r.green
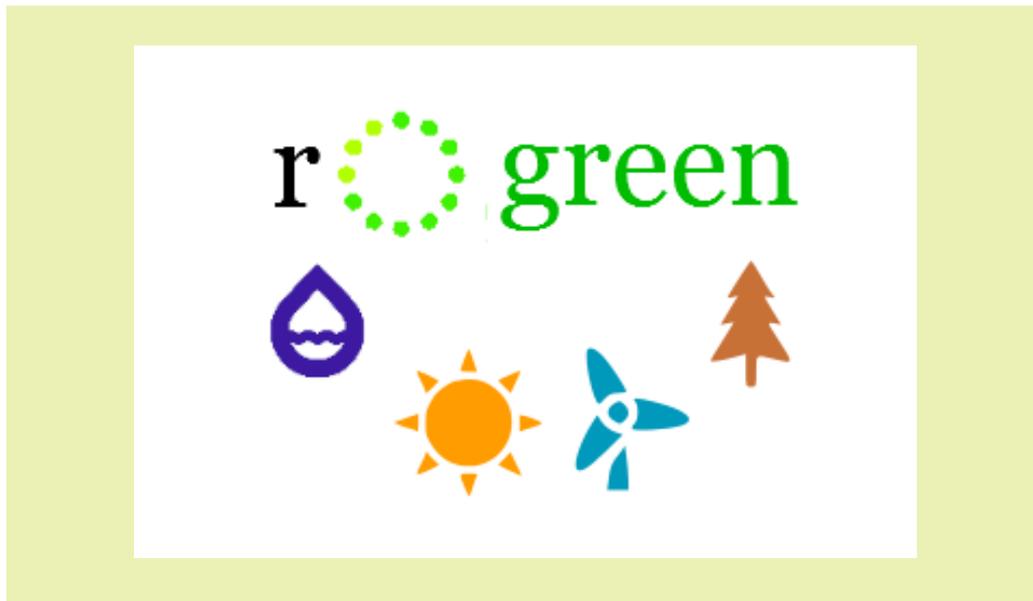

Short description

The r.green tool represents a Decision Support System (DSS), able to identify and quantify the areas suitable for the installation of renewable energy systems based on criteria of sustainability and land conservation.

The kernel of the DSS resides within the GIS software Grass, and in particular is composed by a set of add-ons (additional modules) that can be run independently. The main modules of DSS r.green are r.green.wind, r.green.hydro, r.green.eolic, r.green.biomass and r.green.impact, each of which refers to the corresponding renewable energy considered. Each module is currently formed by a series of sub-modules that represent a series of operational steps in an ideal flow of operations related to the level of exploitation considered. So, one of each main module is composed by at least five sub-modules and in particular: theoretical, legal, technical, economic, recommended, as well as modules specifically oriented to the analysis of impacts and assessment of the ecosystem services.

The r.green DSS allows three options of use:

    i)   through the link command of Grass console

    ii)   running the standard GUI whitin Grass, developed using the Wxpython graphic libriaries

    iii)   through a plugin of QGIS developed using PyQt and the Qt graphics libraries

Renewable energy type(s)

Hydro, wind, solar PV and biomass

Main objective(s)

The high complexity of the application requires the development of a graphic interface to enlarge the software usability to non-specialist users.

The Graphic User Interface has been developed as a plugin of QGIS, a very common open-source GIS software, characterized by a high level of easiness and very similar to Arcview, the GIS software landmark of the last 10 years.

The QGIS plugin processes and exports outputs in standard formats (shapefiles for vector data, ASCII and GeoTiff for raster data). The plugin will also provide information, required by the Strategic Environmental Assessment, as tabular data and graphs viewable through a web browser.

Target group(s)
Administrators, planners, designers

Operating site(s)
Pilot areas

Experiences / best practise examples
All the run methodologies were used in three the pilot areas: the Mis and Mae valley in the north east of Italy, the Triglav National Park in Slovenia, Leiblachtal in Voralberg and the Gesso and Vermenagna Valley in the north west of Italy.

Data source
The software and the graphical user interface were developed using GFOSS open-source libraries and code.

Responsible Partner(s)
EURAC, UNITN-DICAM

Stakeholders involved
Administrators, local associations, citizens

Contact person(s)
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