



Working Group 14

TG 8 - Sustainability in mechanized tunnelling

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OUR MISSION

With the increasing focus on sustainability, we as civil engineers have a responsibility to do our very best to develop and implement sustainable solutions fitted to the society's challenges. When assessing and deciding on the best technical solution it is important to have a holistic approach considering all different aspects and its impacts.

This Task Group aims to provide the industry with a variety of ideas on how to make a mechanized tunnel projects more sustainable within the different phases of its life cycle, from feasibility studies to construction, till end of use. To do this, we are adopting the categories from the BREEAM assessment protocol, listed below, and will look for evidence as to how mechanized tunnelling may illustrate its sustainable potential within these topics:

- Management
- Resilience
- Communities & stakeholders
- Land use & ecology
- Landscape & historie environment
- Pollution
- Resources
- Transport

These categories will serve as the structure for a checklist and inspiration guide, ensuring that a broader range of sustainable solutions are considered.

In addition, the check list will also include references to different case histories (from both past and present projects) where different sustainable solutions have been implemented.

OUR TARGET

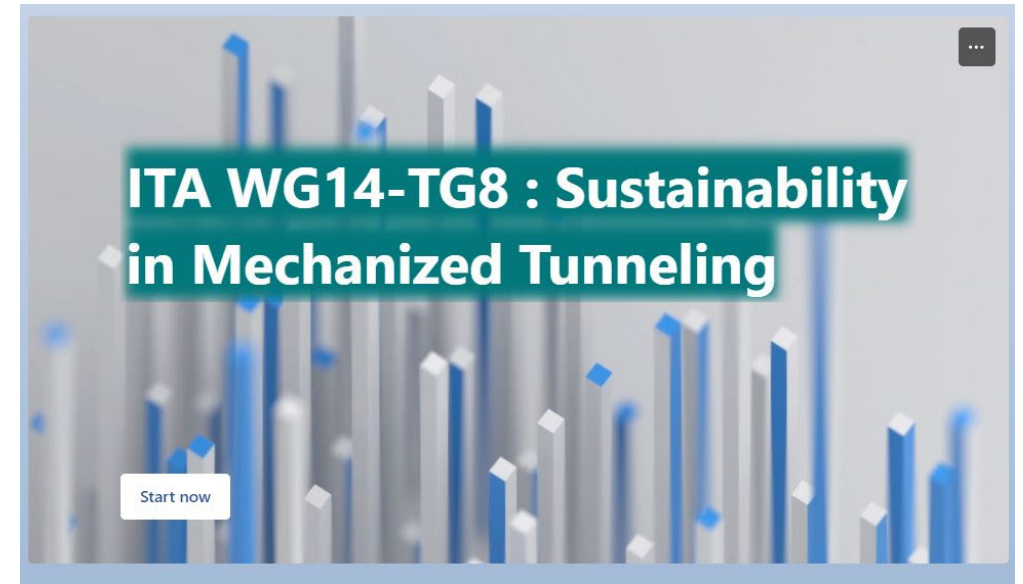
Sustainability Data Base:

Practicality:

- Live tool
- Easy-to-compile and easy –to-consult

Purpose:

- Collaboration
- Inspiration
- Record



The target of Task Group 8 is to develop an easy-to-compile and consult instrument, where our sustainability-focused ideas and inspiration from previous and ongoing projects can be collected and updated regularly with our industry's experiences.

The aim is to increase collaboration between professionals and promote knowledge sharing. To fulfill our objective, we decided to adopt a “greenest” solution. We have created an online database for professionals and companies where they can share their expertise within sustainability in mechanized tunnelling.



1. PROJECT DATABASE - contribute



Project



Fill Form



Projects Database

Within the **Project Database**, you will find a list of the collected projects and their data. Each project entry is placed in a separate row, with information distributed across columns. The provided information includes:

- Project Type
- Location
- Year
- Brief description
- Project phase
- BREEAM category
- Link to project documents folder
- Short description of documents
- Additional comments

You can use the filters for each column or press CTRL + F to search for keywords to database more easily.

