



SECAP

Celebrating
YEARS
50
OF Successful
TOLL ROAD PROJECTS

Managing natural hazards and climate change adaption for more resilience on the Austrian Alp-crossing highway network

HOSTED BY
AI|SIF|i|N|AIG

Sandra Ulrich, ASFINAG

What would you rather hear to energize you after the lunch break?



„Landslide“
ACDC



„Symphony No. 9 From the New World,
IV. Allegro con fuoco“

Antonín Dvořák

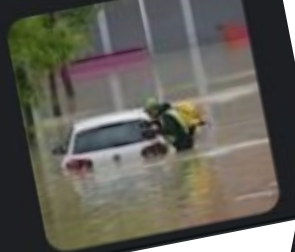
performed by Wiener Philharmoniker



teleSUR English

Heavy Rainfall Causes Floods Across Central Europe

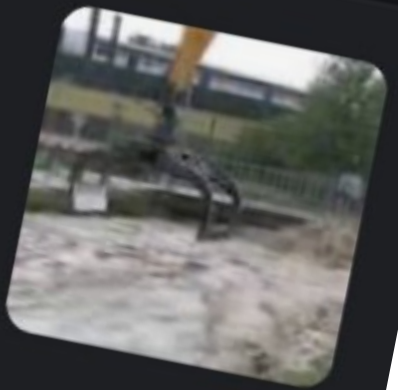
vor 1 Monat



en Euronews

Record rainfall drenches western Austria as firefighters tackle torrential flooding

20.08.2022



09.02.2021 23:30 | BUNDESLÄNDER > SALZBURG

BIS MITTWOCH ABEND

Nach Mure bleibt die A10 auch weiterhin gesperrt

Acute water shortage puts Austrian agriculture in trouble

Despite a rainy April, wells are threatening to run dry in Austria, especially in the mountains, according to local media

Timo Kirez | 05.05.2023 - Update : 05.05.2023

at The Local Austria

Friday's storms cause flooded streets and mudslides in Austria's Vorarlberg

20.08.2022



Austria Halts Eight Highway Projects to Fight Climate Change

Austria's Greens political party has achieved a rare political victory against automobile dependence.

1 Minute Read
December 13, 2021, 10:00 AM PST
By James Brasuell @CasualBrasuell



Gravel Landslide, A 10 Highway, 2012



Protective Fence in Action, A 12 Highway





Flood, A 14 Highway



Flood, A 14 Highway



Flood, A 14 Highway





Controlled avalanche blasting next to A12 Highway

Avalanche, First lane S 16 Highway



Avalanche, Gallery S 16 Highway



The logo for SECAP, featuring a stylized white 'S' with a blue triangle pointing upwards, followed by the letters 'SECAP' in a bold, white, sans-serif font.

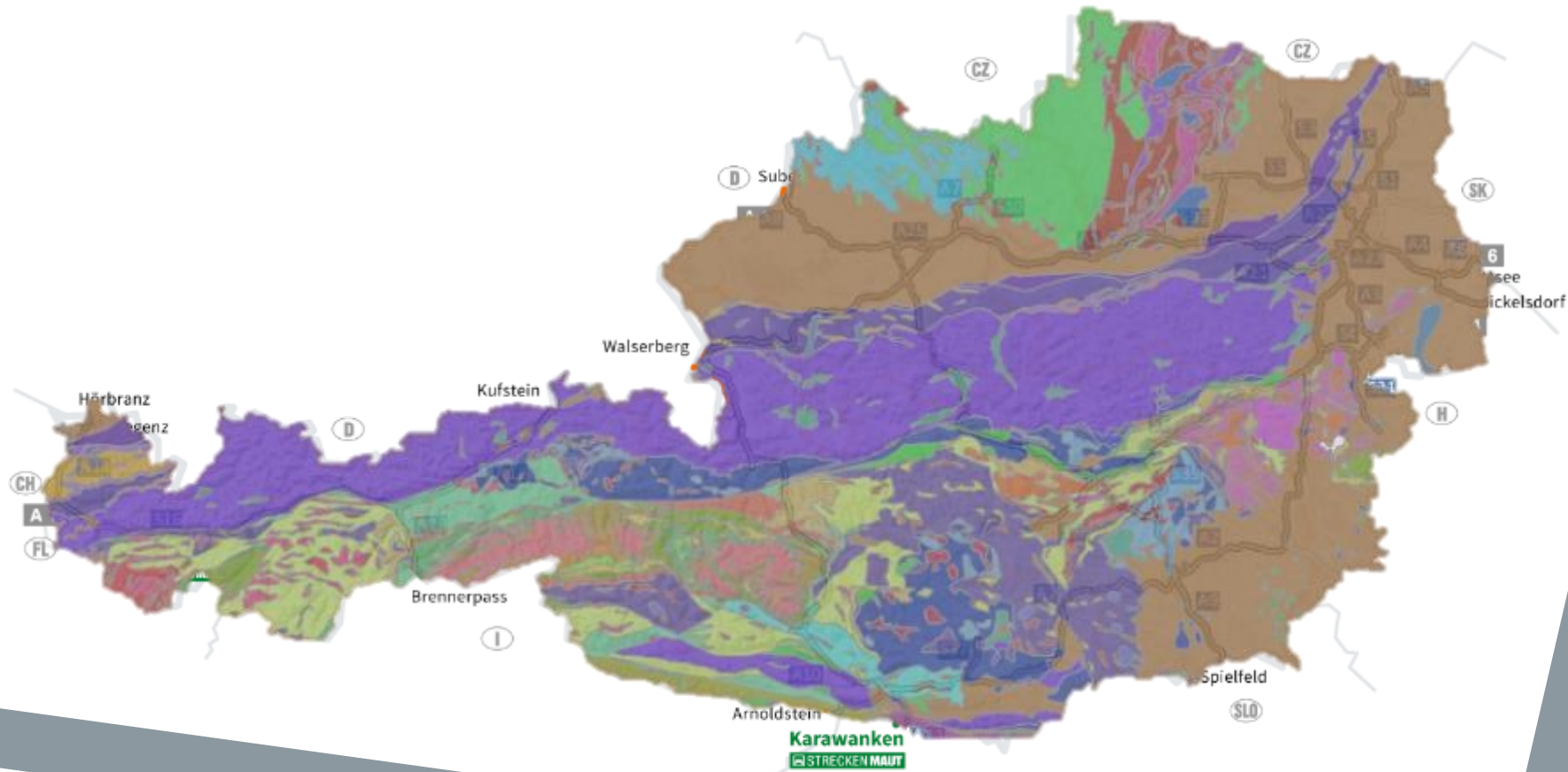
Celebrating
YEARS
50
OF Successful
TOLL ROAD PROJECTS

An aerial photograph of a multi-lane highway network in a rural, hilly area. The highway is supported by several tall concrete pillars. A large green circular overlay is positioned on the right side of the image, containing the main title text. The background shows green fields, a small town, and distant mountains under a clear blue sky.

