fuels that I use can no longer be used by someone else. Although future people may find and use alternatives, the possibility that suitable alternatives will not be available cannot be ruled out. Accordingly, the possibility that their well-being will be harmed as a result of their being deprived of fossil fuels cannot be ruled out, either. All human beings should be granted a right to adequate health protection, regardless of whether they live in the present or in the future (Deckers 2011a). Whereas people might be at liberty to jeopardize their own health if it does not affect others negatively, many ethicists would agree with John Stuart Mill (1859) that people at least have a duty to refrain from jeopardizing the rights of others. Although the human right to adequate health protection may not include a right to be provided with fossil fuels, it does include a right to be protected against the actions of human others that have a reasonable

probability of seriously jeopardizing human health. In this light, the issues that have been highlighted in the sketch above merit ethical scrutiny.

It might be argued that we should place our faith in progress rather than make significant changes in lifestyles: Technological change may bring about a world wherein people can continue to enjoy their lifestyles without needing to worry about how they might impact upon others. I am not opposed to this search for greater efficiency, but the objection fails because, as long as those efficiencies have not yet materialized, we do not know whether they ever will. In relation to the consumption of APs, for example, it would be naive to think that the manifold negative GHIs that I have described could be reduced significantly in the near future by scientific progress. Although demand for food is growing due to a rise in human population, serious doubt has been cast about the possibility of reducing emissions significantly per unit of animal product (Wirsenius and Hedenus 2010). More importantly, even if significant reductions in negative GHIs did materialize because of technological progress, the mere hope that these might happen should not be used as an excuse for inaction today where thresholds of negative GHIs are exceeded.

### **Political Solutions**

Many negative GHIs are not immediately apparent and may need to accumulate over time before they jeopardize the rights of others who may be far away in space and time. Therefore, individuals may experience significant uncertainty in relation to how their actions affect others. If the right to adequate health protection of all is accepted, policies are necessary to protect people against violations of this right in situations where it can be reasonably accepted that some people either willingly or unwittingly fail in their duties to safeguard this right. Unless people take an individualist approach to problem-solving, many will accept policy-makers' views on what the relative values of different negative and positive GHIs are and how many negative GHIs every person should be entitled to. In order to reduce the likelihood of fair quota being exceeded, governments might choose from a number of strategies. In relation to the consumption of APs, I shall discuss three strategies that could be adopted by nations that exceed their fair share of negative GHIs. Although I use Australia as an example, my proposal is also relevant to many other nations with populations that exceed their fair share of negative GHIs.

#### **Strategy 1: Educating People With the Aim to Reduce the Consumption of APs**

Policy-makers might try to educate people in the hope that, where required, they will change their diets. Various methods could be used, such as financing research—both on the positive and negative GHIs associated with the consumption of APs and on the socioeconomic and psychological factors underlying food choice—or disseminating health information to educational establishments and the press and media.

This strategy is not free from problems. Firstly, educational campaigns are bound to reach some groups more than others, as not everyone has the same educational opportunities. Even if such opportunities could and should be equalized more, individual differences in the comprehension of health information will remain. Accordingly, those people with limited (opportunities for developing) understanding will reap relatively few benefits. To the extent that this problem cannot be surmounted, some people will forgo opportunities to make positive behavioral changes. Although this does not imply that educational campaigns are wrong, it does underline that those who design them must be careful to avoid increasing gaps between those who adopt relatively healthy lifestyles and those who do not.

A second problem relates to the difficulties of translating knowledge into behavior. Even if people are educated, merely educating people may not be the best strategy to reduce negative GHIs as people may have widely different values, for example about the importance of health. Also, even people who share common values may not always act in accordance with them (the attitude–behavior gap). Behavioral lock-in—or the fact that old habits die hard—as well as various cultural, social, and religious views that downplay the negative GHIs associated with APs are so deeply engrained in many cultures that many may struggle to challenge established thoughts and behaviors (Carter et al. 2011). People may perceive that the significance of various social and religious functions would be altered negatively by changing the dietary practices that are associated with them.