Links

- Projects Database
- Documents

Pie Chart Data:

Category	Percentage
Resources (RES)	58%
Management (MAN)	22%
Communities and Stakeholders (COM)	10%
Land use and Ecology (ECO)	6%
Pollution (POL)	2%
Innovations (INN)	0%

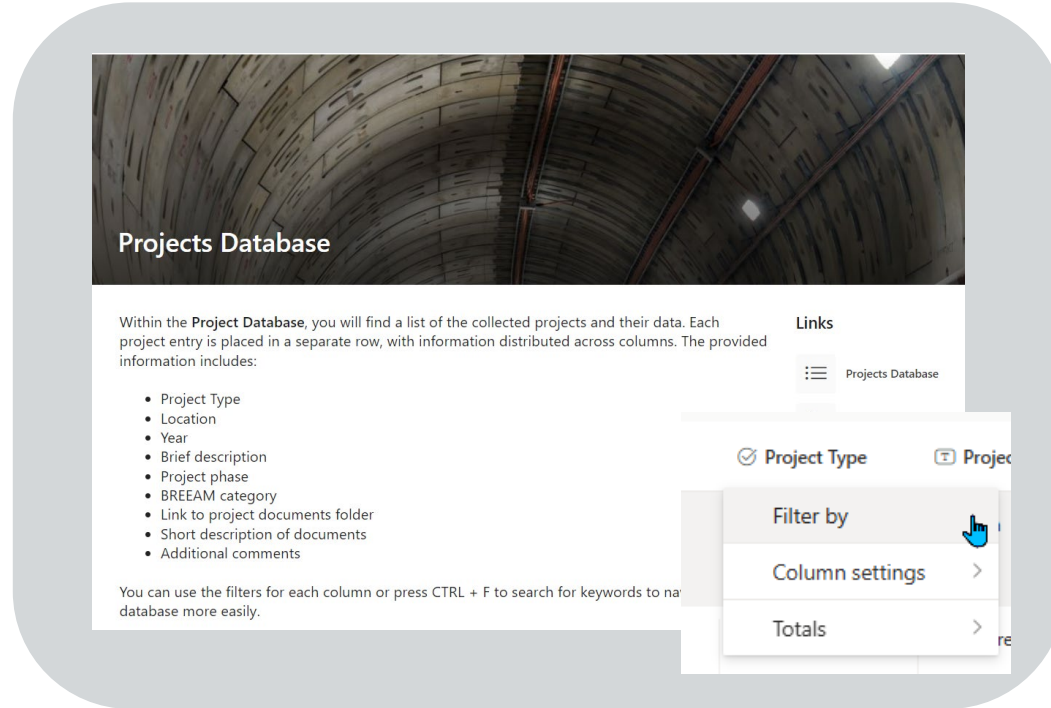
It's live and Ready!



1. PROJECT DATABASE - consult

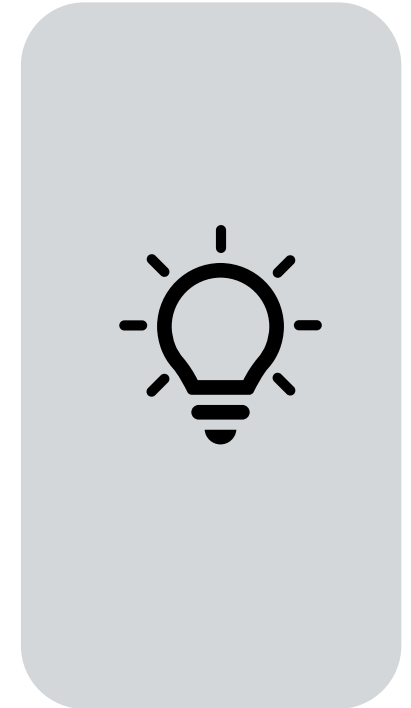


Question?
Curiosity?