Managing natural hazards and climate change adaption for more resilience on the Austrian Alp-crossing highway network

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Sandra Ulrich, ASFINAG



~3,000
Employees

5,819
Bridges

405
Tunnels

29 BILLION
km of total traffic
per year

2,249
kilometres of
road network

42
Motorway operation
and maintenance
facilities

Natural hazards

Environmental protection program

R&D projects

Asset Management

Resilience

Net zero emissions

CSRD

Taxonomy

Climate change adaption

Natural hazards

Environmental protection program

R&D projects

Asset Management

Resilience

Net zero emissions

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Climate change adaption

NATURAL HAZARD STRATEGY



A|S|F|i|N|A|G

RISK-BASED NATURAL HAZARD MANAGEMENT

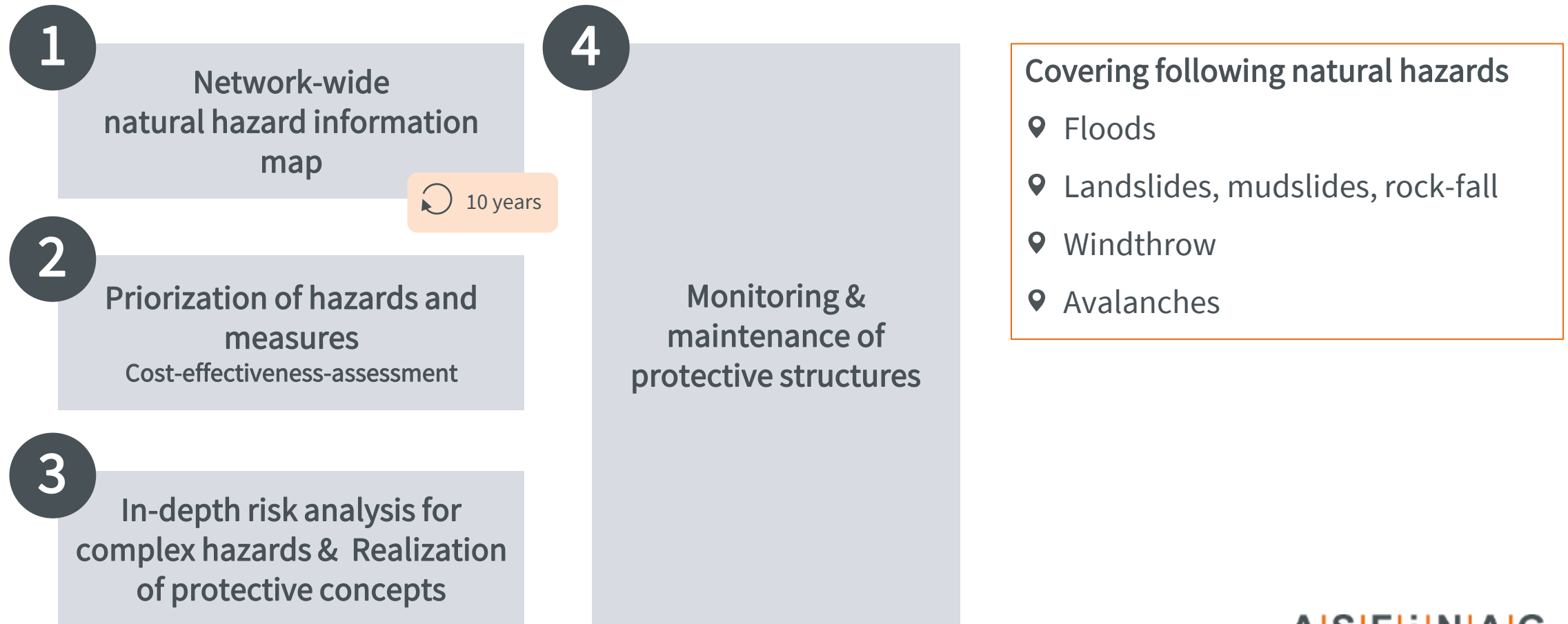
Prevention

Crisis response

Regeneration

RISK-BASED NATURAL HAZARD MANAGEMENT

RISK-BASED PREVENTION APPROACH IN 4 STEPS



RISK-BASED NATURAL HAZARD MANAGEMENT

1

Network-wide natural hazard information map



Water (wild river, flood area, slope water)



Avalanche (dust, snow)



Landslides (spoil, mud)



