Package: SQI (via r-universe)

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Type Package

Title Soil Quality Index

Version 0.1.0

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Description The overall performance of soil ecosystem services and productivity greatly relies on soil health, making it a crucial indicator. The evaluation of soil physical, chemical, and biological parameters is necessary to determine the overall soil quality index. In our package, three commonly used methods, including linear scoring, regression-based, and principal component-based soil quality indexing, are employed to calculate the soil quality index. This package has been developed using concept of Bastida et al. (2008) and Doran and Parkin (1994) <doi:10.1016/j.geoderma.2008.08.007> <doi:10.2136/sssaspecpub35.c1>.

License GPL-3

Encoding UTF-8

RoxygenNote 7.2.1

Imports readxl, dplyr, stats, matrixStats, olsrr, FactoMineR

LazyData true

Depends R (>= 3.5.0)

NeedsCompilation no

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Repository https://owaisaliwani30.r-universe.dev

RemoteUrl https://github.com/cran/SQI

RemoteRef HEAD

RemoteSha 7c749ef4199bbc8ff8e6d792434ebd863001340f

Contents

Data	*This is data to be included in my package*

Description

This is data to be included in my package

Usage

```
data(Data)
```

Format

A data frame with 60 rows and 12 column

PCAIndex	*Soil Quality Index Based on Regression*

Description

Soil Quality Index Based on Regression

Usage

```
PCAIndex(DataFrame, OptimumValue)
```

Arguments

DataFrame	Data set with first column as factors
OptimumValue	Optimum value of each variable; Minimum and maximum coded as "1111" and "9999" respectively.

Value

- PCAIndex: Final index

References

- Bastida, F., Zsolnay, A., Hernández, T., & García, C. (2008). Past, present and future of soil quality indices: a biological perspective. Geoderma, 147(3-4), 159-171.

- Doran, J. W., & Parkin, T. B. (1994). Defining and assessing soil quality. Defining soil quality for a sustainable environment, 35, 1-21.

- Mukherjee, A., & Lal, R. (2014). Comparison of soil quality index using three methods. PloS one, 9(8), e105981.

Examples

```
library("SQI")
OP<-c(7,1111,9999,9999,9999,9999,9999,9999,9999,9999,1111)
PIndex<-PCAIndex(DataFrame = Data,OptimumValue = OP)
```

RegIndex   *Soil Quality Index Based on Regression*

Description

Soil Quality Index Based on Regression

Usage

```
RegIndex(DataFrame, Dep_col, OptimumValue)
```

Arguments

DataFrame	Data set with first column as factors
Dep_col	Dependent variable column number
OptimumValue	Optimum value of each variable; Minimum and maximum coded as "1111" and "9999" respectively.

Value

- RegIndex: Final index

References

- Bastida, F., Zsolnay, A., Hernández, T., & García, C. (2008). Past, present and future of soil quality indices: a biological perspective. Geoderma, 147(3-4), 159-171.

- Doran, J. W., & Parkin, T. B. (1994). Defining and assessing soil quality. Defining soil quality for a sustainable environment, 35, 1-21.

- Mukherjee, A., & Lal, R. (2014). Comparison of soil quality index using three methods. PloS one, 9(8), e105981.

Examples

```
library("SQI")
OP<-c(7,1111,9999,9999,9999,9999,9999,9999,9999,9999,1111)
RIndex<-RegIndex(DataFrame = Data,Dep_col=7,OptimumValue = OP)
```

| ScoingIndex | *Soil Quality Index Based on Linear Scoring* |

Description

Soil Quality Index Based on Linear Scoring

Usage

```
ScoingIndex(DataFrame, OptimumValue)
```

Arguments

DataFrame	Data set with first column as factors
OptimumValue	Optimum value of each variable; Minimum and maximum coded as "1111" and "9999" respectively.

Value

- Raw_mean: Raw score
- Index: Final index

References

- Bastida, F., Zsolnay, A., Hernández, T., & García, C. (2008). Past, present and future of soil quality indices: a biological perspective. Geoderma, 147(3-4), 159-171.
- Doran, J. W., & Parkin, T. B. (1994). Defining and assessing soil quality. Defining soil quality for a sustainable environment, 35, 1-21.
- Mukherjee, A., & Lal, R. (2014). Comparison of soil quality index using three methods. PloS one, 9(8), e105981.

Examples

```
library("SQI")
OP<-c(7,1111,9999,9999,9999,9999,9999,9999,9999,9999,1111)
ScoreIndex<-ScoingIndex(DataFrame = Data,OptimumValue = OP)
```

Index