PLAN D'ACTION CLIMAT 2.0

ALPENKONVENTION
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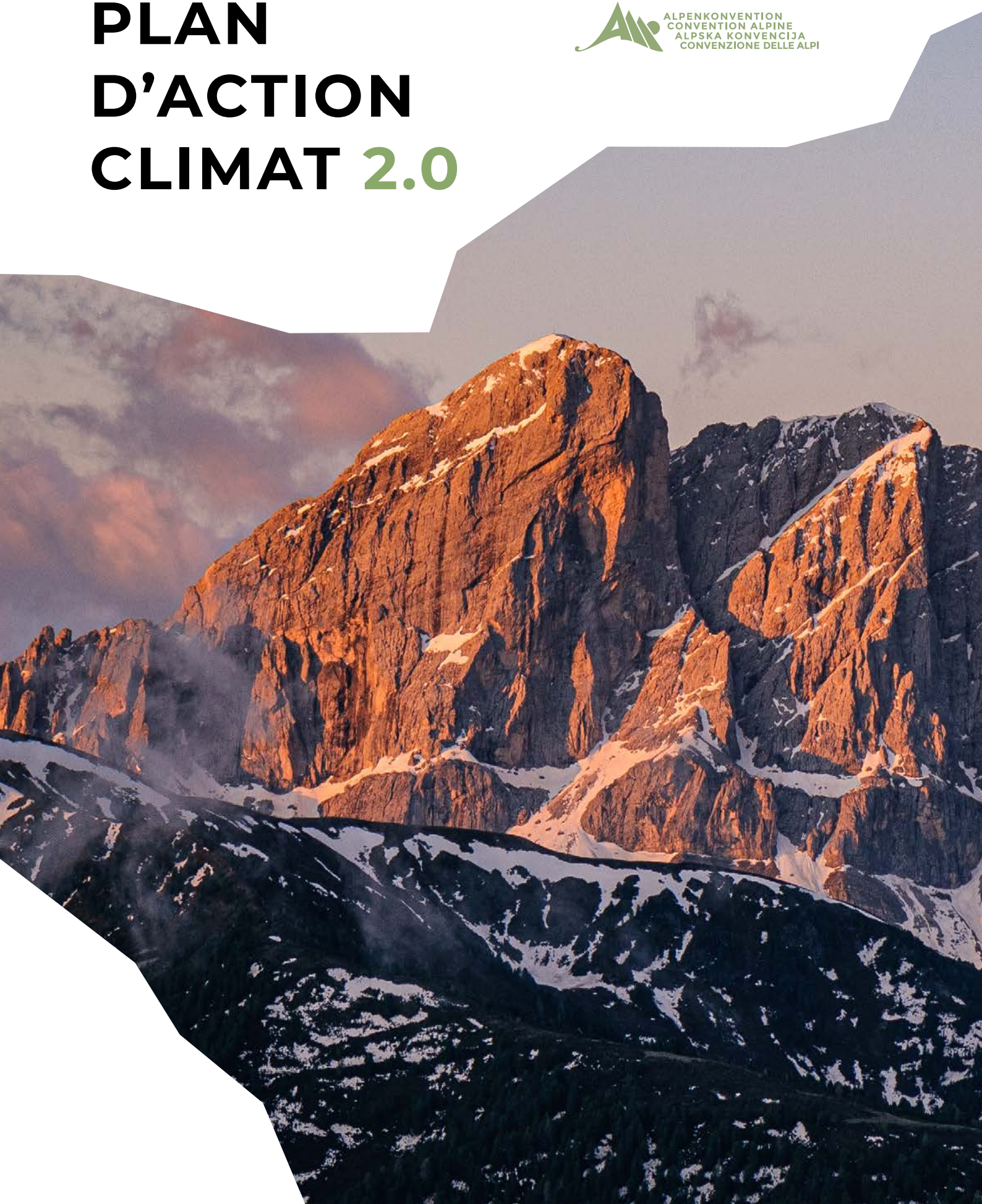
CONVENZIONE DELLE ALPI



MENTIONS LÉGALES

Secrétariat permanent de la Convention alpine

Herzog-Friedrich-Straße 15
6020 Innsbruck
Autriche

Bureau annexe

Viale Druso / Drususallee 1
39100 Bolzano / Bozen
Italie

Le Plan d'action climat 2.0 a été élaboré par le Comité consultatif sur le climat alpin de la Convention alpine sur la base d'une ébauche préparée par Helen Lückge (Climonomics), avec des contributions des Parties contractantes, des Observateurs, des Organismes de travail thématiques, du Secrétariat permanent de la Convention alpine et d'autres expertes et experts. Les travaux du Comité consultatif sur le climat alpin ont été financés par l'Autriche, l'Allemagne et la Suisse.

www.alpineclimate2050.org
info@alpineclimate2050.org

Traductions : ALPS-LaRete
Graphisme : Mauro Sutter Design
Impression: Sterndruck, Fügen, Autriche
Photographies : Moritz Kaser (photo de couverture), Hannes Schlosser (transports), Alessandro Sciascia (énergie), Antonino Ferigo (tourisme), Giada Stefanoni (risques naturels), Andreas Hollinger (eau), Jan Skobe (aménagement du territoire), Lara Hochreiter (sols), Anže Jenko (agriculture de montagne), Thomas Engl (forêts de montagne), Michelle Bommassar (écosystèmes et biodiversité).