Rockfall



Wind throw

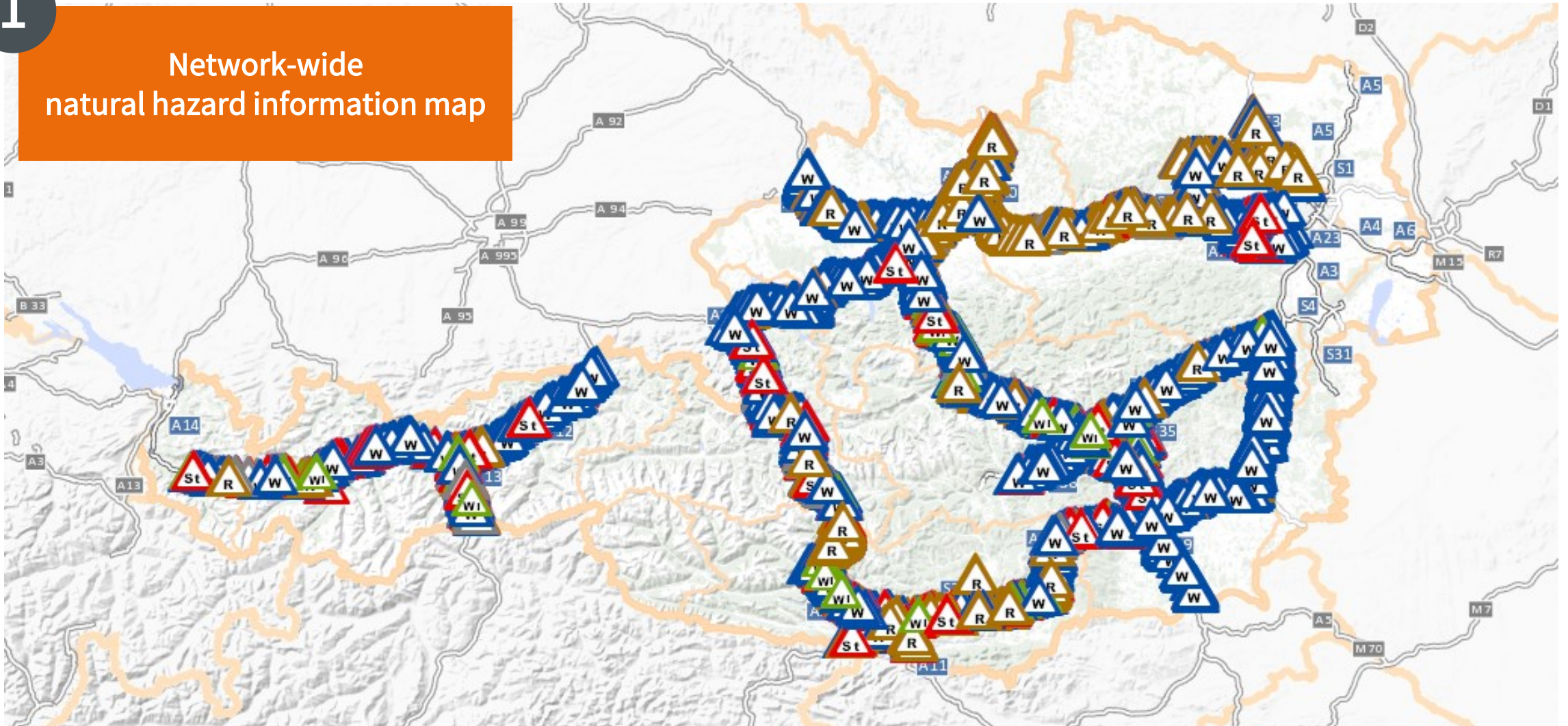


Soil collapse

RISK-BASED NATURAL HAZARD MANAGEMENT

1

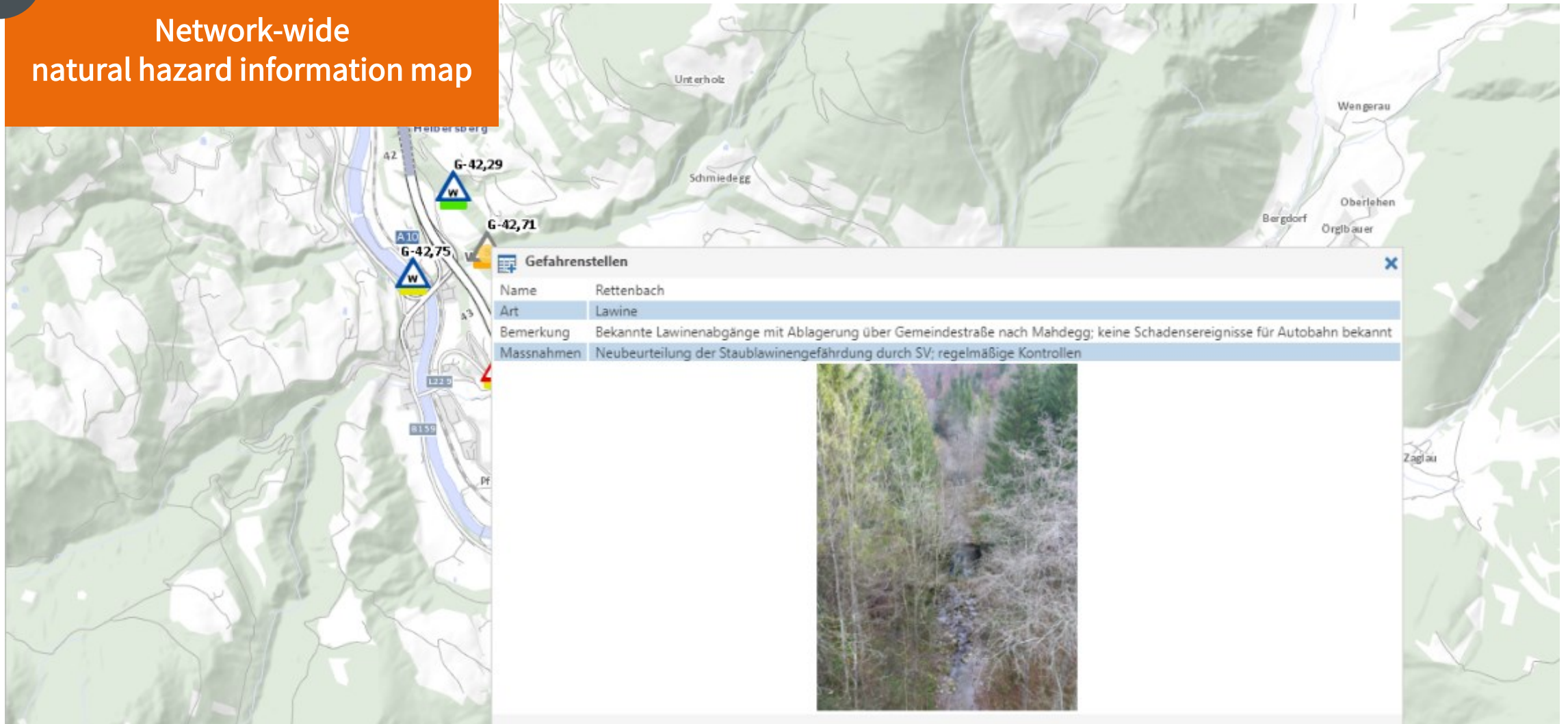
Network-wide
natural hazard information map



RISK-BASED NATURAL HAZARD MANAGEMENT

1

Network-wide
natural hazard information map

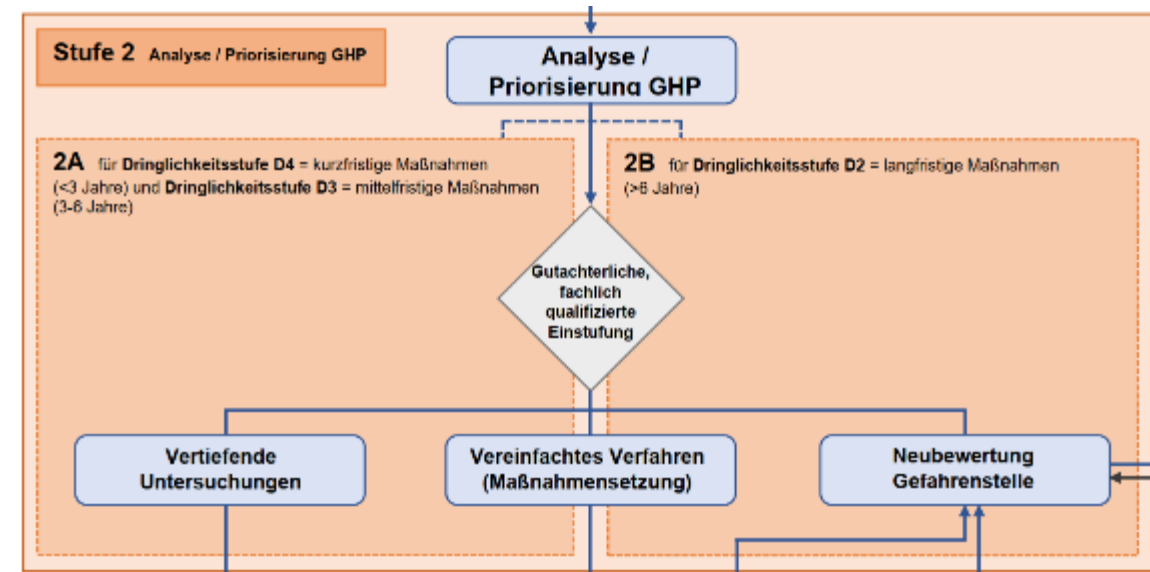


RISK-BASED NATURAL HAZARD MANAGEMENT

2

Priorization of hazards and measures Cost-effectiveness-assessment

- 📍 Expert opinion on specific natural hazard site
- 📍 Planning of measures and cost-effectiveness-assessment of available measures considering protective targets
- 📍 Risk assessment