Data base
Filter by:

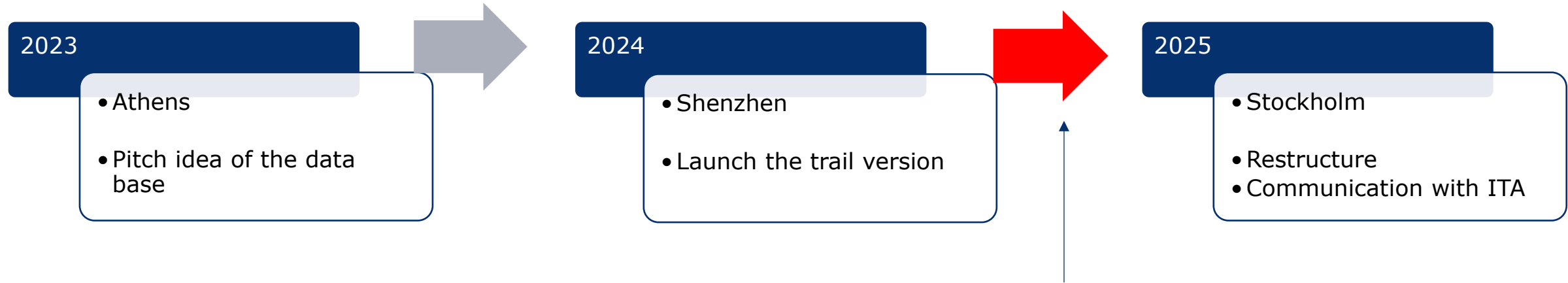
Project
location
year
type of TBM
Phase of project
etc



New references
New ideas
New contacts



1. PROJECT DATABASE –Progress and status



ITA WG14-TG8

Sustainability in Mechanized Tunnelling

Welcome to the ITA WG14-TG8 SharePoint page!

This page has been created as part of the ITA Mechanized Tunneling, Working Group (WG14) – Task Group on Sustainability in Mechanized Tunneling (TG8), with the aim of creating an [online database](#) where professionals and companies can share their knowledge and experience on how to implement **sustainability in mechanized tunnelling**.

The page aims to **increase collaboration between professionals within the industry and promote knowledge sharing**.

[Our Mission](#)

Site content



Collaboration



Projects Database

! Feedback!

- Few entries

(difficult to reach audience)

- Complicated upload process

(Page restricted access)

[Our mission](#)

