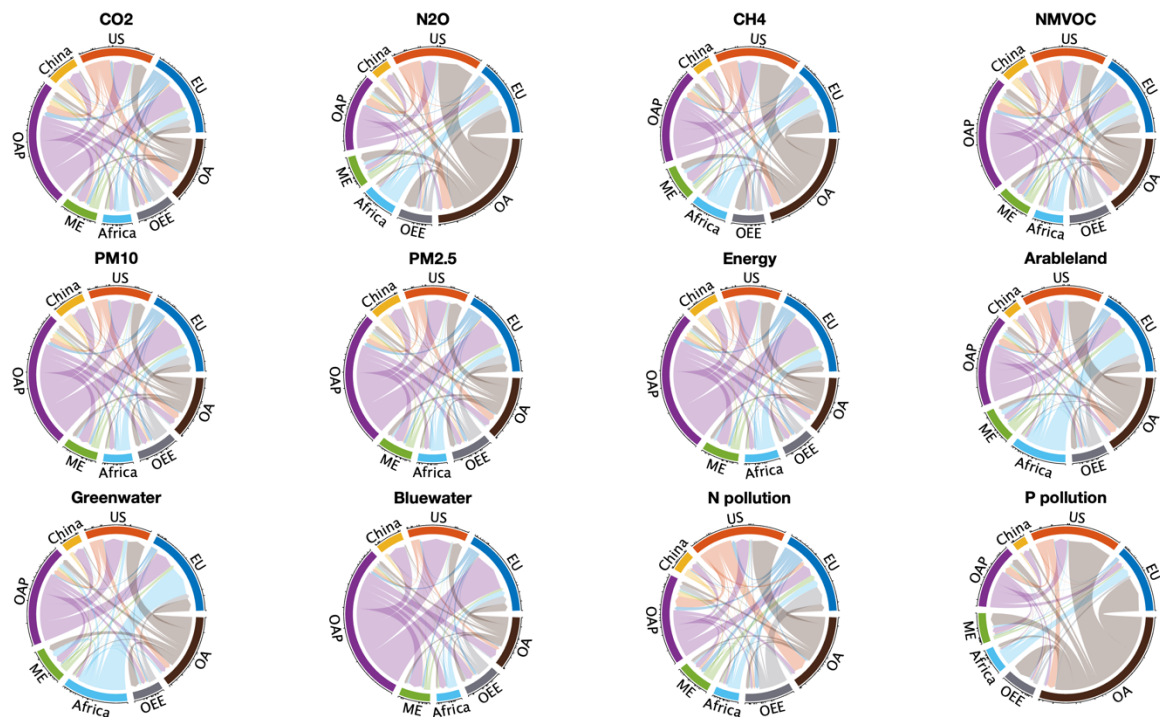
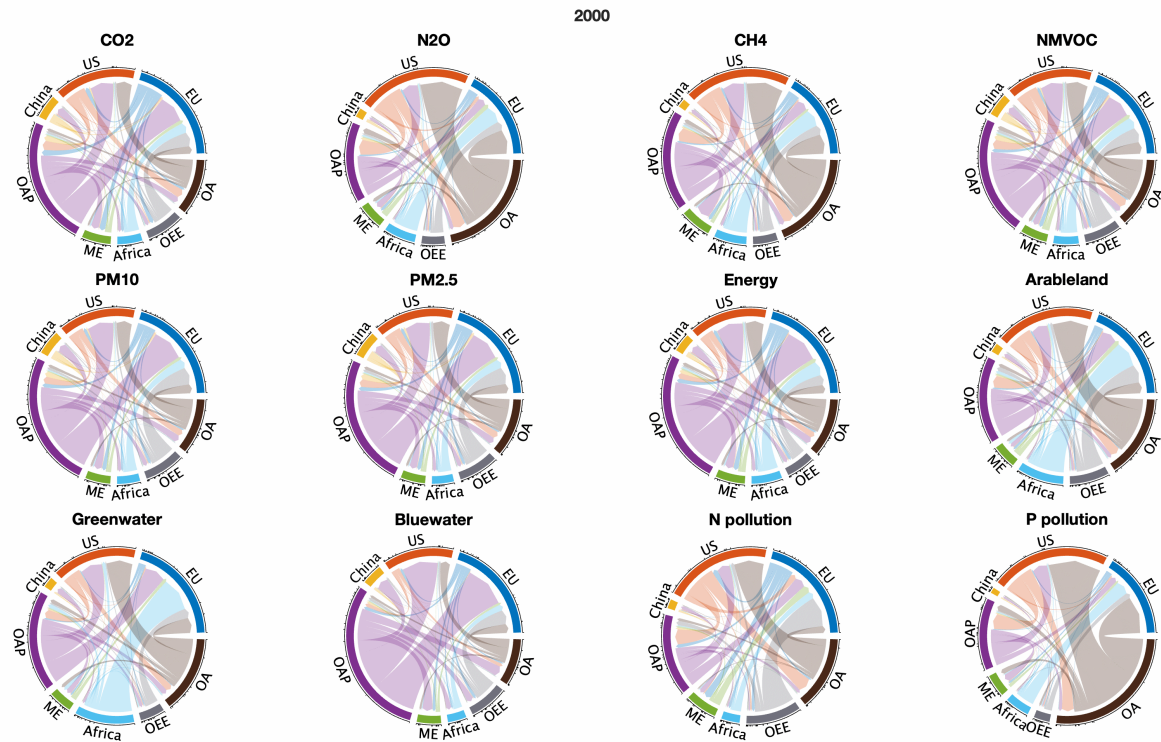


Supplementary Figures for

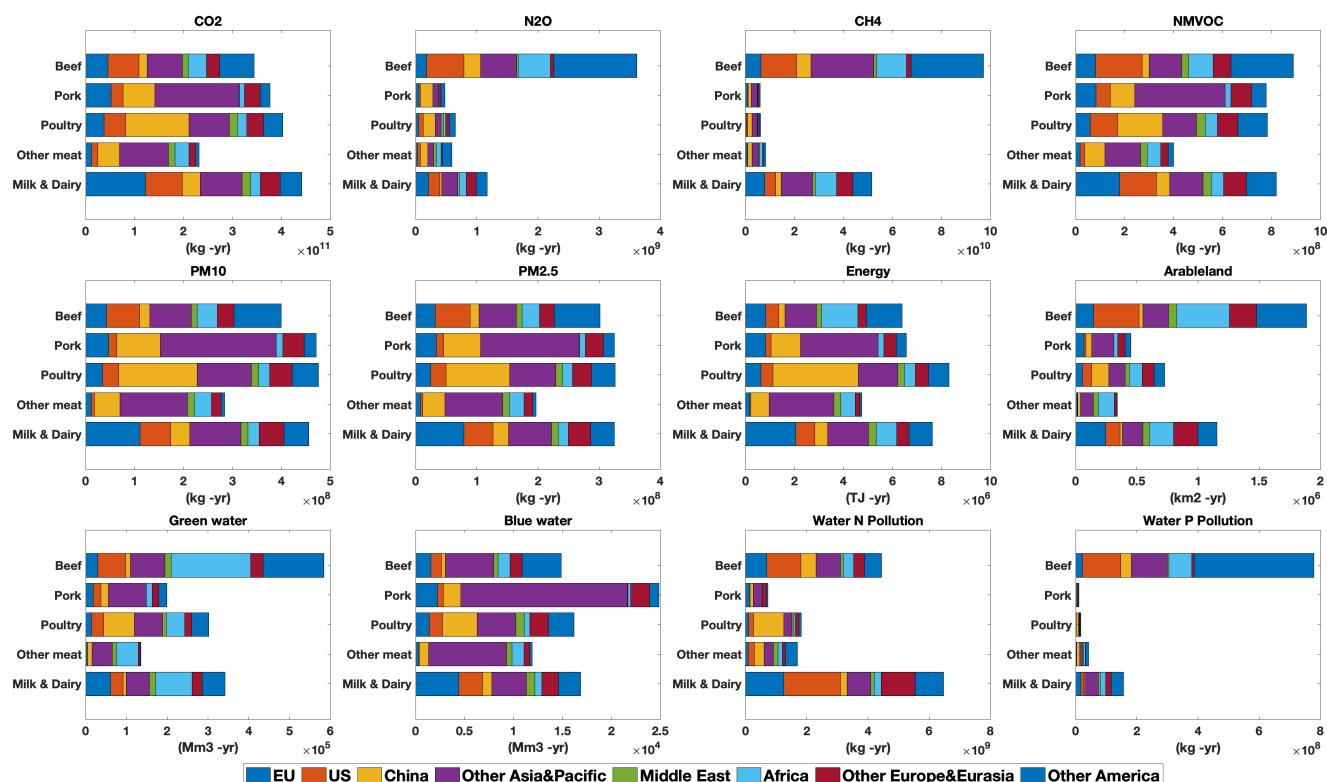
The livestock sector can overshoot planetary boundaries and threaten Paris Agreement



