



Workshop

Soil and Water Bioengineering, a Nature-based discipline for advancing Green blue Infrastructures

Coordinator(s): Paola Sangalli (EFIB SCIA) Rosemarie Stangl (EFIB BOKU) Daniel Arizpe (AEIP CIEF)

Coordinator(s) E-mail: efibioengineering@gmail.com

Short description:

During the online SERE conference 2021 we presented the symposium Soil and Water Bioengineering as a tool for ecological restoration

The session presented a wide spectrum of different approaches, from a general overview of the potential applications of Soil and Water Bioengineering (SWB) techniques for ecological and habitat restoration to more specific experiences of concrete projects in a very wide diversity of fields: rivers, coastal areas, lagoons, landslides, roads etc. SWB provides a great variety of nature-based solutions and technique to mitigate serious threats from climate change, erosion, ecosystem loss and others with innovative, sustainable, and environmentally friendly methods

The European Union is promoting Nature-Based Solutions (NBS) because they can help mitigate global environmental challenges while creating jobs and promoting economic growth and innovation. This new concept promotes nature as a more sustainable and efficient solution to environmental problems. Soil and Water Bioengineering, as fundamental Nature-based Solution, is able to both mitigate and restore lost ecosystems and to avoid the degradation of our environment. It must work hand in hand (in parallel) with ecological restoration.

The application of combined plant-based and constructional techniques as NBS have become important worldwide to protect urban and rural areas from a generalized increasing erosion risk due to climate change and from increasing risks resulting from biodiversity and habitat losses.

Soil and Water Bioengineering as a hybrid discipline: the term “Engineering” refers to the knowledge-based use of technical and scientific techniques and solutions for construction, stabilisation and erosion control and “bio”, because these functions are related to living plant material, mainly native plant species, with appropriate biotechnical characteristics and for the purpose of re-establishing ecosystems and increasing biodiversity. It includes technical functions (e.g. soil protection and slope stabilization), ecological objectives (ecosystem and habitat restoration), landscape objectives (improvement of landscape value and integration) and also takes into account several socio-economic aspects (efficiency and employability).

The fact that it is a hybrid discipline has resulted in mistrust partly from traditional engineers and partly from ecologists dealing with restoration. However, scientific and technical prove have evidenced great results and success of projects and application, given the techniques are



13th SERE CONFERENCE
5th – 9th SEP 2022
ALICANTE, SPAIN



Workshop

correctly implemented, both in technical and biological terms.

In this workshop a selection of some examples (3 or 4 Projects) on road construction, urban rivers or mining area restoration is presented. This is followed by an open discussion on the different approaches and possibilities of Soil and Water Bioengineering as NBS as a valuable link between the world of traditional engineering and that of ecological restoration

Draft program: 2 hours

1 hour: Selection of three representative projects between the EFIB members that are best practice examples of the integration of the engineering solutions with ecological restoration

2 Hou : Roundtable with representation of civil engineers, architects, ecological restorators,t, and SW Bioengineering scientists for open discussion