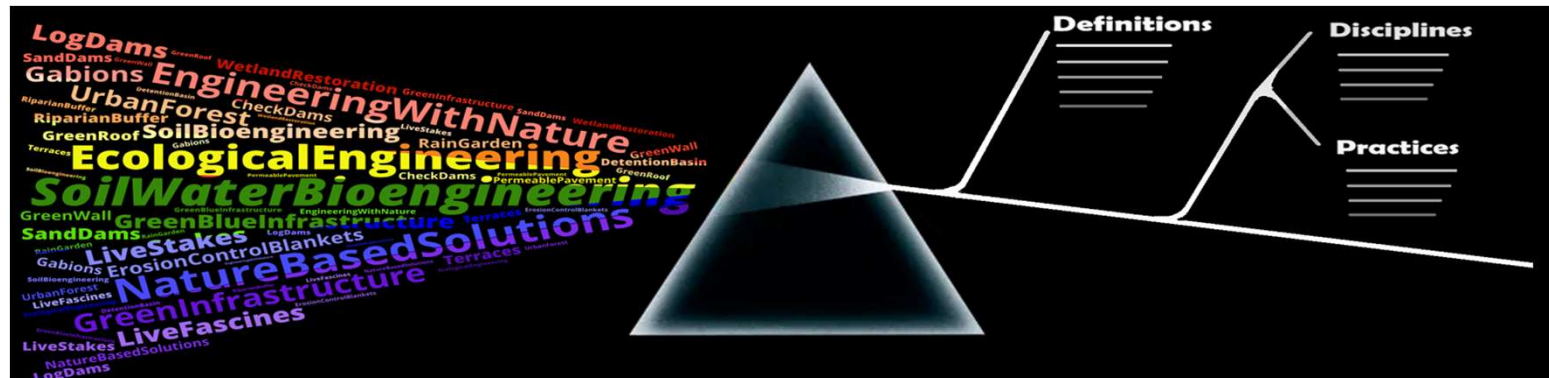


# Systematizing Terminologies in Soil Water Bioengineering, NBS, and Related Fields: A Critical Review



Keywords: Soil and Water Bio-Engineering, Nature-based Solutions, Green and Blue Infrastructure, Terminologies, Standardization



## INTRODUCTION

1

The fields of Soil and Water Bioengineering (SWB), Nature-based Solutions (NBS), Ecological Engineering (EE), Green and Blue Infrastructure (GBI), and Engineering with Nature (EWN®) encompass a variety of practices aimed at addressing environmental challenges through sustainable and adaptive methods.

The inconsistent and overlapping terminology across these disciplines has led to confusion, which impedes effective communication among researchers, practitioners and policymakers

## THE RESEARCH GAP

2

Try associating each practice with one or more disciplines:



Soil and Water Bioengineering	Nature-based Solutions
Ecological Engineering	Engineering with Nature
Green and Blue Infrastructure	Grey Engineering

If you disagree, have another opinion, or find it is not easy to get a clear idea, **CONGRATULATION!** You have found the **research gap!**

## METHODS

3

A **systematic literature review** was conducted using multiple databases, focusing primarily on review articles. The aim was to explore conceptual overlaps and shared practices across selected terminologies.

Research 1	Research 2
NBS	Green Roof
GBI	Dry Stone Wall
SWB	Live Crib Wall
EE	Others...
EWN	

We searched the full terms corresponding to the acronyms, combining terms within Research 1 and Research 1-2. For now, a total of **1454 reviews** from Research 1 were identified.

## PRELIMINARY RESULTS

4

By examining how often terms from different disciplines appear together in the same paper, we can begin to understand how these concepts are actually used in relation to each other. The relative frequency of **co-occurrence** provides insights into how strongly certain terms are associated or remain distinct in the scientific literature.

	NBS	GBI	EWN	EE
SWB	28 1	5 --	-- --	11 1
NBS		747 142	14 1	47 10
GBI			-- --	39 5
EWN				-- 1

### Review and Article

### ONLY Review

- Some percentage
- 0.55% of **NBS** articles contain **SWB**
  - 10.76% of **SWB** articles contain **NBS**
  - 14.80% of **NBS** articles contain **GBI**
  - 9.95% of **GBI** articles contain **NBS**

The way each practice is associated with one or more disciplines helps us understand how it is interpreted and categorized in scientific literature.

	Green roof Tot. 3439	%	Dry stone wall Tot. 138	%	Live crib wall Tot. 31	%
NBS	216	6.30	1	0.72	4	12.90
SWB	--	--	--	--	12	38.70
GBI	535	10.30	--	--	1	3.20
EE	17	0.20	--	--	2	6.40
EWN	--	--	--	--	--	--

Did you expect these results?

## AND NOW?

5

We will continue our work by analyzing and comparing the content of the many review papers across the different disciplines. By deepening this analysis, we aim to better understand how each field defines and frames key practices, and to develop a **conceptual map** that highlights shared elements, differences, and possible points of integration supporting clearer communication across sectors and between practitioners and researchers.