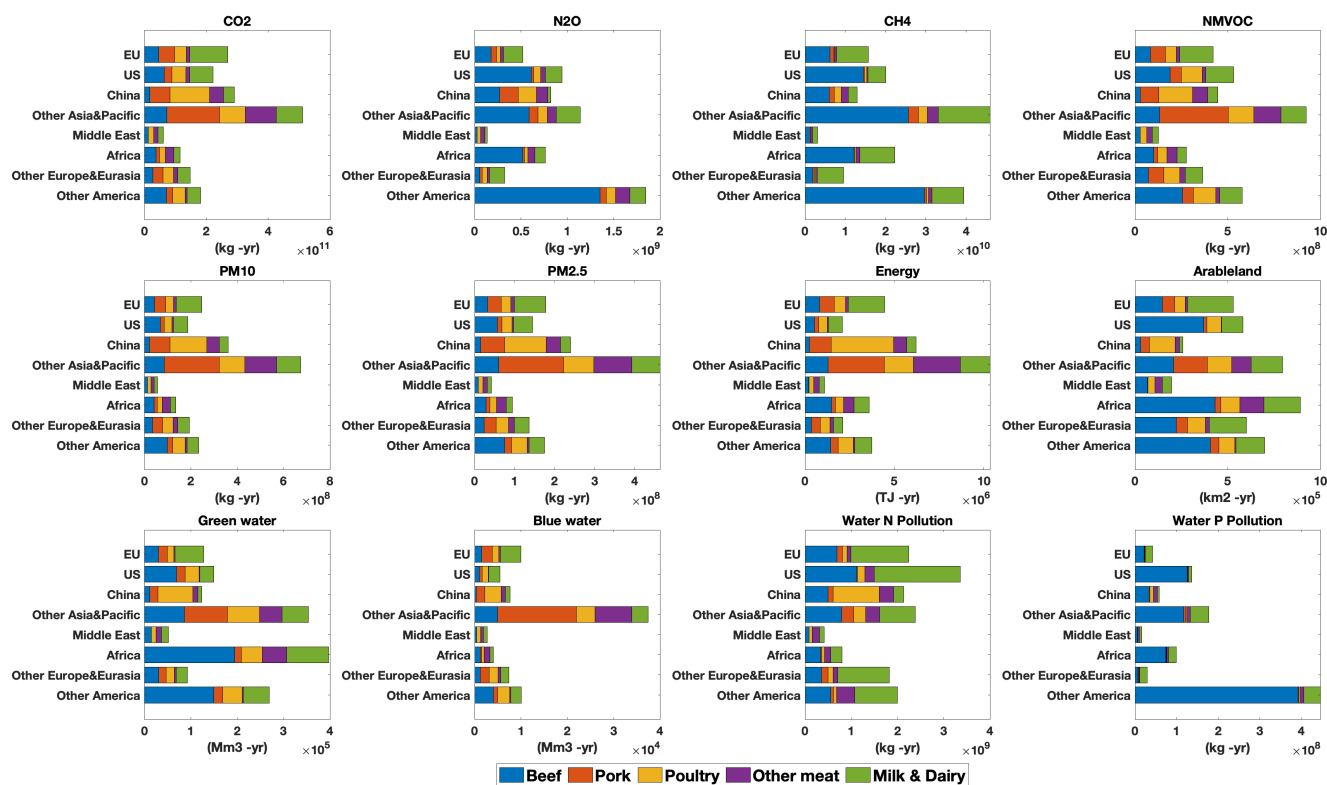
Supplementary Figure 1. Chord diagram of the intra-trade relations between regions of livestock footprints (average value between 1995-2016). The import or export volume of each region is represented by the arc length, and the chord represents the trade relations between the economies. The color of the chord is in accordance with the exporting region.



