

Ecosystem-based Adaptation and Changemaking to Shape, Protect and Maintain the Resilience of Tomorrow's Forests



Tahamina Khanam



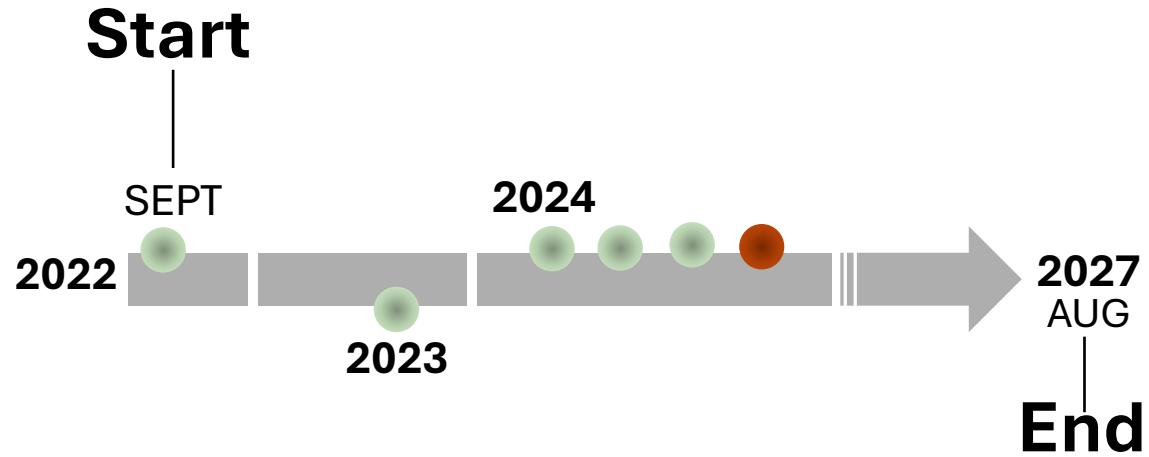
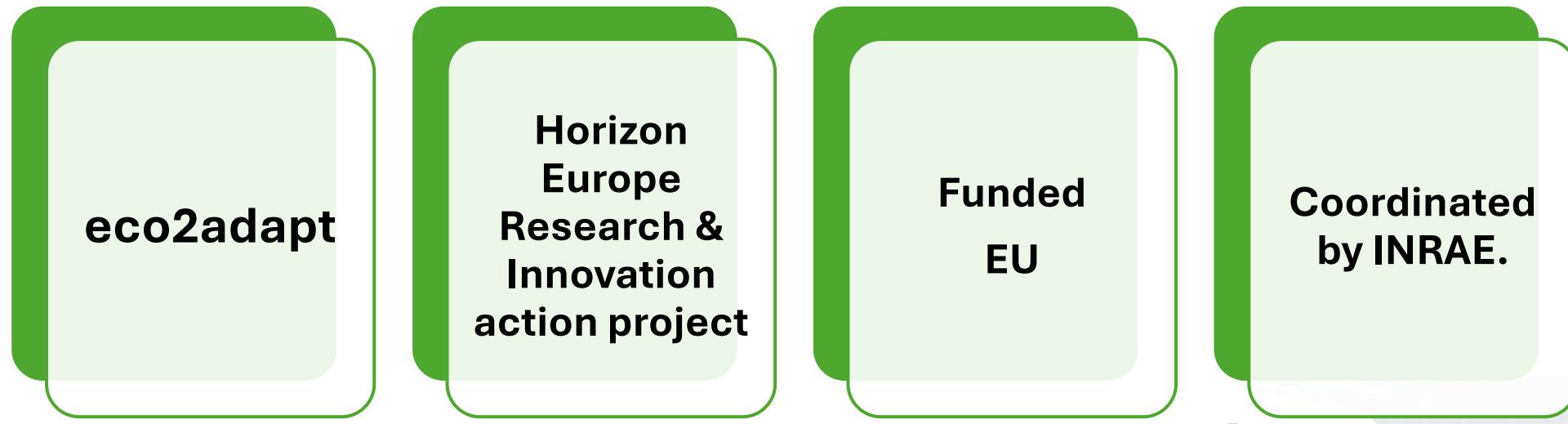
UNIVERSITY OF
EASTERN FINLAND



ACCC
CLEAN AIR. SAFE CLIMATE.



