

# The state of affairs on food & climate

Eaternity - Judith Ellens [jellens@eaternity.ch](mailto:jellens@eaternity.ch) and Chatham House<sup>1</sup>

***A study published in the journal Nature Climate Change estimated 5.6 Gt CO<sub>2</sub>e of emissions savings per year by reducing meat and dairy consumptions to levels consistent with nutritional recommendations compared with 4 Gt CO<sub>2</sub>e from sustainable intensification of the entire agricultural sector<sup>2</sup>. Total current emissions are estimated to 11.6 Gt CO<sub>2</sub>e and therefore are about 1/3 of all emitted greenhouse gases today (39 Gt CO<sub>2</sub>e)<sup>2</sup>. On current trends, by 2050, more crops could be fed to animals than to humans.<sup>3</sup>***

Negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) have overlooked livestock. Efforts to establish a specific work-stream on agriculture have failed, and talks have instead focused on a framework for reducing emissions from deforestation and forest degradation and enhancing forest carbon stocks in developing countries (REDD+).

Of potentially more immediate relevance to livestock, the Global Alliance for Climate-Smart Agriculture – comprising 16 countries and 37 organizations – was launched at the UN Climate Summit on 24 September in New York. This counts the ‘reduction and/or removal’ of agricultural emissions among its objectives<sup>4</sup>, though the extent to which it will address livestock remains to be seen.

International finance for agricultural mitigation is also limited. Agriculture accounts for a tiny proportion of projects under the Clean Development Mechanism<sup>5</sup> – a market-based mechanism under the Kyoto Protocol which allows countries to fund emissions-reduction projects in developing countries that count towards reduction commitments at home. Furthermore, agriculture receives only four per cent of the total mitigation finance provided by the multilateral development banks<sup>6</sup>.

Livestock subsidies among OECD countries amounted to \$53 billion in 2013<sup>7</sup>. In the EU, cattle subsidies alone exceeded \$731 million, equivalent to \$190 per cow<sup>8</sup>. This lavishness is not confined to industrialized countries. In China, for example, pork subsidies exceeded \$22 billion in 2012, equivalent to about \$47 per pig<sup>7</sup>.

In its latest review of the scientific literature on mitigation in the agriculture sector, the International Panel on Climate Change (IPCC) found that the greatest potential for emissions reduction exists on the demand side.<sup>9</sup>

For example, one recent assessment of mitigation opportunities in agriculture estimated that shifting dietary trends so that average worldwide per capita meat consumption falls to 90g per day, as recommended in the Harvard healthy diet, could avoid 2.15Gt CO<sub>2</sub>e of emissions per year by 2030.<sup>10</sup>

This is considerably more than the estimated reductions available from supply-side mitigation of enteric fermentation, management of grazing soils, and manure storage combined.

Crucially, dietary change is essential if global warming is not to exceed two degrees Celsius – the stated objective of the international community.<sup>11</sup> Two recent studies have concluded that even with ambitious supply-side mitigation in the agriculture sector, without radical shifts in consumption of meat and dairy products, growth in agricultural emissions will leave insufficient space within a two-degree carbon budget for other sectors.<sup>12</sup>

Reducing meat and dairy consumption is a highly cost-effective mitigation strategy, not only in the agriculture sector but more broadly. Reduced meat and dairy consumption would increase the share of carbon budget available to other sectors. This in turn would allow the cost of carbon to rise more slowly, resulting in lower mitigation costs for energy use. The potential savings are remarkable. Modelling suggests that worldwide adoption of the Harvard healthy diet could reduce mitigation costs for energy by more than 50 per cent by 2050.<sup>13</sup>

<sup>1</sup> This document cites mainly selected texts from the excellent research paper published in December 2014 by the Chatham House. Rob Bailey et al., 2014. *Livestock – Climate Change’s Forgotten Sector, Global Public Opinion on Meat and Dairy Consumption*. Energy, Environment and Resources. Chatham House, the Royal Institute of International Affairs, December 2014

<sup>2</sup> Bajželj, B., Richards, K.S., Allwood, J.M., Smith, P., Dennis, J.S., Curmi, E. and Gilligan C.A. (2014), ‘Importance of Food-Demand Management for Climate Mitigation’, *Nature Climate Change*, 31 August, pp. 1–6.

<sup>3</sup> Pradhan, P., Lüdeke, M.K.B., Reusser, D.E. and Kropp, J.P. (2013), ‘Embodied Crop Calories in Animal Products’, *Environmental Research Letters*, 8(4), pp. 1–10.