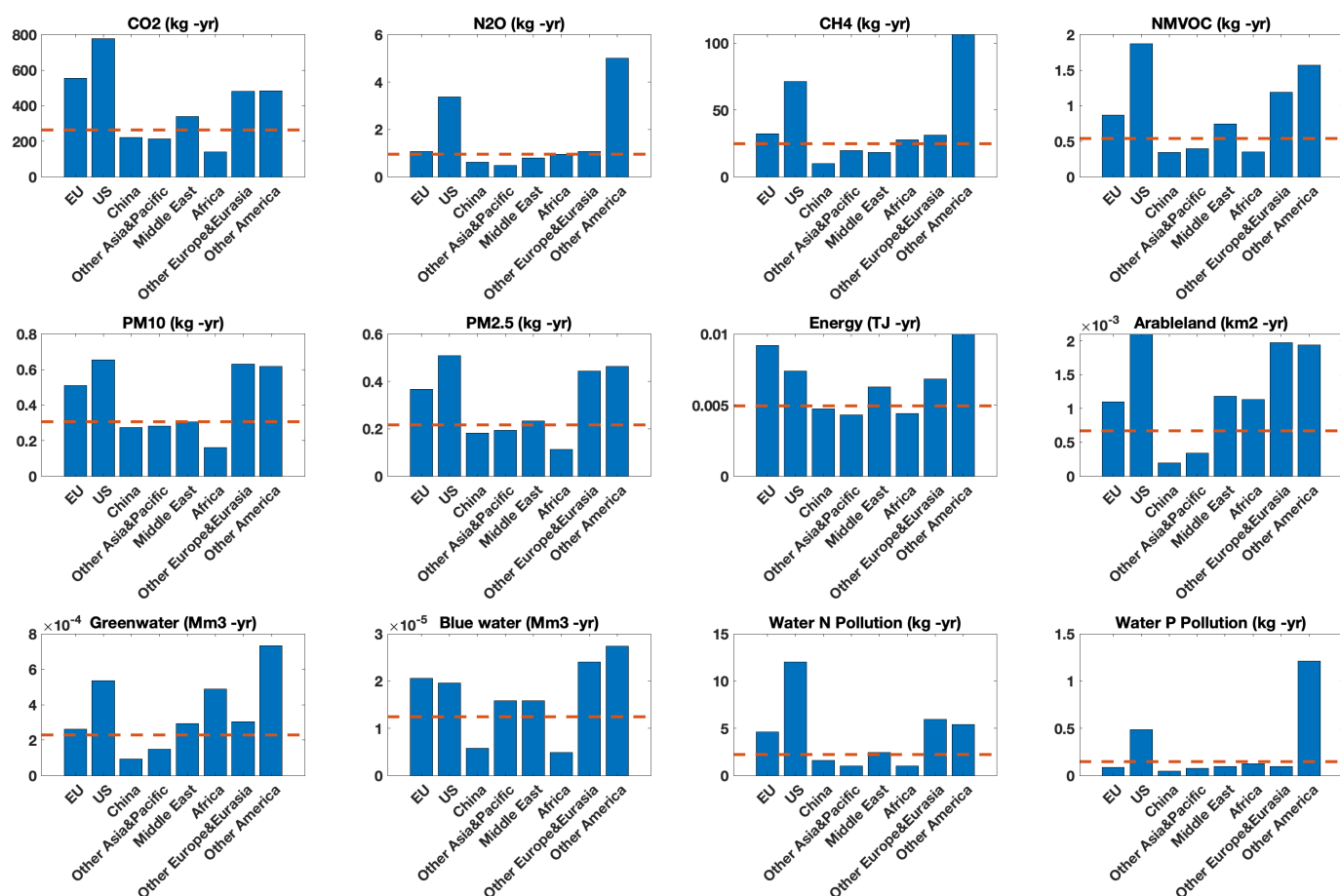
Supplementary Figure 2. Animated GIF diagram of the dynamic changes in intra-trade relations between regions of livestock footprints from 2000 to 2030, with a five-year interval (see MP4 version in Supplementary Video). The import or export volume of each region is represented by the arc length, and the chord represents the trade relations between the economies. The color of the chord is in accordance with the exporting region. China's import from other world regions has significantly increased throughout the accounting period.