Some educational campaigns also may increase human rights concerns by individualizing social problems, thus leaving unchallenged the socioeconomic context in which people live. This individualistic paradigm highlights how particular dietary choices may impact negatively upon the bodies of those who adopt them and downplays the extent to which dietary choices both are influenced by and impact upon others. In relation to obesity, for example, it has been argued that many campaigns divert public attention from the obesogenic environments in which people live by advocating the view that obesity is merely a lifestyle problem of particular people who struggle to keep their weight down (Attree 2006). As the onus for tackling the problem is placed disproportionately upon their shoulders, some people are stigmatized (Walls et al. 2011). As “weight is persistently visible,” it also has been



remarked that overweight and obese people may be more likely to be subject to social disapproval compared to other people who adopt lifestyles that are frowned upon (Carter et al. 2011, 467). Although many educational campaigns may have aggravated public health concerns, this does not imply that there is no place for appropriate education that targets socioeconomic contexts and, particularly, the actions of powerful actors who shape those contexts in ways that undermine human health. However, even appropriate educational campaigns may not exert sufficient pressure on those who exceed their fair share, which is why they should not be our only means to safeguard people's rights to health protection.

### **Strategy 2: Increasing the Prices of APs**

As consuming APs symbolizes wealth in many cultures and as the wealthy possess more economic and political power, the farm animal sector is privileged over other agricultural sectors in many countries. The second strategy aims to rectify this situation by increasing the prices of APs, an option that could be adopted in all capitalist countries. This could be done by increasing taxes on APs (Wirsenius, Hedenus, and Mohlin 2011; Nordgren 2012). Vinnari and Tapio argue that such a tax should include a calculation of three components: the environmental stress, the welfare harm that is inflicted upon animals who “cannot speak for themselves,” and the deprivation of life (2012, 50–51). Elsewhere, I have argued for a more generalized tax on goods and services that produce negative GHIs (Deckers 2010). The proposed “GHI tax” includes all the components mentioned by Vinnari and Tapio, with the addition of the negative human health impacts caused by human actions.

Governments also could redirect agricultural subsidies toward the production of positive GHIs (Vinnari and Tapio 2012). In this vein, the Australian Government recently introduced a scheme whereby farmers can earn carbon credits, or ACCUs (Australian Carbon Credit Units), by reducing greenhouse gas emissions and storing carbon—for example by planting trees or by incorporating materials that contain carbon into soils, which they can sell to those who wish to offset their emissions (Department of Climate Change and Energy Efficiency 2012). This system could be extended to incentivize other activities that produce positive GHIs.

Revising subsidies and tax schemes could bring about a radical change from the present situation wherein the full negative GHIs of many products are not reflected in their prices. A remaining problem is that some negative GHIs may be so significant that they should be avoided at all costs. This could either be because they are intrinsically objectionable or

because merely relying on pricing them would allow some people too much scope to exceed their fair share of negative GHIs.

### **Strategy 3: Introducing a Qualified Ban on the Consumption of APs**

If some negative GHIs should be avoided at all costs, both the first and the second option fail to take adequate consideration of priceless goods unless they are accompanied by legislation that prohibits particular activities. In relation to the consumption of APs, those who support the view that animals have rights, including rights to life, may support a qualified ban on the consumption of APs. Accordingly, they might advocate legal reform to demand that only those APs that had been procured from animals who had not been killed in order to be eaten should be allowed to be consumed. Although several animal rights theories have been developed (Regan 1983; Deckers 2011c), such theories are not widely accepted. The question must be asked, however, whether there are any reasons why governments might be justified in introducing a qualified ban on the consumption of APs even if they do not grant rights to other animals.