**Funded by
the European Union**



2024

e_{co2adapt} aims to provide solutions to

**combat the uncertain effects of climate change
and promote resilient forest ecosystems for
future generations.**



- 11 LLs and 4 associates
- 31 partners from 15 countries

Finland (North
Karelia)
UEF, FFC, EFI,
Bitcomp, Green
Estates

Germany
(Thuringia or
Harz mountains)
GCF

Germany
(Freiburg)
ALUFR, MPI,
UNIFI

Spain (Solsones)
CTFC

Switzerland
(Grisons)
ETHZ

France (Landes
Forest)
INRAE, INRAE-T,
CIRAD, IRD, UM,
PBN

France (French
Guiana)
ONF

Romania
(Iedera)
UNITBV

Serbia (Valjevo
and Lajkovac)
IMSI

Greece (Manina-
Xeromero
Forest)
AUA

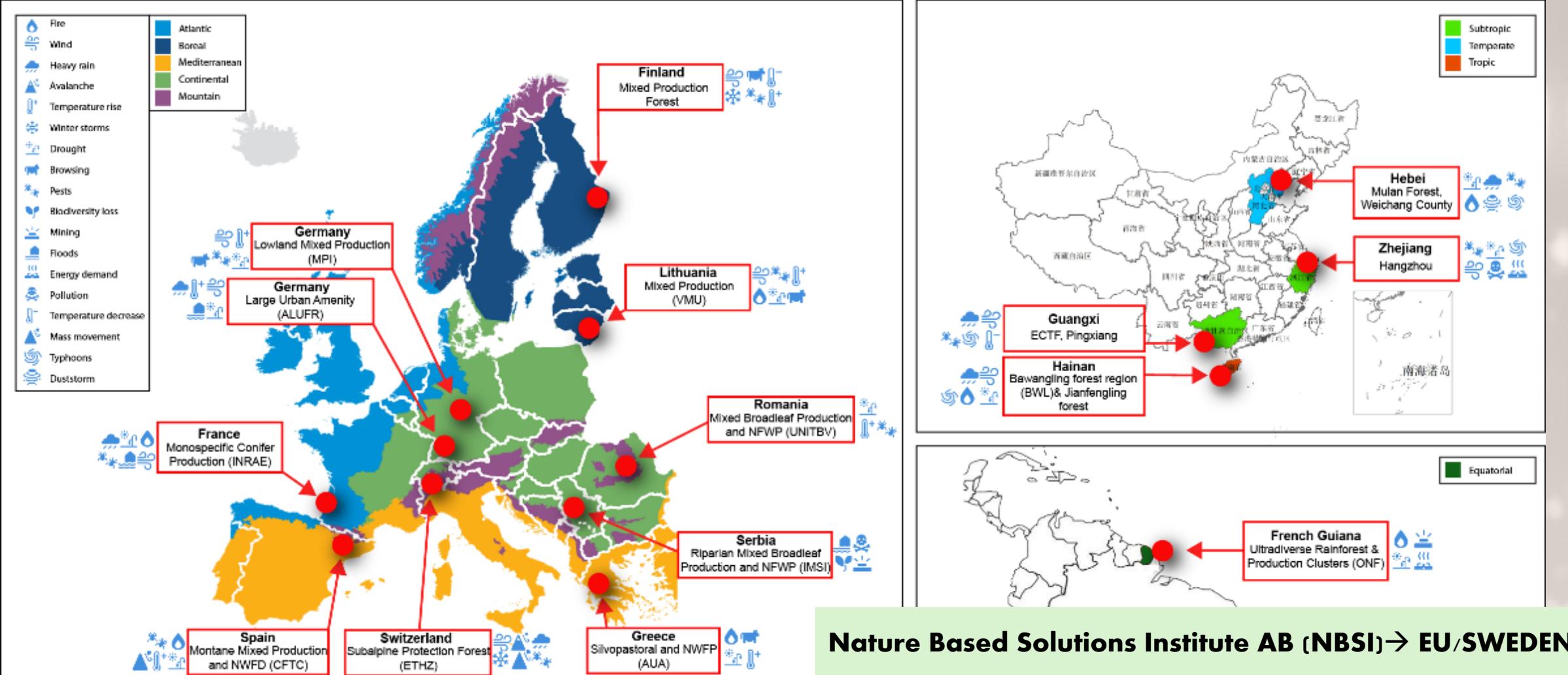
Lithuania
(Dzukija
National Park)
VMU

China (Hainan
Island)
PKU

China
(Pingxiang)
SCBG-CAS

China
(Mulanweichang
LL)
CAF, ICBR

China
(Hangzhou)
ZAFU



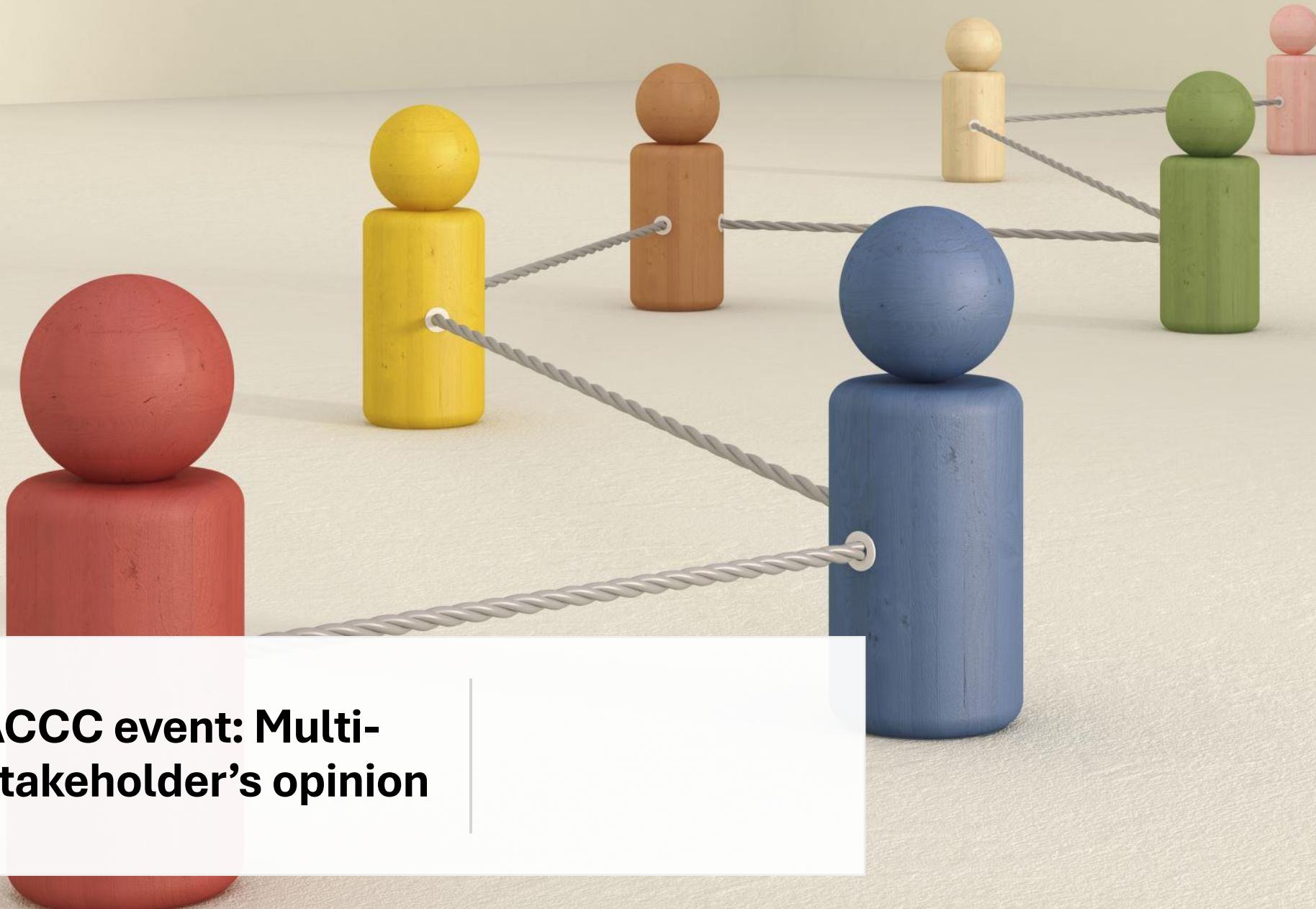
Nature Based Solutions Institute AB (NBSI) → EU/SWEDEN