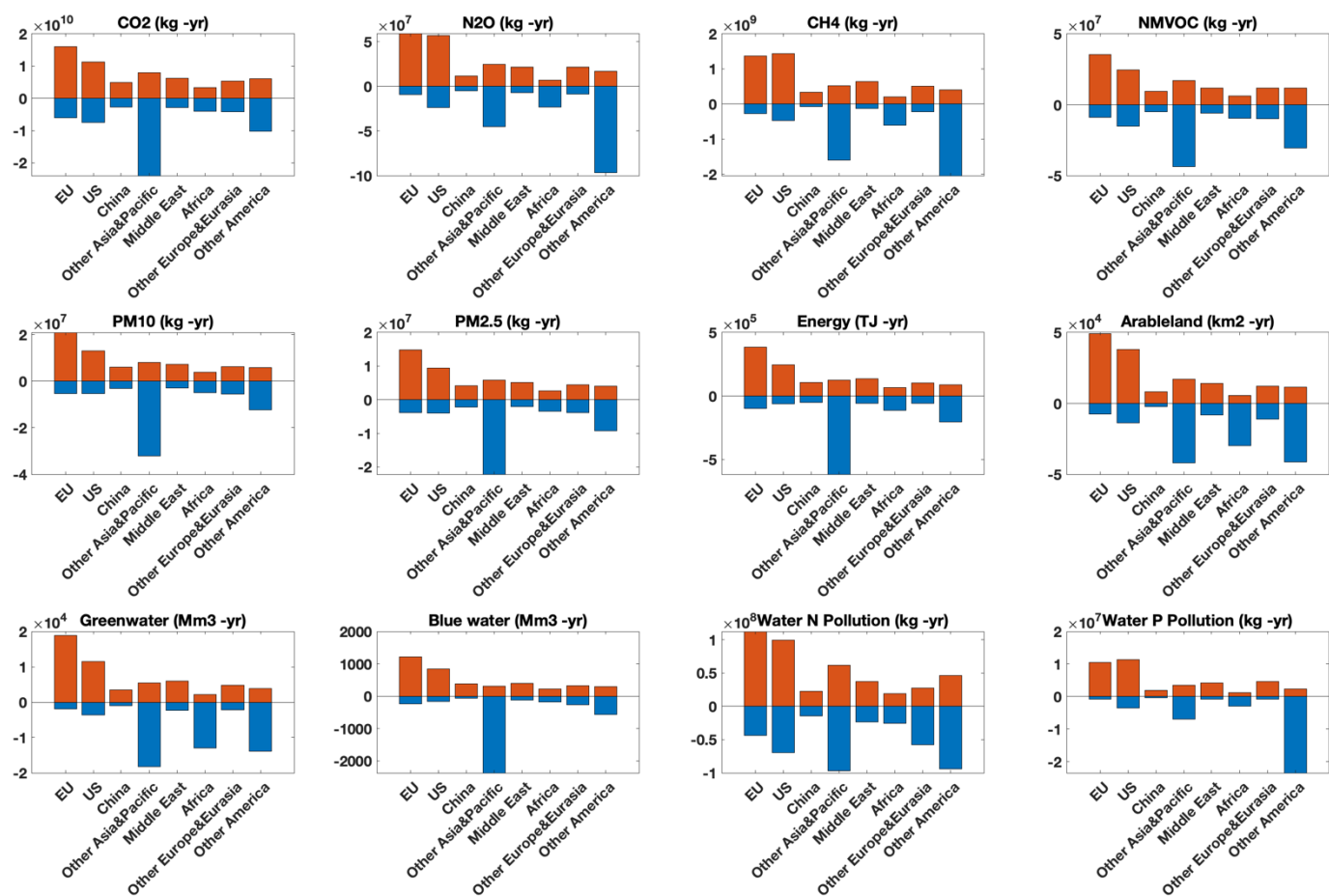
Supplementary Figure 3. Average livestock environmental footprint of different livestock types between 1995-2016. The stacked values indicate world regions. Beef has a particularly significant impact on N2O, CH4, green water and arable land use, and water phosphorous pollution. For footprint types such as NMVOC, PM10, PM2.5, and energy use, the footprints between the livestock types are more evenly distributed.