In order to avoid human rights violations, the Australian Government has a duty to ensure that its citizens limit their negative GHIs. Yet there are many reasons to believe that Australian citizens exceed their fair share. Australia is one of the most obese nations. It also has one of the highest per capita greenhouse gas emissions. The Department of Climate Change and Energy Efficiency writes that “Australia produces more carbon pollution per head of population than any developed country in the world” (2011, xi). Also, the average Australian ecological footprint exceeds 6 global ha (World Wildlife Fund 2010). None of these findings would be problematic in a world of plenty, with large health care resources to treat obesity and other health conditions, a world wherein nobody’s rights to adequate health care protection are jeopardized by resource shortages.

The reality is different. The Australian Government might therefore take the view that, on average, Australian people exceed their fair share of negative GHIs and that particular policies must be designed and implemented to avoid their citizens exceeding their fair share. A strong indication that this view is supported is the government’s assessment that an 80 percent reduction in greenhouse gas emissions by 2050 relative to emission levels in 2000 would represent “a fair contribution from Australia” (Department of Climate Change and Energy Efficiency 2011, xi). Regardless of whether this may be so, there is no doubt that achieving such a reduction will be no mean feat. To reduce negative GHIs in general, the Australian Government could do a wide range of things. For example, it might decide that

public and private buildings should limit their energy consumption by the avoidance of heating and air conditioning, that car and plane travel should be restricted severely, that particular industries that produce high levels of emissions should be shut down unless they make drastic improvements, and that people should reduce their water consumption to less than a quarter of what the average person uses today. Although I am not opposed to any of these measures, I believe that a lot of these are less desirable compared to a qualified ban on the consumption of APs. Take, for example, flying. Many Australians have relatives who live in other nations. Even within Australia, many people live within cities, some of which are fairly far apart from each other. The number of passengers on domestic and international flights in Australia totaled approximately 13 million and 5 million, respectively, in 1980 and grew to around 50 million and 23 million, respectively, in 2008 (Bureau of Infrastructure, Transport and Regional Economics 2009). Although a ban on flying may not necessarily violate anyone's right to health protection, in my view allowing people a limited number of flights is a more important good than allowing people to consume APs in situations where they can enjoy adequate nutrition without doing so. Similarly, I believe that many other things that the Australian Government could do to reduce negative GHIs would be worse compared to adopting a qualified ban on the consumption of APs.

Accordingly, it is my view that the Australian Government should adopt a total ban on the consumption of farmed APs and allow the consumption of other APs, for example locally sourced wild and feral animals, in a very limited number of circumstances. In many situations, the consumption of wild and feral animals can be taken to be associated with fewer negative GHIs compared to the consumption of products from farmed animals. This is so for various reasons, including that arable crops need not be grown deliberately to feed wild and feral populations, that they present no manure management problems, that no or fewer drugs are required to treat them, that they pose fewer direct human disease threats as populations are more spread out and further removed from human beings, and that some populations may need to be controlled through killing some individuals as they present greater threats to the arable crops that are grown for direct human consumption.

Some Australians might object to a qualified ban. Some may do so on the basis of the view that the implementation of this proposal jeopardizes the satisfaction of some people's nutritional needs. To assess this objection, it is necessary to explore whether a vegan agricultural system might compromise nutritional security. If we base our calculations on data on Australian land use in 2005–2006, which reveal that 3 percent of the surface area was occupied by dryland cropping and about 0.4 percent by irrigated and intensive agriculture and