Universita degli Studi di Firenze (UNIFI) → ITALY

InNovaSilva ApS (InNovaSilva) → DENMARK

ForestRe Limited (FORRE) → UK

| WP objective | Expected result | Responsible institution |
|--|---|-------------------------|
| wp1: Shaping a legacy for resilient forests | Improved & tailored climate adaptive local policies | Lead: UEF |
| wp2: Adaptation of decision Theatre technology | Increased climate-resilient forestry | Lead: GCF |
| wp3: Solid foundations for smart tools | Enhance social-ecological resilience and link with the United Nations Data Hub | Lead: IRD/UM |
| wp4: Refined models --> Multidimensional indices | Enhance social-ecological resilience and multifunctionality | Lead: ALUFR |
| wp5: Provide FAIR data | Examine vulnerability from the soil by using novel tool | Lead: AUA |
| wp6: Changemaking- new business models | Certification to protect forest resilience | Lead: EFI |



ACCC event: Multi-stakeholder's opinion

SPEAKERS



Dr. PANG Yong
Professor, CAF



Dr. Frank Berninger
Professor, UEF



Dr. Wending Huang
Green Estates oy



Minna Luoto
Project manager, FFC



Dr. Lei Wang
Professor, ZAFU

TOPICS to be covered by the SPEAKERS

1. Forest resilience evaluation and management at stand level using remote sensing technologies- Prof. Dr. Pang YONG, CAF
2. Adaptation in Finland, Trasformative or Incremental adaptation- Prof. Dr. Frank BERNINGER, UEF
3. Impactive Identification, Initiative and Eco-Resilience From Climate Change—A Questionnaire Approach- Dr. Wending HUANG and Dr. Kari TUOMELA, Green Estates Oy
4. Building resilient forest: Management practices to control climate change caused forest disturbances- Minna Luoto, FFC
5. System thinking bamboo for climate change mitigation , green development and sustainable communities-Prof. Dr. Lei Wang, ZAFU



PODIUM DISCUSSIONS





WHAT ARE THE THREATS TO FORESTRY....

Exploring Forest Stakeholders' Insights, Expertise, and Resilience Strategies: Navigating Threats and Fostering Sustainable Forests

Tahamina KHANAM^{a*}, Marina PERIS-LLOPIS^b, Mari SELKIMÄKI^b, Gediminas BRAZAITIS^f, Blas MOLA-YUDEGO^{b c}, Alexandru Lucian CURTU^e, Aureliu-Florin HĂLĂLIŞAN^e, Marc DJAHANGARD^j, Žaklina MARJANOVIC^g, Leena LESKINEN^d, Rasoul YOUSEFPOUR^{i,l}, Anastasia PANTERA^h, Gailene BRAZAITYTE^f, Lana KUKOBAT^g, Goran TRIVAN^g, Jo Van BRUSSELEN^k, Zhun MAOⁱ, Frank BERNINGER^a





Study area

The five living labs

- North Karelia, Finland
 - Kaunas, Lithuania
 - Brașov, Romania
 - Central Serbia and
 - Astakos, Greece
-
- North Karelia , Kaunas, and Astakos all have silvopastoral forests
 - Kaunas features diverse mosaic forest landscapes and
 - Belgrade/Central Serbia contains Alluvium forests
-
- North Karelia boasts production forests
 - Others.....