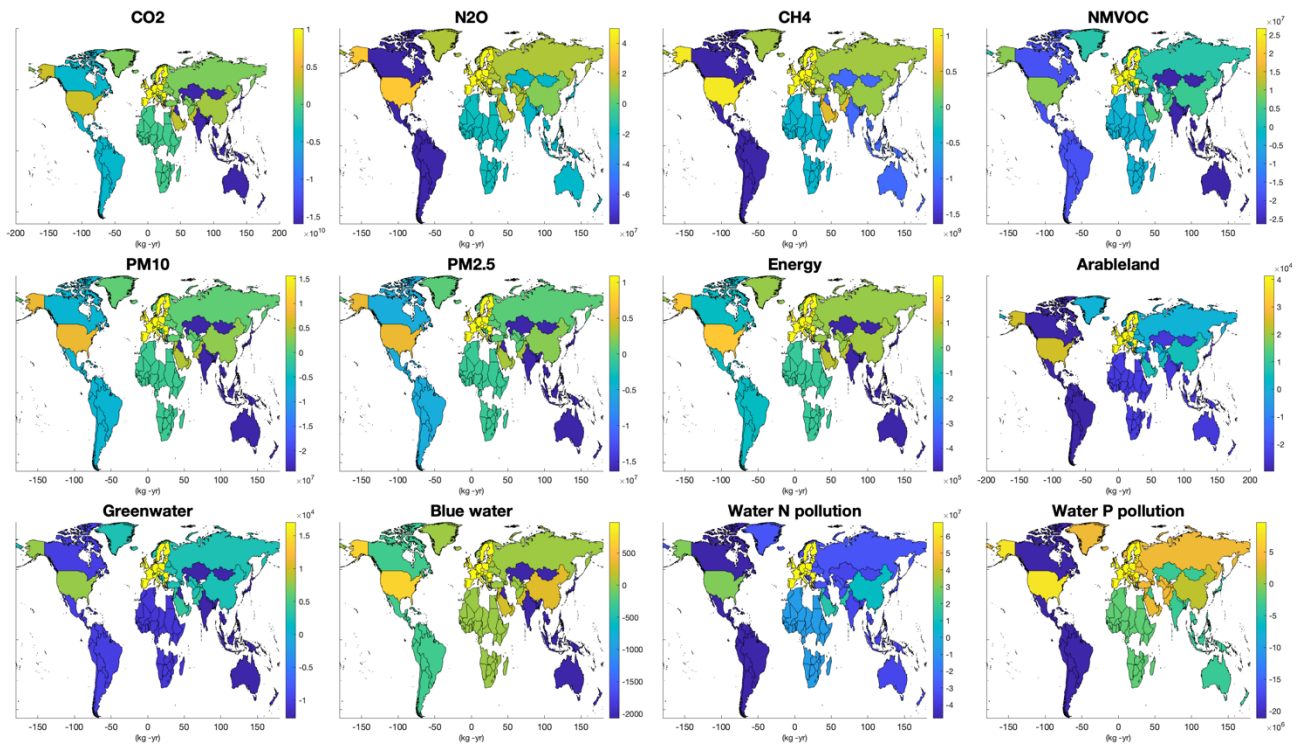
Supplementary Figure 4. Average livestock environmental footprint of different regions between 1995-2016. The stacked values indicate the different types of livestock. Other Asia & Pacific and other America are shown to have a large footprint across almost all footprint types. Other America has exceptionally high phosphorous pollution and N2O footprint, which can be attributed to its high beef production. Other Asia & Pacific has a high bluewater and particulate matter footprint, which is due to its high pork production.