RISK-BASED NATURAL HAZARD MANAGEMENT

3

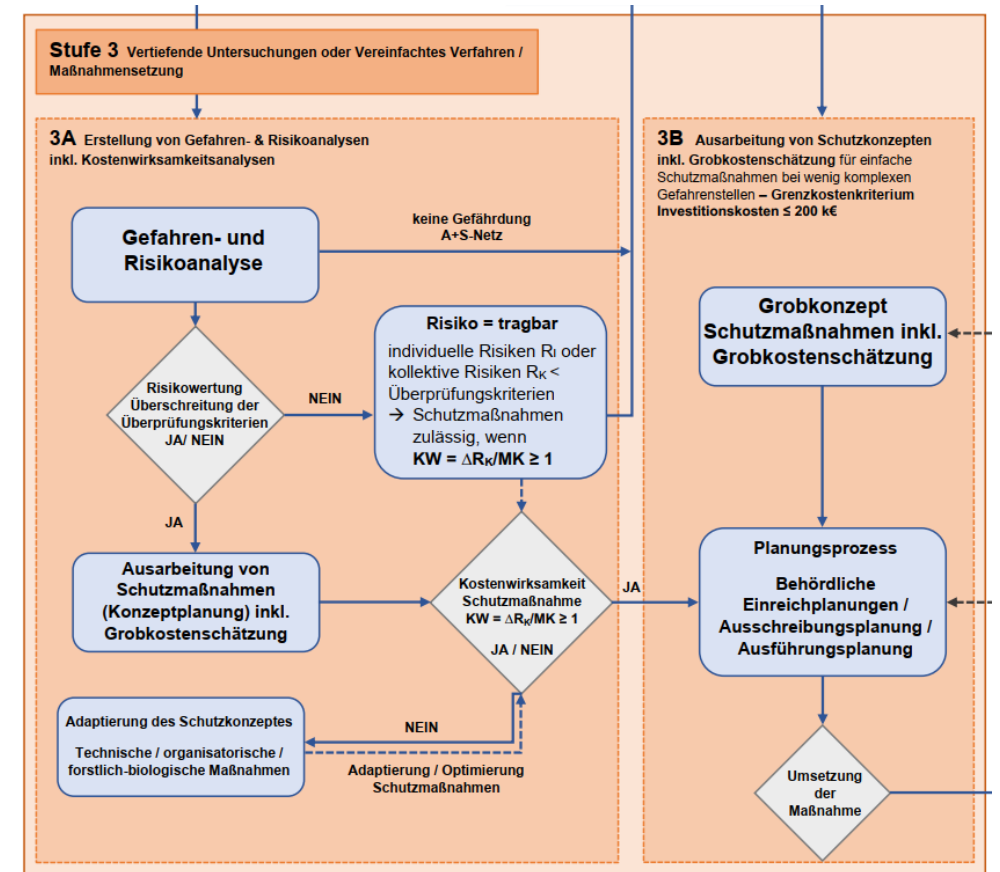
In-depth risk analysis for complex hazards & Realization of protective concepts

→ in depth risk analysis for complex hazards

Risik = Damage probability x Extent of Damage

Types of risk:

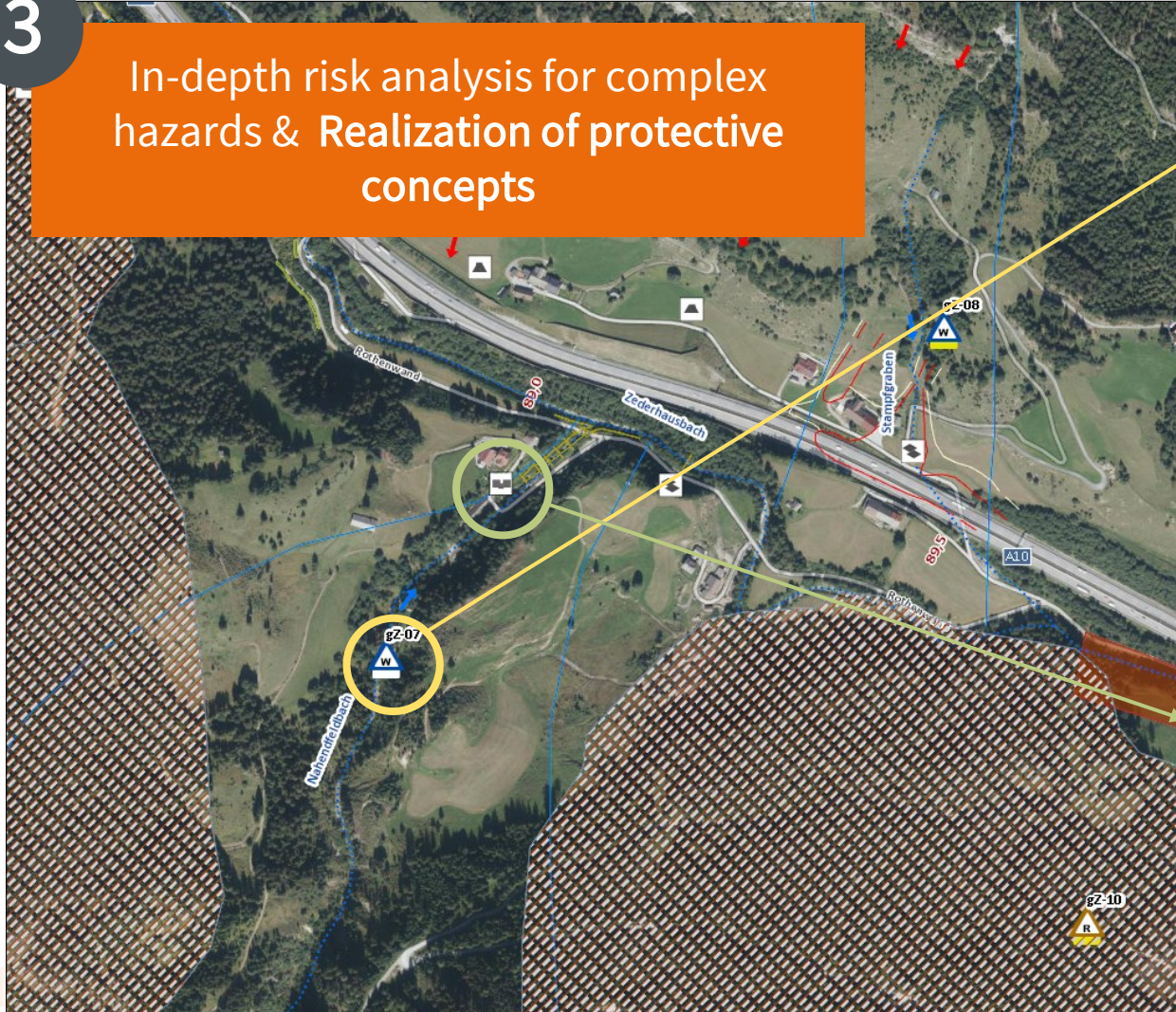
- (1) Collective people risk R_p [€/year]
- (2) Material risk R_s [€/year]
- (3) Availability risk R_v [€/year]
- (4) Individual personal risk R_i [# deaths / year]