a) North Karelia

destruction_forests_by_heavy_machinery
 deduction_biological_diversity
 legislative_actions_eu
 cannonball_damage
 deer_population_abundance
 drainage_forest
 caused_temperatures
 loss_fires_early_flowering
 little_carbon_sinks_SNOW_no_frost
 spruce_growth_overregulations
 too_efficient_felling_trees
 deforestation
storms
pests
 failure_to_act_reform
 spruce_thinning
 caused_deer_of_forest_protection
 letterpress_pests_moose
 eu_decisions_climate_changes
 little_boron_fertilization
 bookworm_caterpillars
 sudden_weather_phenomena
 insufficient_care_young_forests
 increasing_continuous_cultivation
 diseases
 mgt
 decay_fir
 conservationists
 pest_damage_spruce

b) Kaunas

without_compensation_forest_own
 changes_wood_production_condit
 limited_farming_private_forest
 decay_ash_tree_too_emphasis_preserv
 dryning_norway_spruc_forest_disturb_shrinking_spruc
 litterabundance_diseas_reduction_groundwat
 reduction_firearea_fire
 pest
 forest_natural_habitat_loss
 forest_sanitary_condit
 forest_fel_factor_speci_abiot_storm
 temperatur
 typographic_damage_by_weevil_invasive_speci
 legislation_not_apply_changing_condit
 changes_trees_typ_land_use_chang
 uncoordinated_development_protect_decisions_government cheap_r

d) Central Serbia

climatic_chang
 insufficient_knowledg
 reduction_production_potential_habitat
 uncontrolled_log small_percentage_afforest
 unsustainable_exploit_excessive_exploit
 waste_isolated_mountain_reduction_groundwat
 quality_forest_fund
 pressure_other_sector_pestwaste_pollut
 corrupt_pract illegal_act land_use_chang
illegal_log
 game_change_water_soil_affect
 fire_storm_snow_air_pollut
 clear_cut temperatur_urban_dogmat
 disposal_sanitary_log
 populist_influences_misunderstand
 degradation_existing_stand
 lack_multidisciplinary_approach
 improper_management_wood_industri
 pollution_other_anthropogenic_impact
 reduction_precipitation_growing_season

e) Astakos

infrastructure_project_arbitrary_construct
 road_construct_unplanned_res_sit
 changes_forest_veget
 climate_chang_human_pressur
 drought_anthropogenic_act
 decay_fir unsustain_graz
 climate_chag_l_mgt
 pest_theft
fire
 poach_illegal_collection_flora
 bauxite_min
 land_use_chang_astyphilia
 illegal_log_uncontrolled_traff
 temperatur_visitor
 waste_pollut_seizur_urban_expans
 illegal_act
 reduction_mixed_forest_overconcentration_forest_biomass

c) Brasov

development_agricultur
 rejuvenation_large_surfac
 real_estate_expans
 poor_collabor_commun
 disappearance_woody_mass
 lack_educ_overregul
 natural_calam_tourism
 citizen_illegal_act
illegal_log
 pest
 hunt_waste_pollut
 climate_chang_real_est
 no_threat_fire
 lack_forestry_work
 legislation_not_adapt
 increased_demand_firewood
 extraction_valuable_trees_speci
 owner_not_receive_fair_compens

f) All living Labs

limited_farming_private_forest
 reduction_mixed_forest
 degradation_existing_stand
 disappearance_gam
 loss_quality_forest
 pressure_other_sector
land_use_chang
 temperatur_storm
 area_drought_fire
 illegal_act_pest
 storm_drought_fire
 pest_illegal_log
 climate_chang_unsustain_graz
 reduction_groundwat_bureaucraci
 waste_pollut_uncontrolled_log
 reduction_production_potential_habitat
 waste_isolated_mountain_too_efficient_felling_tre
 extraction_valuable_trees_speci

Image Khanam
Unpub.



1) DO WE REQUIRE A
SUBSTANTIAL,
TRANSFORMATIVE SHIFT IN
FORESTRY PRACTICES, OR
SHOULD WE CONTINUE BY
JUST MAKING ADJUSTMENTS?



2) HOW CAN WE MAINTAIN
ECOSYSTEM SERVICES UNDER
CLIMATE CHANGE? AND
WHICH ECOSYSTEM SERVICES
SHOULD WE PRIORITIZE?



3) WHAT DOES CLIMATE
CHANGE MEAN FOR FOREST
RESEARCH IN EUROPE AND
CHINA? AND WHAT CRITICAL
KNOWLEDGE GAPS MUST BE
ADDRESSED?