ITA WG14 TG8



2. COLLABORATION WORKSHOP AT WTC2023



1. Urban environment

ENTER THE CODE
76 97 27 0



2. Water crossing

ENTER THE CODE
2470 2104



3. Mountainous region

ENTER THE CODE
6325 2150



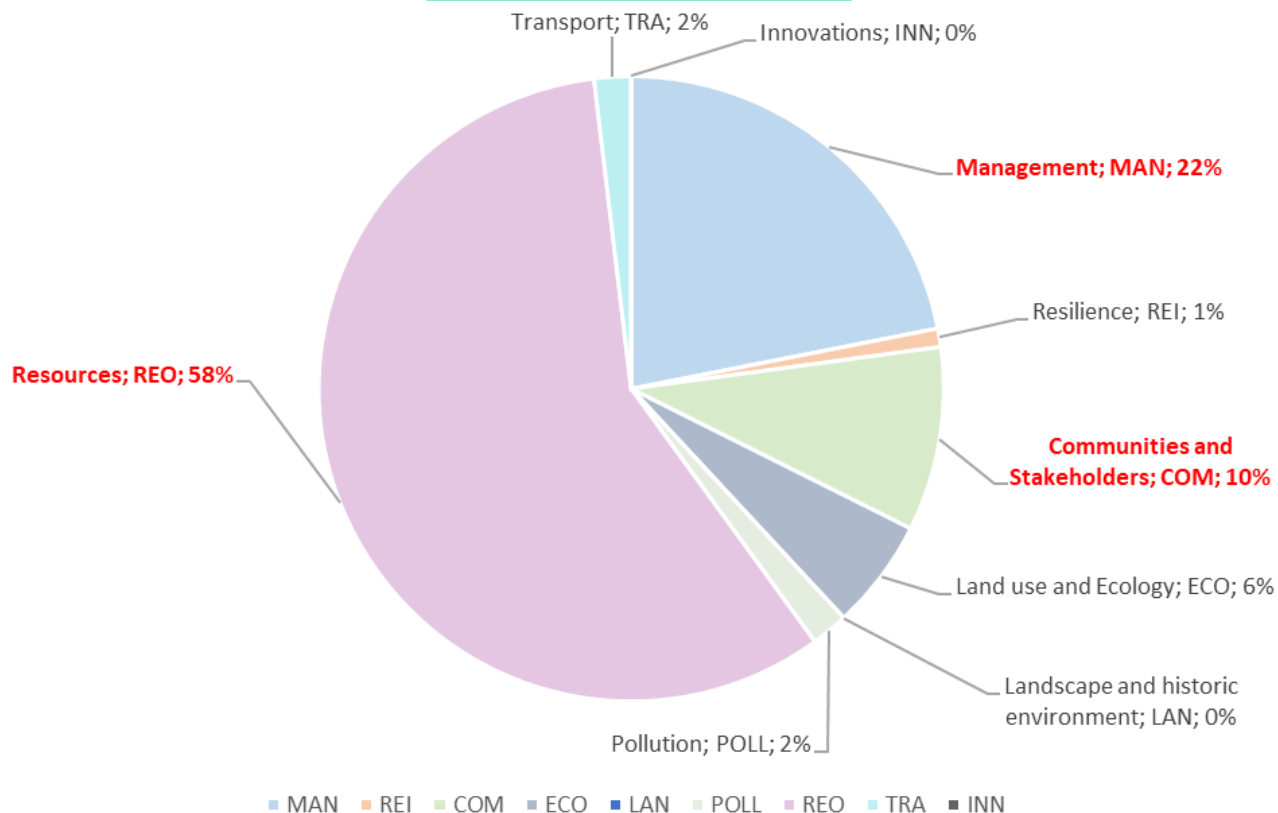
ITA WG14 TG8



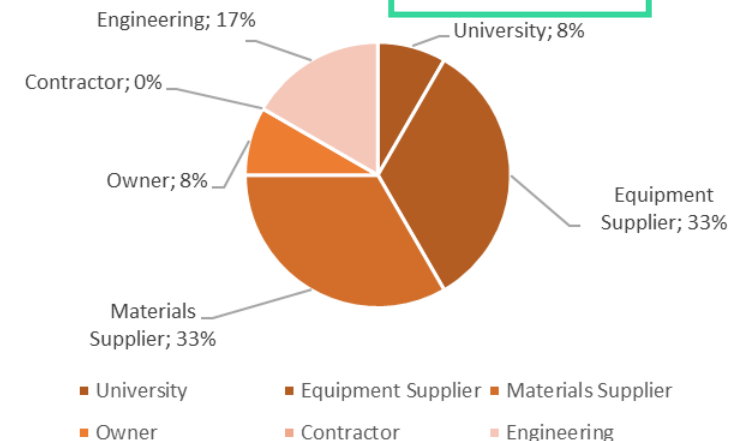
WORKSHOP RESULTS



Classification of n.105 Proposed Solutions within Breeam



Subcategories of n.12 Participants



MAN	Management
REI	Resilience
COM	Communities and Stakeholders
ECO	Land use and Ecology
LAN	Landscape and historic environment
POLL	Pollution
REO	Resources
TRA	Transport
INN	Innovations

General Notes:

- contributions are overall general, solutions can be applied for all kind of tunnel project
- majority of comments on materials, recycling, new source of energy, strategies and solutions, communities and stakeholders, deployment of local people and resources
- few comments with low rate, overall confidence in proposed solutions
- 71% of the solutions are similar or can be linked to the same macro area