RISK-BASED NATURAL HAZARD MANAGEMENT

3

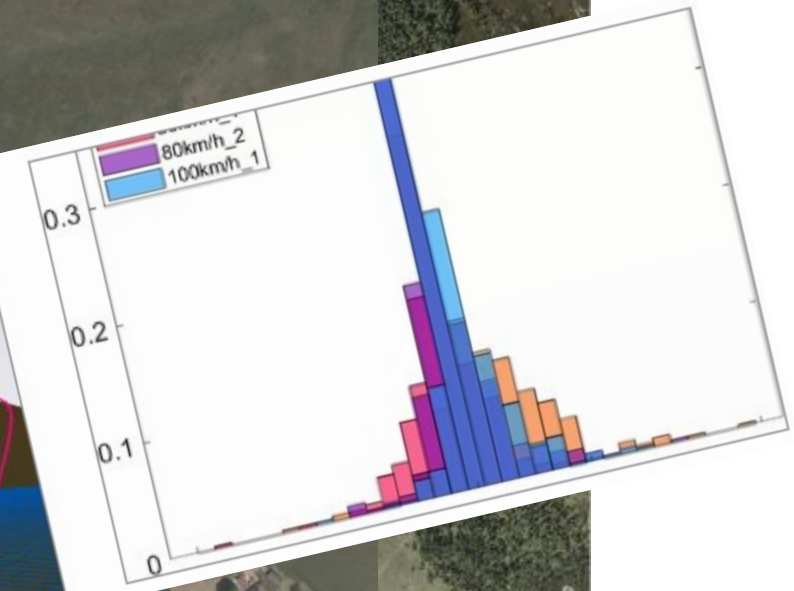
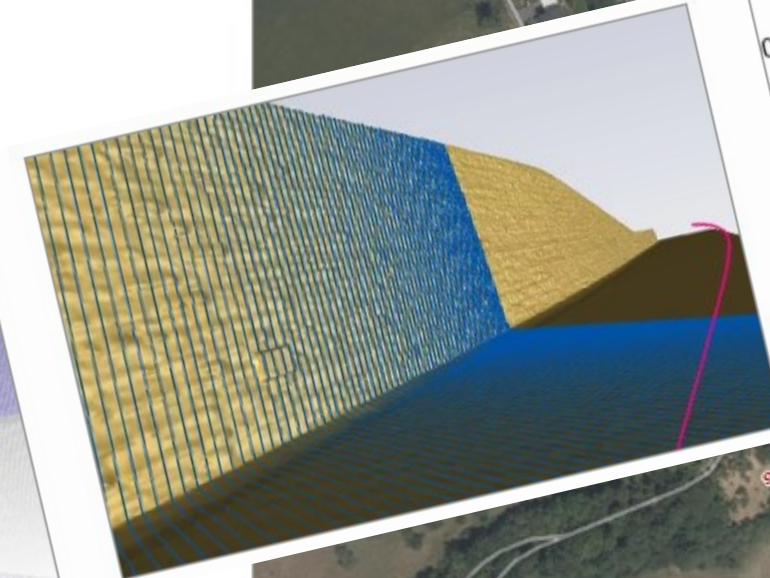
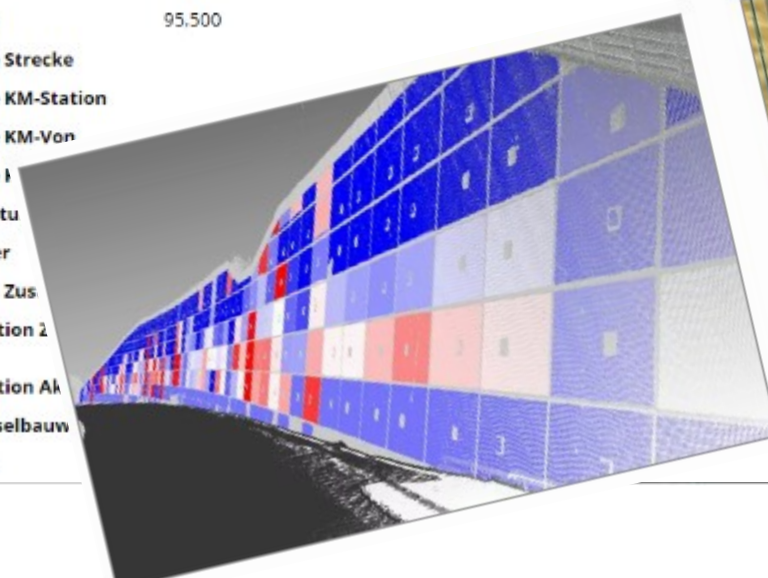
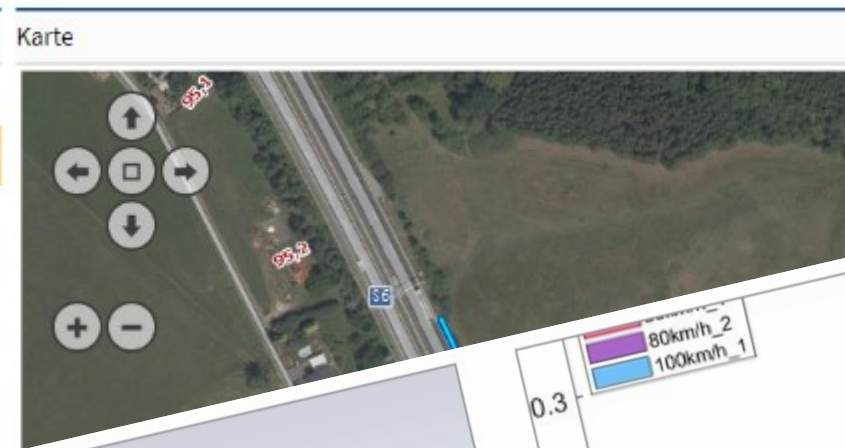
In-depth risk analysis for complex hazards & Realization of protective concepts



RISK-BASED NATURAL HAZARD MANAGEMENT

Detailansicht

| Objekt | Navigation |
|--|--|
| Assetklasse Stützbauwerk Objektklasse Ungeankerte Konstruktion Objektgruppe Objektgruppe SW-95,4, Stützwand ÜF Windischbergweg RfB. Wien Kurzbezeichnung SW-95,4/L Bezeichnung Stützwand ÜF Windischbergweg RfB. Wien Status Aktiv Strecke 506 Richtung 2 - KM-absteigend KM-Station 95,300 KM-Von 95,300 KM-Bis 95,500 Rampe Strecke Rampe KM-Station Rampe KM-Von Rampe l Verwalту Erhalter Person Zus Inspektion 2 keit Inspektion Ak Schlüsselbauw IMT-ID | SW-95,4, Stützwand ÜF Windischbergweg RfB. Wien SW-95,4/L, Stützwand ÜF Windischbergweg RfB. Wien |



THE ASFINAG NETWORK



JUST A HIGHWAY?

