Note on CBAT an Axiom-based Methodology for Strategy

Some have said that CBAT is 'complicated'. All one can say generically is that while that may or may not be true, CBAT is definitely less arbitrary and less complicated than picking numbers out of a hat (as with the RCPs and the INDCs for example).

Axioms are incontestable as they are self-evidently true

In relation to questions about carbon budgets, more than ever it remains my view that axioms - *those fundamental propositions that are unaffected by 'perception' and 'opinion' * - are from a policy perspective, the only dependable basis on which to look at the climate-system as a whole, ahead of looking at the scientific & political bits & all their uncertainties & just hoping they will evolve or self-assemble into an overall 'carbon budget' that is a UNFCCC-Compliant whole.

There is a precautionary climate-policy-dependence on axiom-based maths

In CBAT, the basic axiom comes first in [Domain One](#) where the path-integrals of the future 'carbon-contraction-emissions-budgets' are created as whole and measured full-term-events. They are comprised of 80% emissions from future fossil fuel use (Oil Coal & Gas) & 20% emissions from Land Use Change (deforestation).

Under user's slider-control, there are 100 of these 'full-term' carbon budgets in CBAT, ranged from light-&-fast (192 Gt C complete by 2050) to heavy-&-slow (593 Gt C complete by 2100).

Crucially, they are 'human budget emissions', the one vector over which we have (theoretical) 'political control'. While in some low setting scenarios concentrations can fall, in no CBAT scenario does temperature actually *fall* between 2010 & 2110.

Above each of these budgets, airborne-fractions of these (i.e. the atmospheric concentrations or 'accumulations') are framed for reference at the 'Constant Airborne Fractions' of CAF 50% & CAF 100%. (NB the CAF average historically with emissions-expansion, has been just under 50%). These - as emissions and as concentrations - are weighed in tonnes of carbon that are 'constant', as a tonne-carbon emitted is the same weight as the tonne of carbon retained in the atmosphere. (NB 1 PPMV CO_2 = 2.13 Gt Carbon).

That 'axiom' gives a frame of reference to test for UNFCCC-Compliance.

Starting there, it is possible to estimate and measure rates and ranges for the non-human uncertainties (about which there are differences) which crucially are not directly under human control even if accurately estimated.

These uncertainty estimates relate to the: -

1. Feedback sign for emissions : concentrations, again measured in tonnes carbon, as the non-human components of the primary human emissions budgets, i.e. the shape of the curve for PPMV (NFCCC Objective): -

    a. Negative-feedback overall deceleration over time (convex curvature)
    b. Positive-feedback overall acceleration over time (concave curvature) &

2. Feedback strength – as this is likely to 'persist' over time . . .

    a. the rate of deceleration of PPMV (the depth of convex curvature)
    b. the rate of acceleration of PPMV (the height of concave curvature) & the

3. Value of climate sensitivity (λ) or the amount of temperature rise for a doubling of the volume of atmospheric CO2 (in PPMV) to which we become committed.

It is this, i.e. in relation to that axiomatic CBAT *certainty* that makes precautionary policy a function of the axioms, before it is a function of the hopeless tangle of uncertainties that inevitably arise from trying to do it the other way around, where nothing is constant and everything is simultaneously traded-off against everything else.

Either way there is the conundrum of the 'known and the unknown, unknowns' but having the axiomatic base of CBAT Domain One makes it easier to cross the bridge between 'climate-science' and 'climate-policy/strategy' as we can more confidently read off the rising rates of risk that attend levels of delay in carbon-budgeting carbon-contraction: -

Strategy/Policy issues in Domain 2. 3 & 4 are easier to discuss in the light of this understanding of Domain 1, the carbon-contraction-budgets are the same in all four Domains - i.e. what you choose in one becomes the same in all.

In Domain 2 for example it is only with the adoption of the global per capita average reference curve, that we can realistically model that every (at least) country has shares that fit within the full-term carbon-contraction event (the budget) chosen at the convergence rates that are governed by the primary choice.
Likewise for Domain 3 and Domain 4

Otherwise we are just picking numbers out of a hat as with the RCP-advised INDCs finally on offer at COP-21 in December 2015.

That is why Sir David King called CBAT "*Obviously a great piece of work.*"