<sup>4</sup> UN (2014), ‘Agriculture: Global Alliance for Climate-Smart Agriculture Action Plan’, *Climate Summit 2014*, 23 September, at <http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/09/AGRICULTURE-Action-Plan.pdf>.

<sup>5</sup> FAO (2013), *Tackling Climate through Livestock: A Global Assessment of Emissions and Mitigation Opportunities* (Rome: FAO).

<sup>6</sup> MDBs (Multilateral Development Banks) (2013), *Joint Report on MDB Climate Finance 2013*, African Development Bank; Asian Development Bank; European Bank for Reconstruction and Development; European Investment Bank; Inter-American Development Bank; International Finance Corporation; the World Bank, and the World Bank Group, September, at [http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Joint\\_Report\\_on\\_MDB\\_Climate\\_Finance\\_2013\\_-\\_16\\_09\\_2014.pdf](http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/Joint_Report_on_MDB_Climate_Finance_2013_-_16_09_2014.pdf).

<sup>7</sup> Rob Bailey et al., 2014. *Livestock – Climate Change’s Forgotten Sector, Global Public Opinion on Meat and Dairy Consumption*. Energy, Environment and Resources. Chatham House, the Royal Institute of International Affairs, December 2014. Analysis based on OECD (2014), *Agricultural Policy Monitoring and Evaluation 2014: OECD Countries* (Paris: OECD).

<sup>8</sup> Rob Bailey et al., 2014. *Livestock – Climate Change’s Forgotten Sector, Global Public Opinion on Meat and Dairy Consumption*. Energy, Environment and Resources. Chatham House, the Royal Institute of International Affairs, December 2014. Analysis based on OECD (2014), *Agricultural Policy Monitoring and Evaluation 2014: OECD Countries* (Paris: OECD) and FAOSTAT (Food and Agriculture Organization of the United Nations Statistics Division) (2014), available at <http://faostat3.fao.org/home/E>.

<sup>9</sup> IPCC (2014), *Climate Change 2014: Mitigation of Climate Change, Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Edenhofer, O., Pichs-Madruga, R., Sokona, Y., Farahani, E., Kadner, S., Seyboth, K., Adler, A., Baum, A., Brunner, A., Eickemeier, P., Kriemann, B., Savolainen, J., Schlömer, S., von Stechow, C., Zwickel, T. and Minx, J.C. (eds) (Cambridge, UK, and New York: Cambridge University Press). The report notes that there is a mitigation potential of up to 8.55Gt CO<sub>2</sub>e in 2050 from dietary change and reduction of food waste, compared to a maximum 4.6Gt CO<sub>2</sub>e from supply-side interventions in agriculture as a whole at a carbon price of \$100 per tonne CO<sub>2</sub>e.

<sup>10</sup> Dickie, A., Streck, C., Roe, S., Zurek, M., Haupt, F. and Dolginow, A. (2014), *Strategies for Mitigating Climate Change in Agriculture: Abridged Report*, Climate Focus and California Environmental Associates, at [http://www.climateandlandusealliance.org/uploads/PDFs/Abridged\\_Report\\_Mitigating\\_Climate\\_Change\\_in\\_Agriculture.pdf](http://www.climateandlandusealliance.org/uploads/PDFs/Abridged_Report_Mitigating_Climate_Change_in_Agriculture.pdf). (According to FAOSTAT, worldwide per capita meat consumption in 2011 was 116g per day)

<sup>11</sup> UNFCCC (2014), ‘Sixth National Communications (NC6) from Parties included in Annex I to the Convention (Annex I Parties)’, at [http://unfccc.int/national\\_reports/annex\\_i\\_natcom/submitted\\_natcom/items/7742.php](http://unfccc.int/national_reports/annex_i_natcom/submitted_natcom/items/7742.php).

<sup>12</sup> Hedenus, F., Wirsenius, S. and Johansson, D.J.A. (2014), ‘The Importance of Reduced Meat and Dairy Consumption for Meeting Stringent Climate Change Targets’, *Climatic Change*, 124, pp. 79–91 and

Bajželj, B., Richards, K.S., Allwood, J.M., Smith, P., Dennis, J.S., Curmi, E. and Gilligan C.A. (2014), ‘Importance of Food-Demand Management for Climate Mitigation’, *Nature Climate Change*, 31 August, pp. 1–6.

<sup>13</sup> Stehfest, E., Bouwman, L., Van Vuuren, D.P., Den Elzen, M.G.J., Eickhout, B. and Kabat, P. (2009), ‘Climate Benefits of Changing Diet’, *Climatic Change*, 95, pp. 83–102.