2,703

Protective Structures & Retaining Walls

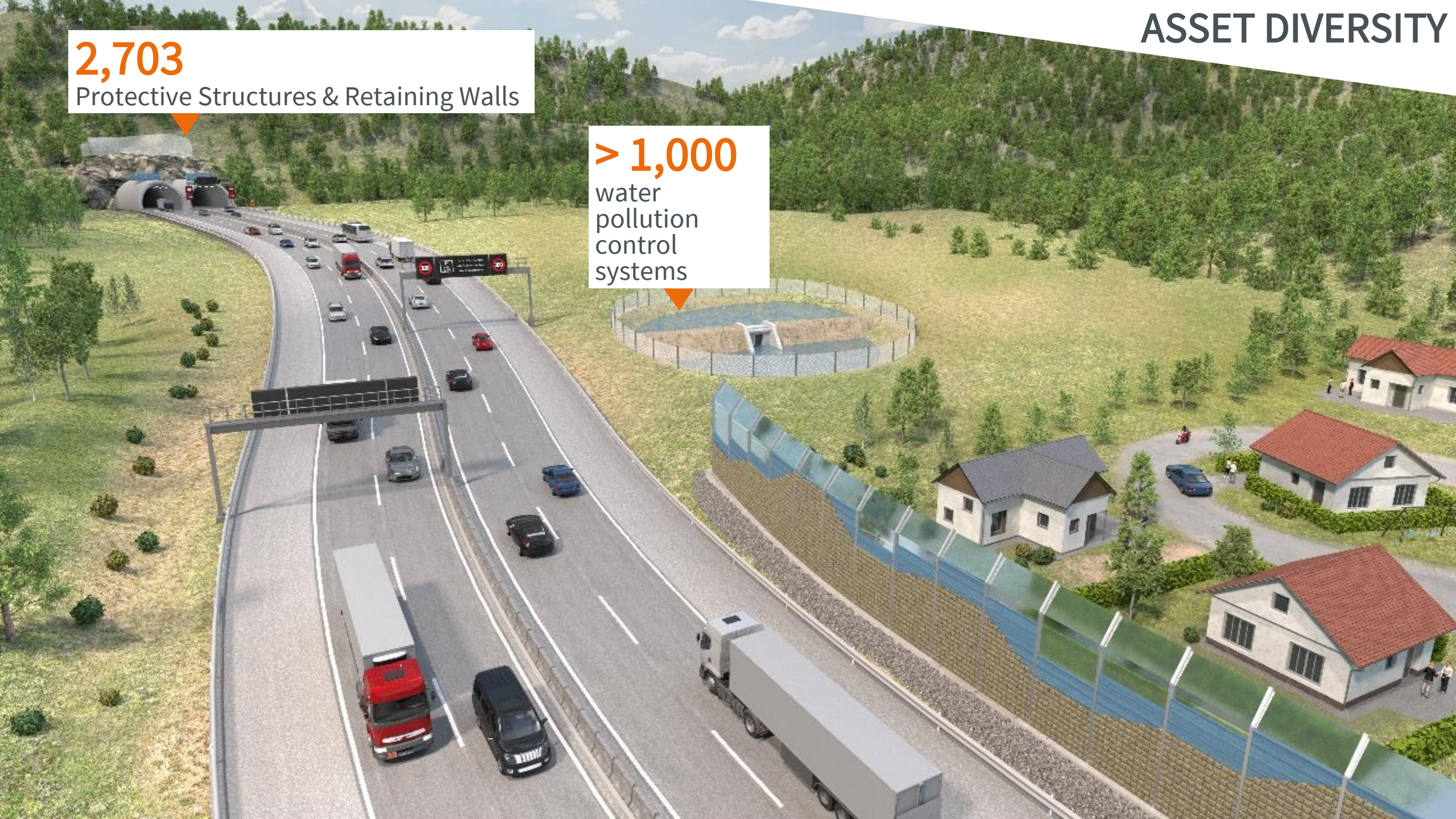


2,703

Protective Structures & Retaining Walls

> 1,000

water
pollution
control
systems



2,703

Protective Structures & Retaining Walls

> 1,000

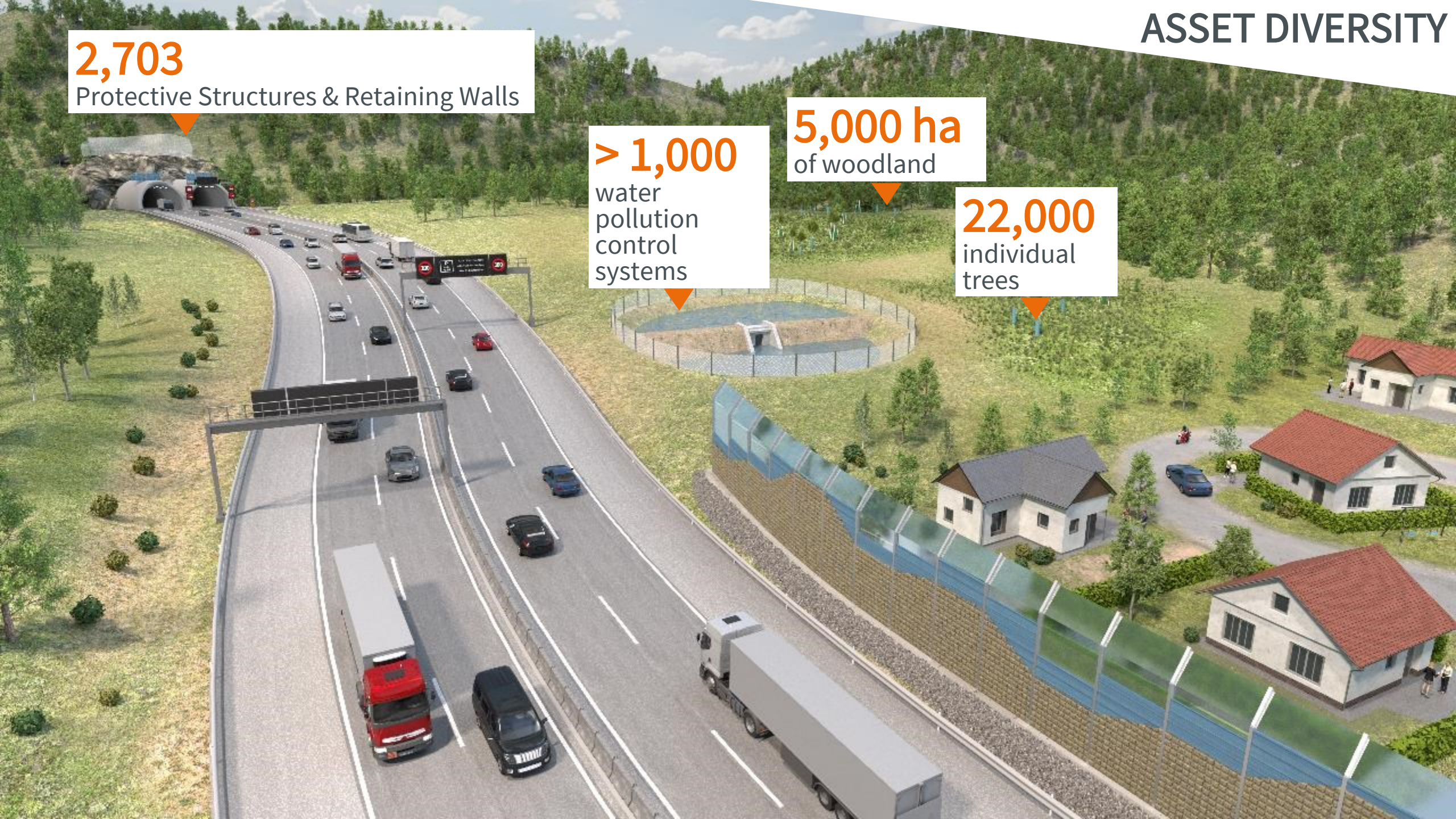
water
pollution
control
systems

5,000 ha

of woodland

22,000

individual
trees



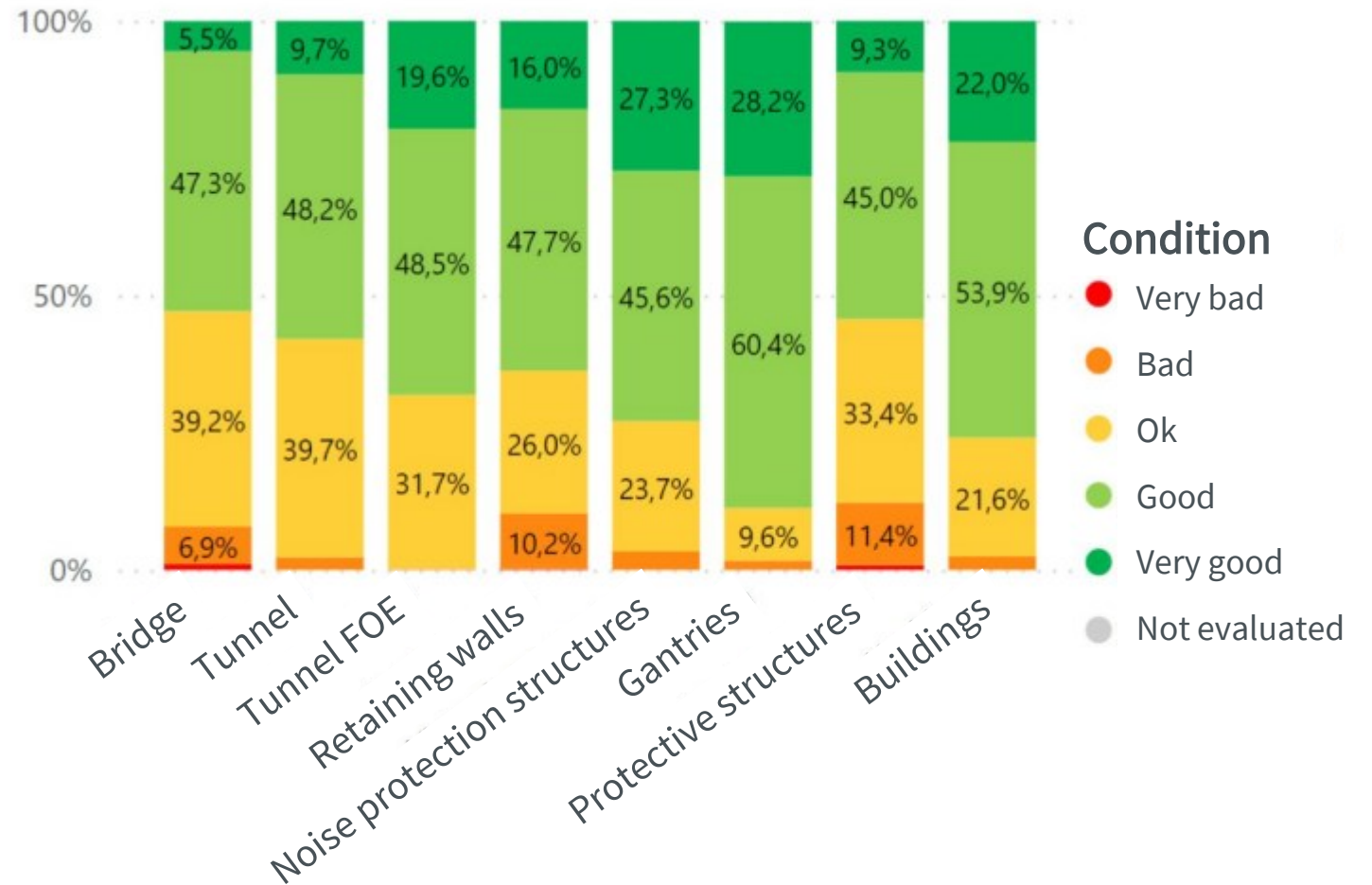
NATURAL HAZARD MANAGEMENT

4

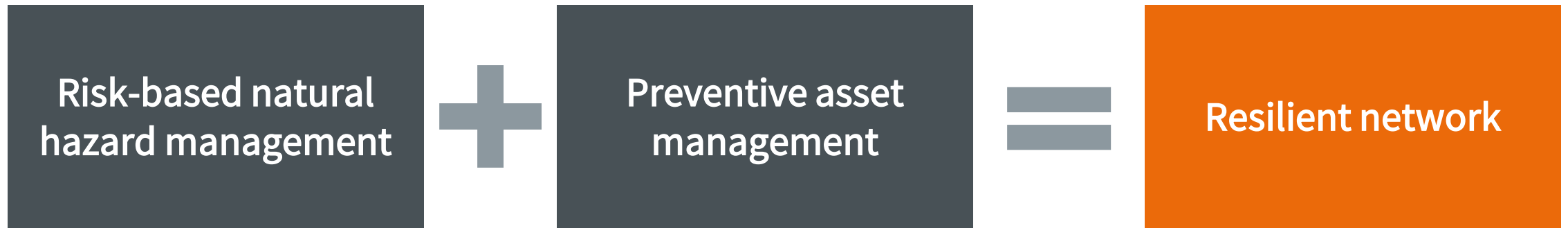
Monitoring & maintenance of protective structures

Keeping our assets in good condition

RESILIENT NETWORK