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PEFC
PEFC/06-39-278

PRÉFACE

« L'espoir n'est pas une stratégie. « Vince Lombardi, source inconnue.

Nous, les soussignés, souscrivons pleinement à cette citation – même si nous ne nous contentons pas d'espérer mais comptons plutôt sur des idées et des solutions innovantes pour lutter contre le changement climatique ! Pour le démontrer, le Système alpin d'objectifs climat 2050 et le Plan d'action climat 2.0 ont été élaborés dans le cadre d'une stratégie plus large pour des Alpes neutres pour le climat et résilientes au changement climatique à l'horizon 2050.

Le changement climatique exige une action immédiate dans tous les secteurs, notamment l'énergie, les transports, l'agriculture de montagne, le tourisme, l'aménagement du territoire et les sols, pour n'en citer que quelques-uns. Le Comité consultatif sur le climat alpin (*Alpine Climate Board*, ACB), qui a pris de l'élan grâce à l'adoption du Système alpin d'objectifs climat 2050 et du Plan d'action climat 2.0 par les Conférences alpines de 2019 et 2020, est maintenant prêt à passer à la phase de mise en œuvre.

L'ACB a développé 30 parcours de mise en œuvre pour dix secteurs différents, qui sont disponibles sur alpineclimate2050.org et alpconv.org. Les pages suivantes fournissent des informations sur les parcours considérés comme prioritaires par les ministres des États alpins.

Le moment est venu d'unir nos forces et de prendre ensemble des mesures concrètes pour mettre en œuvre nos objectifs climatiques ! L'établissement de partenariats solides et efficaces sera la clé d'une action climatique ambitieuse, en particulier dans les Alpes avec leurs défis et caractéristiques spécifiques. En outre, nous continuerons à travailler en étroite collaboration avec tous les partenaires de la famille de la Convention alpine et au-delà afin de stimuler une action rapide dans la mise en œuvre de notre stratégie.

Alenka Smerkolj, Secrétaire générale de la Convention alpine

Helmut Hojesky, Président du Comité consultatif sur le climat alpin de la Convention alpine

Silvia Jost, Présidente du Comité permanent de la Conférence alpine 2021-2022

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1. Introduction : contexte général & objectifs

Contexte général : les activités de la Convention alpine sur le changement climatique de 2006 à 2019[1]

Le changement climatique se manifeste plus rapidement dans les Alpes et y a un impact plus important que dans les autres régions européennes. Les températures moyennes augmentent presque deux fois plus vite dans la région alpine que dans les régions environnantes, et les impacts du changement climatique tels que la fréquence accrue des événements météorologiques extrêmes et la recrudescence des risques naturels affectent la société et l'économie des Alpes de manière disproportionnée. Dans le même temps, les Alpes renferment de nombreuses sources d'émissions, notamment dans les transports, les bâtiments et le tourisme, et ont donc un potentiel significatif pour devenir une région modèle en matière de décarbonisation intelligente. Sachant que le changement climatique ne s'arrête pas aux frontières nationales et que de nombreuses stratégies d'atténuation et d'adaptation nécessitent des approches coordonnées, les pays alpins ont uni leurs forces dans le cadre de la Convention alpine.

Pour renforcer leur coopération, les Parties contractantes de la Convention alpine ont adopté dès 2006 une Déclaration sur le changement climatique. Celle-ci a été complétée en 2009 par un Plan d'action sur le changement climatique, qui a identifié 24 objectifs et recommandé des mesures concrètes dans huit secteurs différents, ainsi qu'en matière de recherche et de sensibilisation du public. De nombreuses tâches dévolues aux organes de la Convention alpine au cours des années suivantes ont été définies sur cette base. En 2016, la XIVe Conférence alpine a identifié « Adopter des mesures de lutte contre le changement climatique » comme l'une des six priorités de son Programme de travail pluriannuel (PTP/MAP) pour la période 2017-2022, et a décidé d'instituer un Comité consultatif sur le climat alpin (*Alpine Climate Board*, ACB) afin de regrouper toutes les activités menées dans le cadre de la Convention alpine en matière d'atténuation et d'adaptation au changement climatique. L'ACB, composé de représentants et représentantes de tous les États alpins et de nombreuses organisations observatrices de la Convention alpine, a commencé ses activités début 2017.

Toutes les activités de l'ACB sont réalisées sous l'égide du processus de la CCNUCC et de l'Accord de Paris, des Objectifs de développement durable (ODD), de la législation européenne relative au climat, en particulier la loi européenne sur le climat, qui fixe le cadre d'une Europe neutre pour le climat à l'horizon 2050, ainsi que de la stratégie d'adaptation de l'UE. De manière générale, les activités de l'ACB s'inscrivent dans le cadre juridique de la Convention alpine, avec ses protocoles et décisions et leurs objectifs et cibles spécifiques.

