ERICA Tool

The ERICA Tool is a software system that has a structure based upon the tiered ERICA Integrated Approach to assessing the radiological risk to terrestrial, freshwater and marine biota. The Tool guides the user through the assessment process, recording information and decisions and allowing the necessary calculations to be performed to estimate risks to selected animals and plants. Tier 1 assessments are media concentration based and use pre-calculated environmental media concentration limits (EMCLs) to estimate risk quotients. Tier 2 calculates dose rates but allows the user to examine and edit most of the parameters used in the calculation including concentration ratios, distribution coefficients, percentage dry weight soil or sediment, dose conversion coefficients, radiation weighting factors and occupancy factors. The user can also input biota wholebody activity concentrations in Tier 2 if available rather than rely upon concentration ratios. Tier 3 offers the same flexibility as Tier 2 but allows the option to run the assessment probabilistically if the underlying parameter probability distribution functions are defined. Results from the Tool can be put into context using incorporated data on dose effects relationships (using the FREDERICA database) and background dose rates. The Tool has simple transport models embedded to enable conservative estimates of media activity concentrations from discharge data if measurements are not available; the transport models are taken from IAEA (2001) Generi c models for use in assessing the impact of discharges of radioactive substances to the environment. IAEA Safety Report Series 19 STI/PUB/1102.

A revised version of the ERICA Assessment Tool, with substantial changes, has been released on www.erica-tool.com. Please go to the download area to download the new version “ERICA Assessment Tool 1.2 (November 2014). http://www.erica-tool.com/ERICA/download/

Detailed information about this update can be found here

See answers to frequently asked questions on the ERICA Tool and responses by the developers to reported bugs.

The ERICA Tool is being maintained by a consortium comprising the Norwegian Radiation Protection Authority, Environment Agency (England and Wales), Centre for Ecology & Hydrology (UK), IRSN (France) the Swedish Radiation Safety Authority and CIEMAT (Spain).

The ERICA Tool has been applied by both the developers and independent users in intercomparison exercises of the IAEA’s EMRAS programmes.

Key documentation on the ERICA Tool

A new version of the ERICA tool to facilitate impact assessments of radioactivity on wild plants and animals. J. Environ. Radioact. 153, 141-148.
http://dx.doi.org/10.1016/j.jenvrad.2015.12.011

Response to Authors. The selection of parameter values in studies of environmental radiological impacts. J. Radiol. Prot. 34, 261-262.
https://doi.org/10.1088/0952-4746/34/1/L01

Approaches to providing missing transfer parameter values in the ERICA Tool - How well do they work? J. Environ. Radioact. 126, 399-411.
http://dx.doi.org/10.1016/j.jenvrad.2012.05.005


The ERICA Tool also contains a comprehensive help function.