Addendum

The attached figure was inadvertently omitted from the second draft of the study (23 January, 2012).

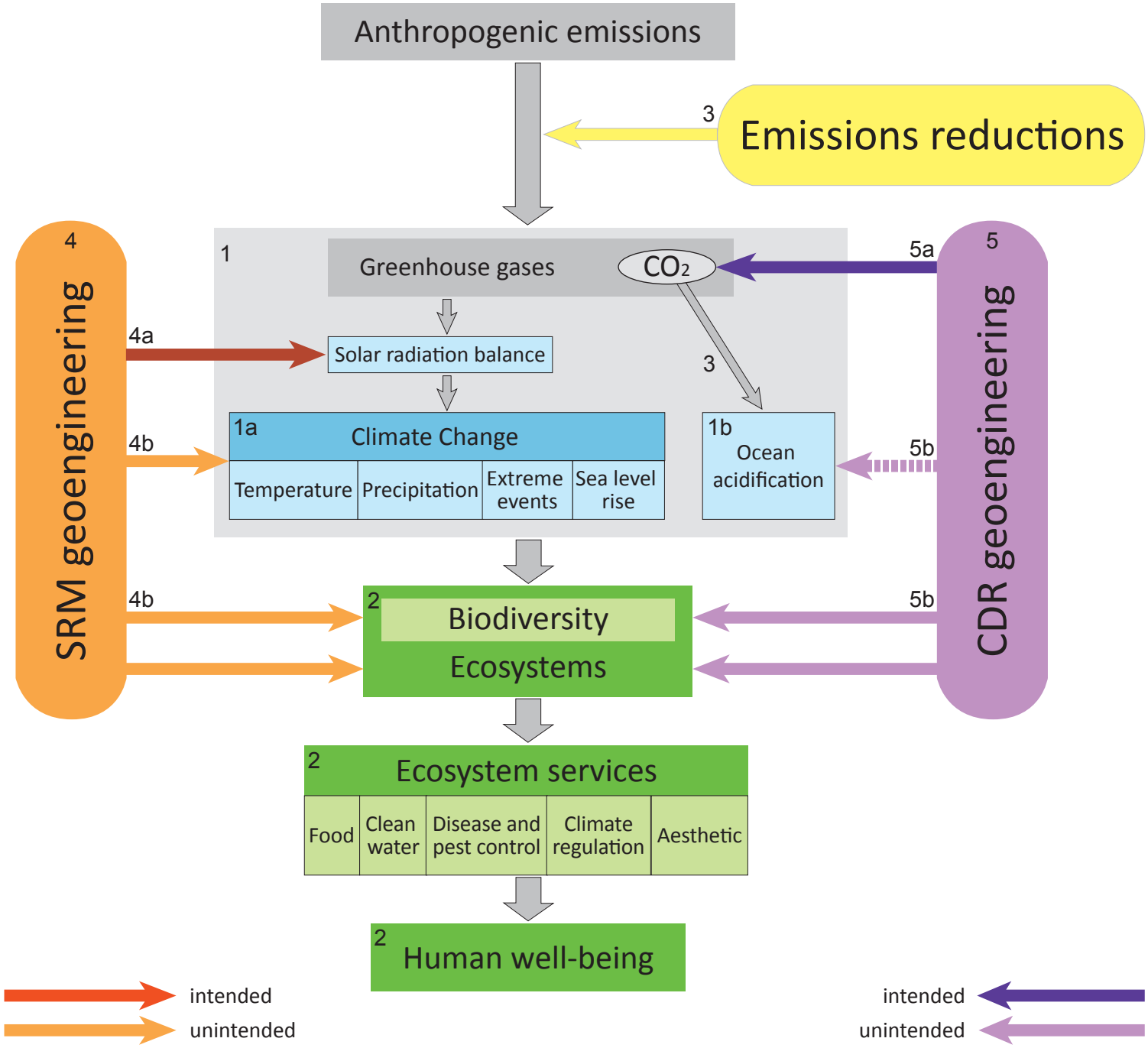

Figure 1.2

Anthropogenic emissions of greenhouse gases are influencing the balance of solar radiation entering and leaving the atmosphere resulting in global warming and associated climate change phenomena such as changes in temperature, precipitation, sea level rise and increased incidence of extreme events (1a). In addition increased atmospheric CO2 concentrations leads directly to increased ocean acidification (1b). Climate change and ocean acidification, affects biodiversity and ecosystem functioning, with a range of mostly negative impacts on human well-being (2). The impacts of climate change on biodiversity are examined in Chapter 3 of this study.

Climate change and ocean acidification are best mitigated by reductions in GHG emissions (3).

Given the insufficient action to date to reduce greenhouse gas emissions, the use of geo-engineering techniques has been suggested to limit the magnitude of human-induced climate change and or its impacts. There are two major broad groups of approaches, as described in Chapter 2 of this study:

Solar radiation management (SRM) techniques aim to counteract warming by reducing the incidence and subsequent absorption of incoming solar radiation (4a).

Carbon dioxide removal (CDR) involves techniques aimed at removing CO2, a major greenhouse gas, from the atmosphere (5a).

However, both groups of techniques are likely to have unintended effects (4b and 5b) with potentially negative impacts on biodiversity. These are examined in Chapters 4 and 5 of this study.