

# **NBS** for reconciling natural hazard control and ecological restoration: from research to practice

(Freddy REY)

Workshop on Implementation of Nature-based Solutions to tackle climate change Session 3a: research and stakeholder engagement

> Marseille (France) 22-24 January 2019



















#### **Ecological engineering at the service of NBS**

Applications and benefits of ecological engineering









Ecological restoration of degraded lands

Soil and water depollution





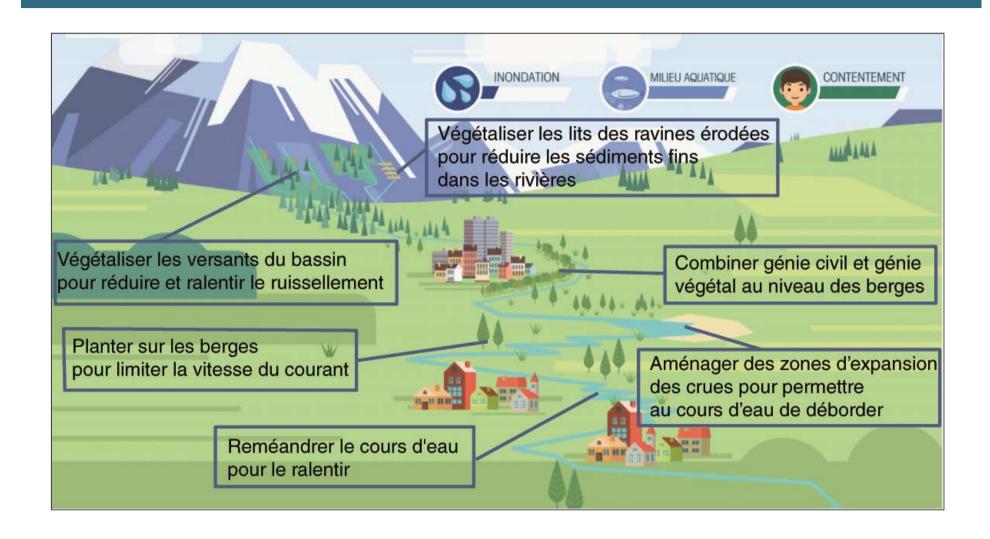








#### Soil and water bioengineering as an ecological engineering solution















# **Examples of soil and water bioengineering structures**













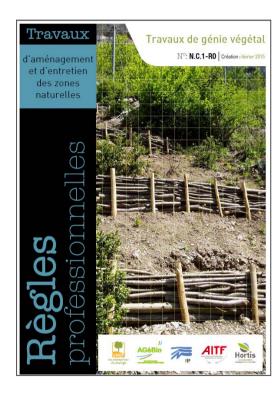


#### Know-how in soil and water bioengineering

#### **Existing guidelines**



















# Questions from population, practitioners and stakeholders















## Questions from population, practitioners and stakeholders

# SFN: LES 6 CRITÈRES



Solution à un défi de société



Génie végétal ou protection d'espaces naturels



Action pour la biodiversité



Cohérence globale sur le long terme



Impact positif à toutes les échelles



Collaboration de tous les acteurs















## From practice to research



An innovative use of bioengineering for reconciling ecological restoration and flood control!









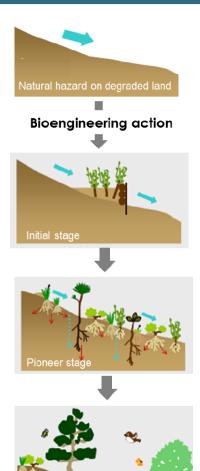




#### From practice to research

Natural hazard control

Ecological restoration process



Questions from practitioners to scientists

Choosing the species

Choosing the bioengineering structures

Designing the bioengineering structures and works

Reconciling qualitative experience and quantitative engineering

Anticipating structures' degradation and vegetation development over time

Defining actions at the catchment and landscape scales

















#### New knowledge for improving know-how in eco- and bio-engineering

#### Scientific and technical papers and handbooks



















#### From research to practice

#### Defining sound eco- and bio-engineering techniques providing co-benefits

Considering a multidisciplinary approach for NBS projects

Implementing monitoring stages in NBS projects

Identifying the needs of the professional sector

Transmitting knowledge and know-how on eco- and bio-engineering

> Establishing new practical guidelines and tools for designing eco- and bio-engineering structures











#### **Conclusion**

#### Ideas for the development of research at the service of NBS

- To enlarge research programs and innovation for the use of NBS
- To increase research highlighting the multi-benefits of NBS
- To develop demonstration sites (as well as experimental sites) of NBS
- To improve the dissemination of research results
- To help interprofessional networks including scientists





# Thank you!

# For more information:

freddy.rey@irstea.fr www.irstea.fr

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