

Here is my cartoon version of ClimateCare's activity, told in the form of a story: Joan has just taken a round-trip to Johannesburg and wishes to 'neutralize' her CO2 emissions. She contacts ClimateCare. They say, no problem, we are in contact with a trustworthy South African named Thabo. Thabo is the owner of half a tonne of coal, and he intends to keep his family warm over the next year by burning that coal. However, if you pay us 13 pounds, we'll pay him 6 pounds, which Thabo can use to buy thermal underwear for himself and his family; the underwear will last them all year, and Thabo promises he won't set fire to the coal, nor sell it to anyone else. Joan's one tonne of CO2 emissions are thus neutralized by this 'offsetting'.

The actual balance sheet: Joan emitted one tonne of CO2 on her trip. Thabo and family *would have* emitted four tonnes that year (one tonne by burning their coal, and three tonnes by other activities (car-driving, electricity consumption, etc.); instead, thanks to ClimateCare's intervention, and Joan's generous donation, Thabo and family emitted just three tonnes.

The net impact is that Joan, Thabo, and family, together have contributed four tonnes of CO2. Is it accurate to say that Joan emitted no CO2? I think it is more accurate to say that Joan is in a partnership with Thabo, such that their *joint* emissions were four tonnes over the year.

Now, what about next year? Joan again goes on a trip that burns one tonne of fossil fuel. Anxious to make 'no contribution to climate change', she again contacts ClimateCare. And ClimateCare say 'no problem, we know a South African named Thabo; he is still sitting on a half-tonne of coal. His thermal underwear has worn out and his wife just gave birth to twins, both born naked without warm clothing, so Thabo intends to burn the coal this year, unless we can ship some more long-johns to him. It'll cost you 13 pounds.' Joan pays up. Thabo and family receive the long johns. The half-tonne of coal goes unburned. Net emissions by the Thabo-Joan consortium were again 4 tonnes of CO2.

All these emissions are carefully monitored by ClimateCare's distinguished partners, and verified by Sir This and Lord That; and their sums are confirmed to be correct, to the best current scientific knowledge, by the Oxford Environmental Change Institute.

The following year, guess what happens? Joan makes another trip, and Thabo still owns that convenient pile of coal. Joan's tonne of emissions are again miraculously 'neutralized' by Thabo's helpful agreement not to burn the tonne of coal.

For how many years can Joan fly 'Carbon-free'? Well, you can see where this is going! – As long as Thabo never burns that little pile of coal, he can help Joan 'neutralize' her emissions every year, once a year, in perpetuity!

It's a ClimateCare miracle! A bit like the feeding of the five thousand with just five loaves. Tens of tonnes of CO2 emitted by Joan over a period of decades can all be 'neutralized' thanks to that one little half-tonne pile of coal sitting in Thabo's back yard.

Does this miraculous story make sense? Or is it poppycock to say that arbitrarily many decades of Joan's emissions are neutralized by two sacks of coal?

1 Afterword

I'm not denying that Joan and ClimateCare have done a good thing. But the Joan–Thabo consortium *has* actually emitted 40 tonnes of CO₂ per decade.

I think that what ClimateCare *ought* to do, if they want to salve Joan's conscience, is help her form partnerships whose net emissions are *zero*. This would be far more expensive for Joan! For a Joan–Thabo partnership to emit zero CO₂, Joan would have to first arrange for Thabo to obtain entirely fossil-fuel free electricity, for example by erecting a community wind turbine, by solar panels, or by cultivation of biomass fuels for use in the local power station. This could reduce Thabo's emissions to near zero. But then we still have Joan's luxury jet emissions to deal with. To achieve *zero* emissions, Joan needs to pay for one tonne of CO₂ to be sequestered somehow. For example Joan must get Thabo to grow a sustainable forest sufficiently large that he can *put one tonne of wood permanently beyond use every year*. That wood would have to be carefully guarded in perpetuity to make sure that no-one ever burns it. Or she must pay Thabo to extract CO₂ from the air in some other way; whatever is done, it has a significant energy cost. Knowledge of simple thermodynamics leads to an estimate of 100 or 200 pounds as the realistic cost of this sequestration. Each Joan is going to have to partner with many Thabos! If everyone who flies did this, there wouldn't be enough Thabos to go round.

In sum, it's financially easy to *reduce* CO₂ emissions in a world with huge financial inequities. You just find someone poor, and get them to do all the reducing. That's the economically optimal solution. But ClimateCare aspires to helping people transform their lives so that climate change is not reduced but halted. And thus CO₂ emissions must be not reduced, but eliminated altogether. Eliminating CO₂ emissions requires activities of a completely different kind, whose cost will be much more in line with the true cost per tonne of CO₂ mentioned in the Oxford Institute's document (200 pounds or so).