NATURAL HAZARD MANAGEMENT & RESILIENCE ?



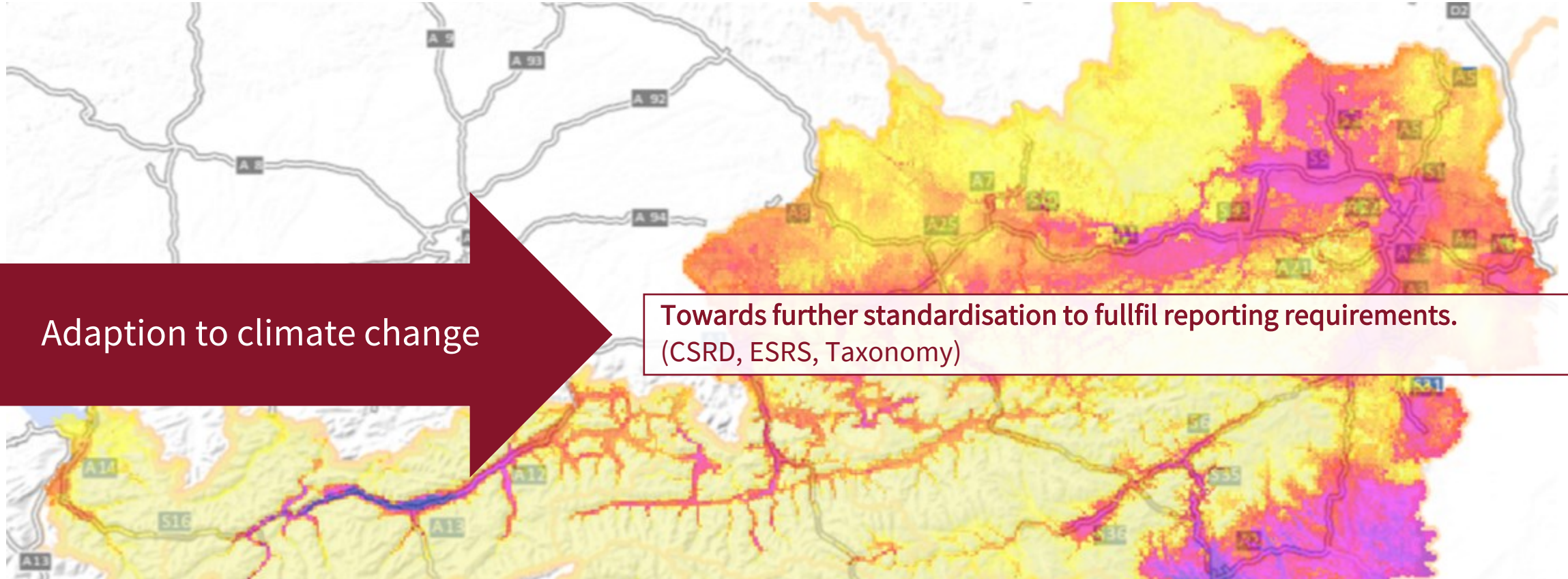


CLIMATE CHANGE ADAPTION



A|S|F|i|N|A|G

ADAPTATION TO CLIMATE CHANGE



Adaption to climate change

Towards further standardisation to fulfil reporting requirements.
(CSRD, ESRS, Taxonomy)

- GeoSphere Austria (ZAMG) will prepare the climate risk analysis for the whole network (implementation by spring 2024)
- Schedule for the realization and implementation of an ASFINAG-wide climate change adaptation strategy built on existing strategies (operational, natural hazards, asset management, etc.)

