

1.1.2. The File's Basis

The Excel file is based on Hudz (2002),¹ which provides the scientific and numerical background. In her IIASA study, Hudz proposed a probabilistic (risk-based) approach to address temporal verification of changes in global net carbon emissions, in particular with respect to (i) atmospheric CO₂ and (ii) CO₂ emissions from fossil fuel burning, cement manufacture and gas flaring, under the Kyoto Protocol. Hudz's methodology permits assessing these net emission changes, which are characterized by uncertainty distributions, in terms of verification times (**VTs**). The VT is the time until a net emission signal begins to outstrip its underlying uncertainty. For a number of reasons, namely (1) data availability, (2) consistency in accounting net carbon fluxes, and (3) spatio-temporal conditions, which correspond to the current level of sophistication that was realized in the approach, it was applied to the global scale. However, the temporal verification conditions of the approach correspond to those on sub-global scales, in accordance with the Protocol.

The two issues examined by Hudz (2002) are: (1) how to utilize the characterization of changes in global net carbon emissions by uncertainty distributions for the description of VTs on a probabilistical basis; and (2) whether probabilistically and deterministically determined VTs differ.

¹ Hudz, H. (2002). Verification Times Underlying the Kyoto Protocol: Consideration of Risk. Interim Report IR-02-066. International Institute for Applied Systems Analysis, Laxenburg, Austria. Available on the Internet: <http://www.iiasa.ac.at>.