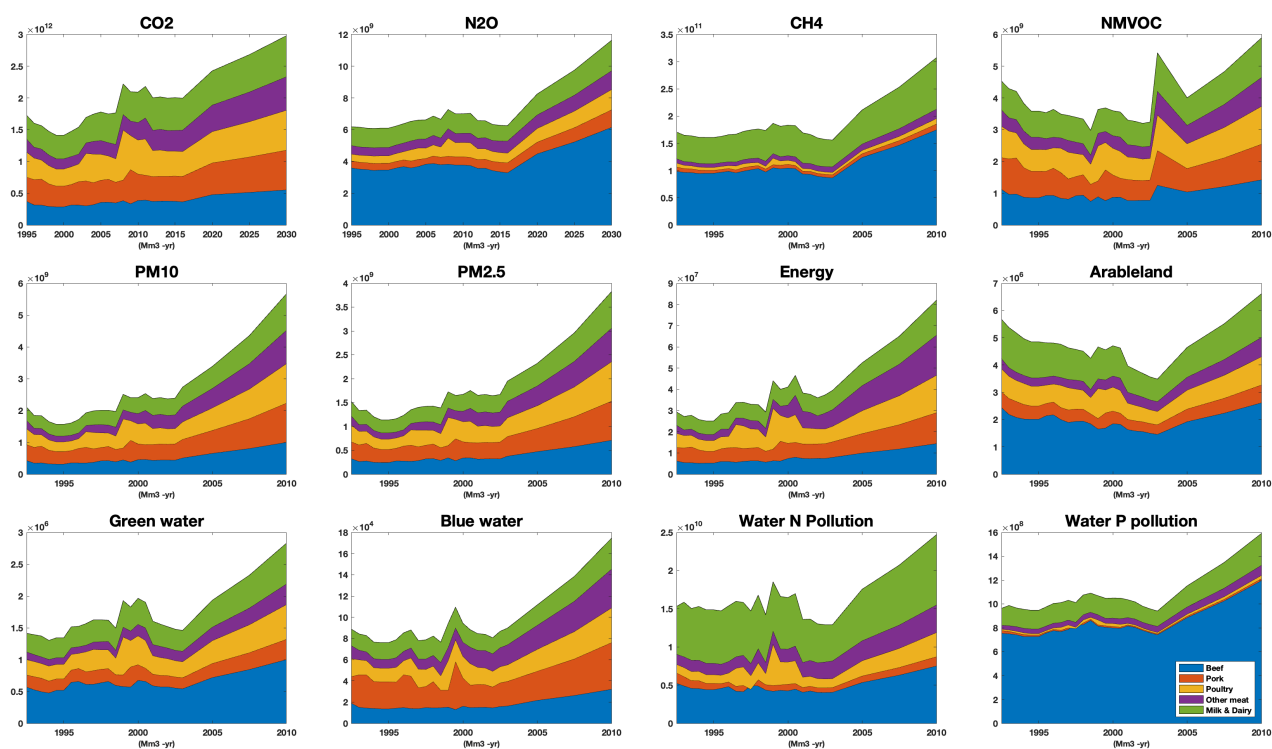
Supplementary Figure 5. Average per-capita livestock footprint of regions between 1995-2016. Each panel represents a specific footprint type. Other Asia & Pacific, China and Africa are shown to have below world average footprints across almost all footprint types. Regions such as EU and US are shown to have higher than per-capita footprints in the majority of footprint types.



Supplementary Figure 6. Average import and export volume of livestock footprints of regions from 1995-2016.



Supplementary Figure 7. Net import and export map of livestock's environmental impacts (average values between 1995-2016). The green to yellow color range suggests the region is a net importer of the impact and the light blue to dark blue color range suggests that the region is a net exporter.



Supplementary Figure 8. Historical and projection values of livestock's environmental impacts by type from 1995-2030.