AISHA : A Tool for Constructing Time Series and Large Environmental and Social Accounting Matrices using Constrained Optimisation

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AISHA is a tool which facilitates building complex input-output models. Users provide traditional or environmentally extended input-output matrix data along with concordance matrices. The software merges these datasets, applies a constrained optimization algorithm to reconcile partially-determined and conflicting data, and produces a balanced multi-region input output table. The AISHA tool can handle large IO tables with up to 20,000 total sectors. This paper describes the software capabilities and details the matrix balancing and constrained optimization algorithms. The AISHA tool has been used to build the Eora global MRIO model but can also be used to vastly simplify the process of building or updating other large or small IO tables.