4) HOW CAN WE CERTIFY
CLIMATE RESILIENT FORESTRY
TO STAKEHOLDERS
(CONSUMERS, POLICYMAKERS
ETC.)?

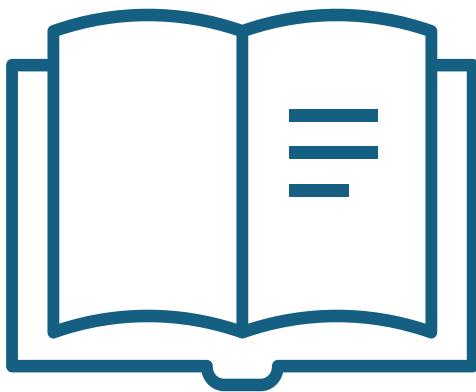


5) SHOULD ADAPTATION TO
CLIMATE CHANGE BE
INCLUDED IN FOREST
CERTIFICATION OR FOREST
LEGISLATION?

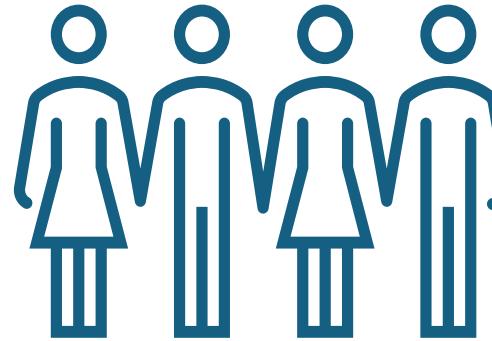
[https://link.webropolsurveys.com/S/3
233EB25F3FE1664](https://link.webropolsurveys.com/S/3233EB25F3FE1664)



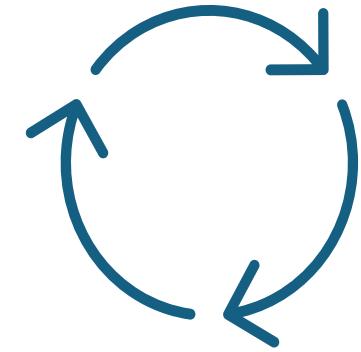
Model development



Research



Podium discussions



Summary

Kiitos

Tahamina Khanam

+3580449738033

Tahamina.khanam@uef.fi



Funded by
the European Union



Thank you!



Funded by
the European Union

Tahamina.khanam@uef.fi

Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement - C.I.R.A.D. EPIC (CIRAD)
ITA-Suomen Yliopisto - University of Eastern Finland (UEF)
GCF - Global Climate Forum e.V. (GCF)
European Forest Institute (EFI)
Institut de Recherche pour le Developpement (IRD)
Université de Montpellier (UM)
Albert-Ludwigs-Universitaet Freiburg (ALUFR)
Geponiko Panepistimion Athinon - Agricultural University of Athens (AUA)
Nature Based Solutions Institute AB (NBSI)
Bitcomp Oy (Bitcomp)
Universita degli Studi di Firenze (UNIFI)
InNovaSilva ApS (InNovaSilva)
ForestRe Limited (FORRE)
Institute for multidisciplinary Research, University of Belgrade (IMSI)
Suomen metsäkeskus – Finish Forest Center (FFC)
Vytauto Didziojo Universitetas – Vytautas Magnus University (VMU)
Max-Planck-Gesellschaft Zur Forderung Der Wissenschaften Ev (MPI)
Consorci Centre De Ciencia I Tecnologia Forestal De Catalunya (CTFC)
Universitatea Transilvania Din Brasov (UNITBV)
INRAE Transfert SAS (INRAE-T)
Office National Des Forets (ONF)
Green Estates Oy (Green Estates)
NEPCon FMBA – Preferred by Nature (PBN)
Eidgenoessische Technische Hochschule Zuerich (ETHZ)
Chinese Academy of Forestry (CAF)
International Centre for Bamboo and Rattan (ICBR)
Zhejiang Agricultural and Forestry University (ZAFU)
South China Botanical Garden of the Chinese Academy of Sciences (SCBG-CAS)
Peking University (PKU)