ADAPTATION TO CLIMATE CHANGE

MILESTONES



Development of a robust climate risk analysis

Implementation of climate risk maps in ASFINAG's internal GIS system according to classification of climate hazards (heat, wind, water, ...)

Adaptation of existing processes and development of necessary processes to prevent future climate risks

Monitoring of the vulnerability and support of the operational units in the development and implementation of measures

Publication of the results in the sustainability report/management report in accordance with the regulatory requirements

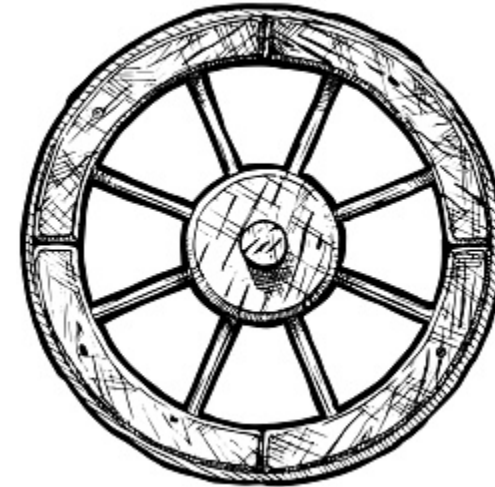
ADAPTATION TO CLIMATE CHANGE

WORKING CONCEPT

| | |
|---|--|
| Risk analysis and vulnerability assessment | Rockfall and windthrow were included into the existing climate risks (EU taxonomy) → learnings from past risks and events |
| Identification of measures | Avoidance of mismatches, identification of short-term and long-term measures, introduction of adaptation strategies in the areas: Traffic and Safety, Building & Maintaining, Parking and Resting |
| Priorization of measures | Classification of identified measures via cost-benefit analysis, urgency of action, strategic goals |
| Implementation of measures | to reduce the adverse effects of climate change on our company in the areas of infrastructure, people (employees & customers), nature and assets |
| Communication and information | Running of internal/external information campaigns Networking and knowledge transfer: internal and with external experts |
| Monitoring and verification | Embedding climate risks into ASFINAG risk management and project management, development of KPIs to evaluate the effectiveness of measures |
| Cooperation with stakeholders | Adaptation to climate change requires close cooperation between different stakeholders, such as public authorities, companies and civil society. ASFINAG will actively participate in the cooperation to ensure a coordinated approach |

“

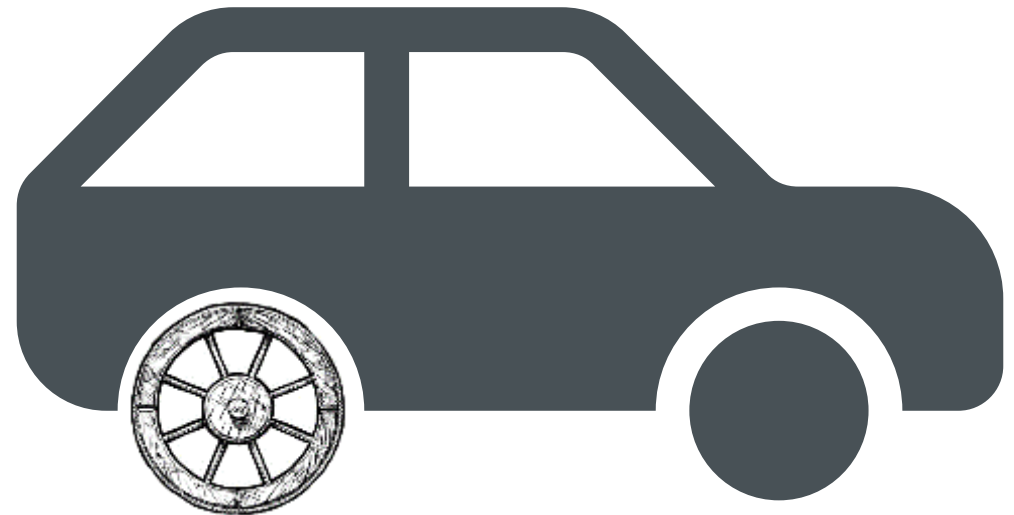
We don't need to
reinvent
the wheel...



“

...just
attach it to
new vehicle

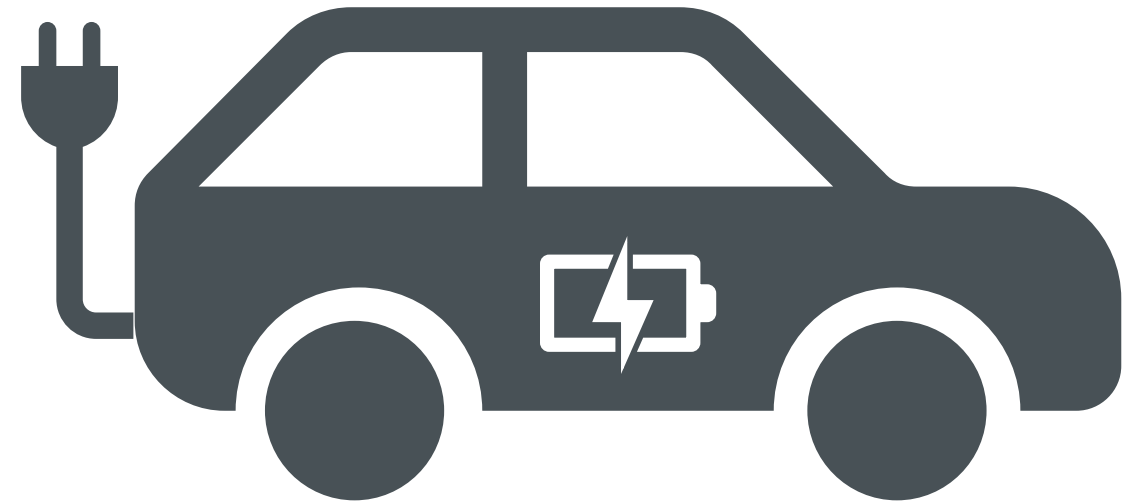
[Mark McCormack]



— We don't need to reinvent the wheel...

“

...just **strengthen** and
attach it to a **standardized**
new vehicle



[Sandra Ulrich]

QUESTIONS?
FEEL FREE TO REACH OUT!

Sandra Ulrich

Strategy Lead Asset Management

sandra.ulrich@asfinag.at

asfinag.at



A|S|I|F|i|N|A|I|G
GUTE FAHRT, ÖSTERREICH!