2. COLLABORATION

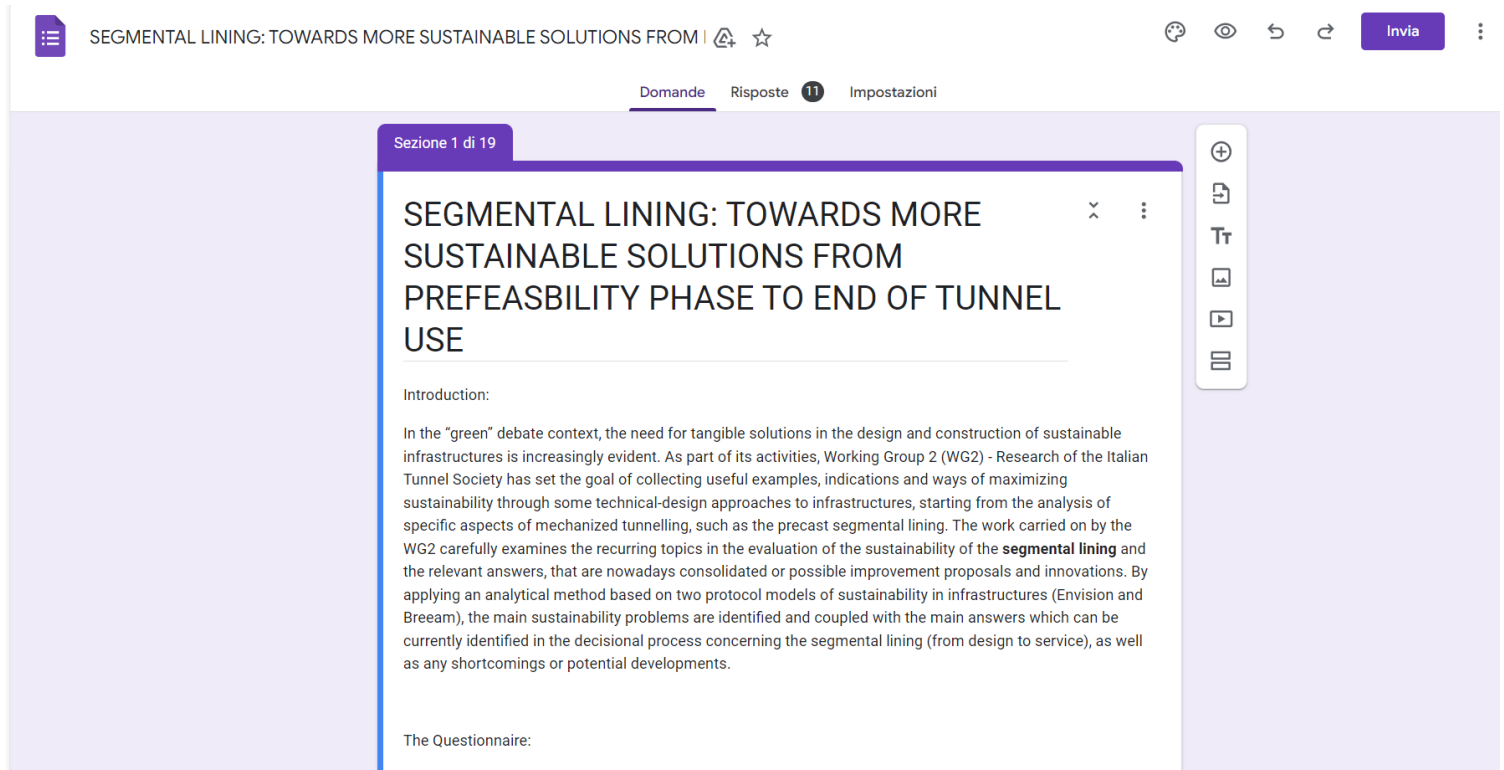
SIG WG2

Sustainability of
the Segmental
Lining solutions

Questionnaire

LINK to the QUESTIONNAIRE

<http://www.societaitalianagallerie.it/notizia/2003/segmental-lining-towards-more-sustainable/>