which assign some areas to “indigenous” and “minimal” uses (State of the Environment 2011 Committee 2011, 271), we can safely conclude that at least 5 percent of the land surface is suitable to produce vegan food. This equates to around 38,450,000 ha. Because of climatological, hydrological, and ecological variables, it is difficult to estimate how many people could feed themselves from this quantity of land. However, Simon Fairlie (2010) has envisaged how much land might be required if what he calls “a vegan permaculture” system were adopted in the United Kingdom. This system would not only avoid synthetic fertilizers but also produce some biofuels, as well as some flax and hemp to produce 7.25 kg in textiles per person per year. Fairlie estimates that such a system would be able to feed eight people from 1 ha of land. If we use this data to reflect on what might be possible in an Australian context, we must take note of the fact that Australian soils are, generally, fairly poor and that it has more severe water problems compared to the United Kingdom. At the same time, many plants thrive better in Australia because of the increased exposure to sunshine. However, because of changes in weather patterns, it is highly likely that future yields in Australia will be affected more negatively by climate change compared to many other places, including the United Kingdom. On this basis, if we adopt a conservative stance and assume that the best 5 percent of Australian land would only be able to produce half as much food (as well as similar proportions of biofuels and fibers for clothing) as what Fairlie estimates could be produced on U.K. land from a vegan permaculture scenario, an Australian vegan system would feed about 153,800,000 people. Each of these would be provided with 2,767 calories per day. This exceeds recommended daily intake values (Joint FAO/WHO/UNU Expert Consultation 2001), thus allowing for some food waste. The Australian population, however, counts no more than about 22 million people. This shows that Australia would not have any problems in feeding its population by adopting a vegan agricultural system. This holds true even if we anticipate the need to provide for a greater number of people, for example if the prediction that the population will reach 35.9 million by 2050 turns into reality (Swan 2010). It is unclear what such a system might look like, as a renewed focus on the growing of fruit and vegetables might lead to the cultivation of many varieties of plants that are currently not or hardly cultivated because they cannot compete with the few varieties of plants that are grown in large monocrops and that dominate food markets, including plant varieties that are now threatened because of the negative impacts of sheep and cow farming on biodiversity. It is clear, however, that a vegan production system ought to ensure it provides all the nutrients that humans need to enjoy adequate nutrition. Many APs are hailed for their abilities to provide protein and a range of micronutrients, yet none of these should be problematic in an

Australian vegan system. Protein may come from a wide variety of plants, including soy, chickpeas, beans, lupins, and other plants from the *Leguminosae* family that fix atmospheric nitrogen. Micronutrients that deserve particular consideration are zinc (Saunders, Craig, and Baines 2012), iodine (Lightowler 2009), and vitamin B<sub>12</sub> (Sanders 1999). With political will, it is easy to ensure that people consume adequate amounts of these nutrients. Dietary fortification may be necessary where people mainly consume plants grown on soils that are relatively deficient in zinc, and iodine problems can be avoided through the consumption of iodized salt. Although some vegans have been identified with cobalt deficiencies (Sanders 1999), people who regularly consume products that contain B<sub>12</sub> (produced by bacteria) should not have cobalt deficiencies, either.

Not many plant foods contain high levels of essential fatty acids, particularly omega-3 polyunsaturated fatty acids. Dietary requirements for these are 2.6 g per day for adult men and 1.6 g per day for adult women (Saunders, Davis, and Garg 2012). It is therefore necessary that some plants that are high in these are grown, for example chia, canola, walnuts, as well as flax and hemp (which, as stated above, would be useful to produce textiles as well). Whereas hemp does not currently appear to be available in Australia as a food item (Saunders et al. 2012b), all of these can be grown in Australia, even if some areas are naturally much better for some crops than for others. Although—at half the productivity of the U.K. vegan system envisaged by Fairlie—11 million male and 11 million female adult Australians could be provided with all of their omega-3 polyunsaturated fatty acids requirements from about 421,700 ha of canola (the oil of which contains about 10 percent omega-3), I am not suggesting that only canola should be grown to provide for adequate consumption of omega-3. Yet it is clear that an Australian vegan agricultural system would not jeopardize the abilities of current and future Australians to enjoy adequate nutrition any more than a mixed agricultural system. To the contrary, because of the many negative GHIs associated with the latter system, it poses far fewer threats to long-term human food security. Some may object to this proposal on the basis of the view that the proposed vegan agricultural system might produce a comparable amount of negative GHIs to the current agricultural system. In reply, it must be pointed out that, whereas it is hard to imagine the precise extent to which the envisaged system would reduce Australia's negative GHIs, including its ecological footprint, there is no doubt that the reduction would be very significant. This is so because more than 90 percent of Australian agricultural emissions have been attributed to the farm animal sector, which focuses heavily on the production of APs from sheep and cows (Garnaut 2008). Whereas neither sheep nor cows lived in Australia

before the arrival of European settlers in 1788, the number of sheep and cows totaled 79.2 million and 27.8 million, respectively, in 2008 (Australian Bureau of Statistics 2010). The land that is occupied by the farm animal sector comprises about 60 percent of the total land surface of Australia (State of the Environment 2011 Committee 2011). The sector is largely responsible for the fact that less than 20 percent of Australia is still forested compared to about a third of the country before 1788 (Australian Bureau of Statistics 2010). Whereas many feral and native populations, including kangaroos, will increase in numbers with the demise of the farm animal sector, it is unlikely that these populations will expand to such an extent that they do not allow reforestation to take place. In addition, as kangaroos do not ruminate, they produce much smaller quantities of emissions compared to cows and sheep. The demise of the farm animal sector would therefore unleash vast opportunities for carbon sequestration and halt the clearing of forests that continues to take place to expand this sector (Department of the Environment, Water, Heritage and the Arts 2009). It also will slow down the rapid decline in Australian biodiversity (State of the Environment 2011 Committee 2011). Some Australians may oppose the view that either negative GHIs in general or the negative GHIs of particular people should be limited. This stance cannot be accepted if human rights are taken seriously and if it is accepted that some (quantities of) negative GHIs violate (the adequate protection of) human rights. I also reject the view that some human beings should be granted a greater right to jeopardize human rights compared to others.

Finally, some Australians may accept a duty to limit negative GHIs, but argue that, whereas they recognize that many of their compatriots produce relatively large negative GHIs, for example by boarding planes, banning the consumption of farmed APs would be unfair on those who hardly fly at all and, more generally, manage to avoid exceeding their fair share of negative GHIs. I think this objection would be sound if we had good monitoring systems that are fair and easy to implement to ensure that people avoid exceeding their fair share. A negative GHI card that could be linked to a banking card might be an option here, but it would be hard to monitor human activities that were not accompanied by economic transactions. In light of the fact that developing such a system presents significant organizational challenges, governments might take the view that it is easier to adopt a ban on certain activities to bring about reductions in negative GHIs.

The following analogy shows that it is not necessarily wrong to curtail the activities of those who refrain from exceeding their fair share of negative GHIs. Someone who does not exceed her fair share and rarely drives a car contributes relatively little to inner-city pollution compared to someone who drives in the city frequently. However, it would not necessarily be

wrong for a city council to ban cars from the city center, even if the former person might be affected more negatively because she only uses a car to transport heavy things to her office in the city center, whereas the latter merely drives to the city for leisure. This example shows that strong policies may be morally permissible, even if they curtail the activities of those who fail to exceed their threshold of negative GHIs.

This example also illustrates a common problem with “tragedy of the commons” types of scenarios that rely on education to reduce negative GHIs: Those who disregard the message may benefit at the cost of others (Hardin 1968). If the person with the office in the city center decided to forgo car travel not because it had been banned but merely because a councilor had kindly provided information about the negative impacts of car travel and encouraged her to abstain, her decision would reduce fuel demand and congestion, thus increasing others’ opportunities. If others respond by taking up the new opportunities that she has provided, she would still be affected by some of the negative GHIs produced by their decisions to drive, for example by being exposed to noxious gases. As for a ban on inner-city car travel, a generalized ban on the consumption of particular foods would not necessarily be unfair.

### **Conclusion**

I argued that the individualistic paradigm that prevails in public health messages related to the consumption of APs must be replaced by a holistic approach that focuses on the duty of all human beings to restrict their negative GHIs. If it takes human rights seriously, the Australian Government, as well as many other governments from nations with relatively large negative GHIs, must develop strategies to reduce their citizens’ negative GHIs. As the negative GHIs associated with the consumption of many APs are excessive, it is my view that many jurisdictions ought to adopt a qualified ban along the lines I have defended.

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