The screenshot shows a web-based questionnaire interface. At the top, the title 'SEGMENTAL LINING: TOWARDS MORE SUSTAINABLE SOLUTIONS FROM' is visible. Below the title, there are tabs for 'Domande', 'Risposte' (with a count of 11), and 'Impostazioni'. The main content area is titled 'Sezione 1 di 19' and contains the following text:

SEGMENTAL LINING: TOWARDS MORE SUSTAINABLE SOLUTIONS FROM PREFEASIBILITY PHASE TO END OF TUNNEL USE

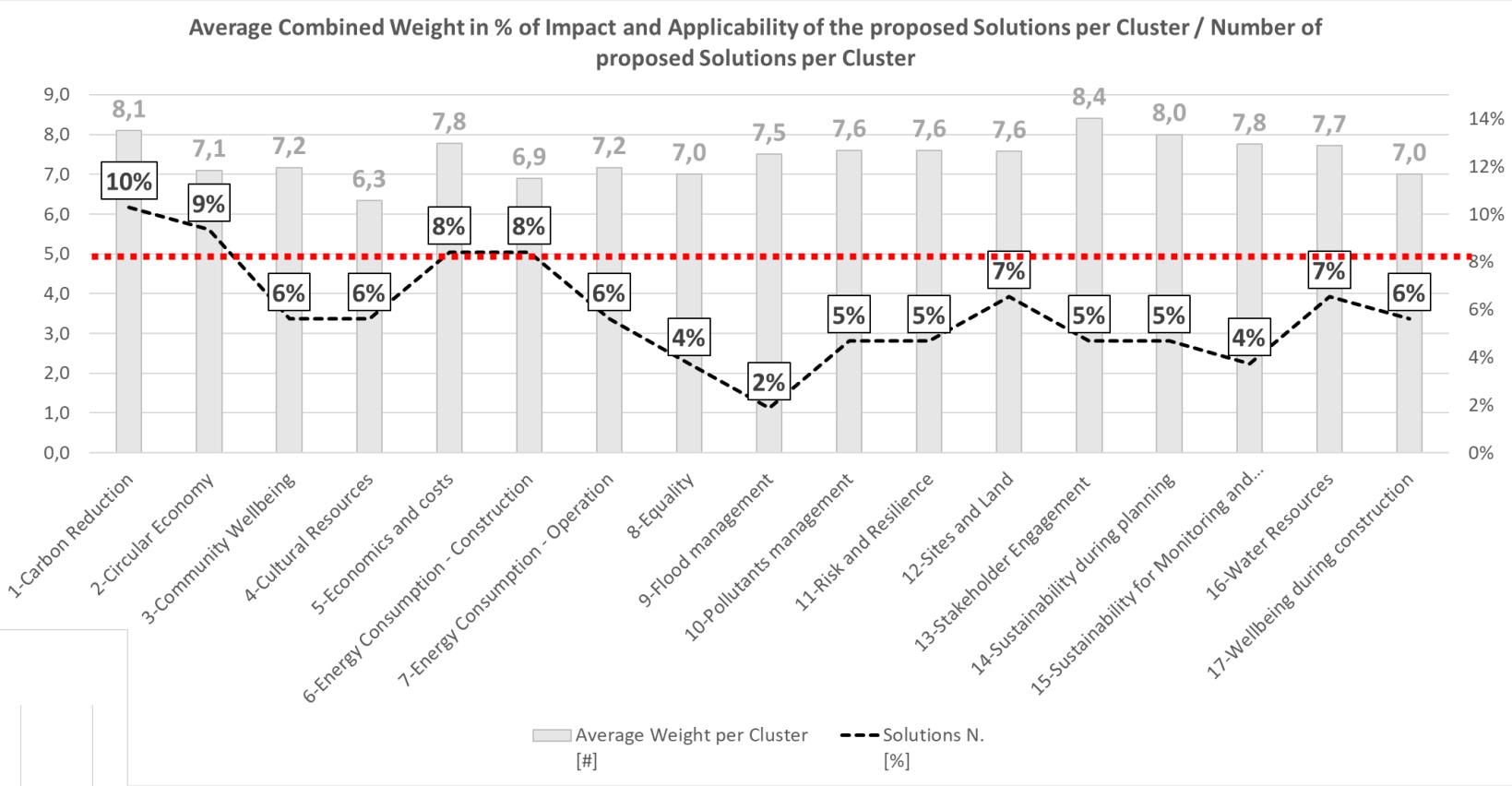
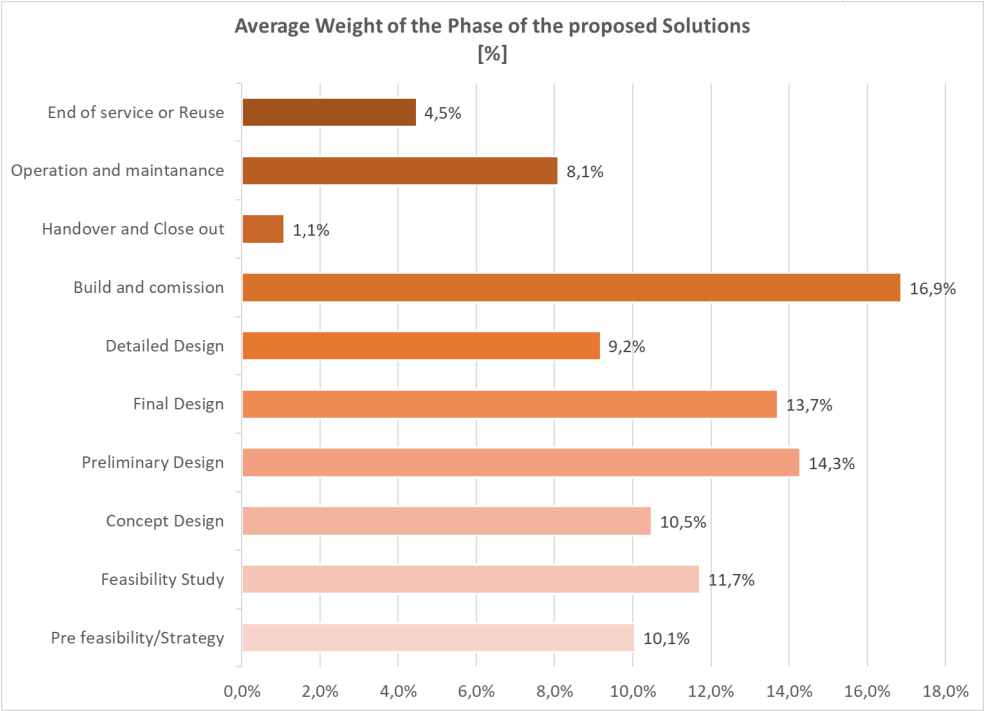
Introduction:

In the "green" debate context, the need for tangible solutions in the design and construction of sustainable infrastructures is increasingly evident. As part of its activities, Working Group 2 (WG2) - Research of the Italian Tunnel Society has set the goal of collecting useful examples, indications and ways of maximizing sustainability through some technical-design approaches to infrastructures, starting from the analysis of specific aspects of mechanized tunnelling, such as the precast segmental lining. The work carried on by the WG2 carefully examines the recurring topics in the evaluation of the sustainability of the **segmental lining** and the relevant answers, that are nowadays consolidated or possible improvement proposals and innovations. By applying an analytical method based on two protocol models of sustainability in infrastructures (Envision and Breeam), the main sustainability problems are identified and coupled with the main answers which can be currently identified in the decisional process concerning the segmental lining (from design to service), as well as any shortcomings or potential developments.

The Questionnaire:



Preliminary Output



3. WORKSHOP

- How can we help you the most?
- Identify challenges to implement more sustainable solutions



3. WORKSHOP

- Split into groups to discuss main challenges for each of you
 - Budget?
 - Time?
 - The Client?
 - New Technology?
 - Inspiration?



3. WORKSHOP

- Please take notes so we can collect and compile to give an overview