L'ACB a franchi une étape importante avec l'élaboration du **Système alpin d'objectifs climat 2050**. Ce Système se compose principalement d'objectifs qualitatifs, mais vérifiables, à l'horizon 2050, et vise à renforcer la valeur ajoutée de la coopération alpine en matière d'atténuation et d'adaptation au changement climatique (approche intégrée). Son objectif principal est la transformation des Alpes en une région neutre pour le climat et résiliente au changement climatique. Le Système alpin d'objectifs climat identifie dans un premier temps les principes généraux guidant ce processus de transformation. Il suit ensuite une approche sectorielle, et définit des cibles concrètes dans dix secteurs d'activité de la Convention alpine, complétés par deux domaines d'actions transversaux/horizontaux. La XVe Conférence alpine a adopté le Système alpin d'objectifs climat 2050 en avril 2019. Elle a également chargé l'ACB de le rendre opérationnel et d'actualiser le Plan d'action climat de 2009.

[1] Toute la documentation correspondante est disponible sur www.alpconv.org.

Objectifs du Plan d'action climat 2.0 et approche

Le Plan d'action climat 2.0 a été élaboré par l'ACB au cours de la période de travail 2019-2020, et identifie des mesures spécifiques prioritaires destinées à mettre en œuvre le Système alpin d'objectifs climat 2050 dans les dix secteurs d'activité. Les thèmes horizontaux (« action municipale » et « recherche et développement ») sont intégrés dans les propositions sectorielles. Le Plan d'action 2.0 se concentre sur l'horizon à moyen terme (les cinq à dix prochaines années). Il propose des parcours de mise en œuvre détaillés, qui sont sur le point d'être lancés ou qui pourront l'être au cours des deux prochaines années, pour être développés progressivement jusqu'en 2030.

Les parcours de mise en œuvre sont au cœur du Plan d'action climat 2.0 : l'approche par parcours assure une combinaison et un séquençage intelligents des mesures, et identifie des mesures renforçant mutuellement leurs impacts. Tous les parcours de mise en œuvre ont été élaborés dans le cadre d'une **approche impliquant les parties prenantes**, qui intègre les contributions et les idées exprimées par divers groupes de parties prenantes au cours d'ateliers, de consultations écrites et d'entretiens avec des experts. Les Organismes de travail thématiques de la Convention alpine ont été étroitement impliqués dans le processus, et continueront à jouer un rôle important dans la mise en œuvre des parcours.

Grâce à la participation de représentantes et représentants de tous les États alpins, le Plan d'action climat 2.0 et les parcours de mise en œuvre sur lesquels il repose tiennent compte des **programmes et mesures régionaux, nationaux et transnationaux** existants mis en œuvre dans les différents pays alpins. Par ailleurs, les bonnes pratiques développées par les organisations observatrices et d'autres parties prenantes concernées ont été prises en compte[2]. L'objectif du Plan d'action climat 2.0 n'est pas de faire double emploi avec les activités en cours. Il vise au contraire à assurer des synergies entre les différentes activités et à combler les lacunes, en particulier en matière d'actions transfrontalières.

L'ACB a élaboré entre deux et quatre parcours de mise en œuvre pour chaque secteur, soit 30 parcours au total. La version complète, contenant tous les parcours de mise en œuvre en langue anglaise, est disponible en ligne[3]. Un processus d'évaluation mené au sein de l'ACB a ensuite conduit à l'identification des parcours prioritaires, à partir de quatre critères de sélection :

1. Pertinence pour l'ensemble des Alpes et interface directe avec la Convention alpine
2. Caractère transformateur
3. Pertinence politique à court terme (soutien des décideurs politiques actuels)
4. Faisabilité de la mise en œuvre à court terme.

Sur la base de ces critères, 16 parcours prioritaires ont été identifiés. Ils sont au cœur du présent Plan d'action climat 2.0.

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[2] Les programmes et mesures mis en œuvre dans les pays alpins ainsi que les bonnes pratiques développées par les organisations observatrices et d'autres parties prenantes sont résumés dans l'inventaire global (Stock-taking report) publié par l'ACB (https://www.alpconv.org/fileadmin/user_upload/Organization/TWB/ACB/ACB_Stock-taking_report_2019.pdf). Une première version mise à jour de ce rapport a été publiée comme document de référence pour la XVe Conférence alpine ; une mise à jour sera élaborée en 2021 pour servir de base aux activités futures de l'ACB. Par ailleurs, les fiches de synthèse détaillant les différents parcours de mise en œuvre qui constituent la base du Plan d'action climat 2.0 comprennent une section sur les activités existantes pertinentes, les bonnes pratiques et les points de départ possibles. Le Plan d'action climat 2.0 lui-même ne contient donc aucune information supplémentaire sur les bonnes pratiques.

3 www.alpconv.org/fr/home/themes/changement-climatique et www.alpineclimate2050.org.

Intégrer le Plan d'action climat 2.0 dans les efforts de relance post-COVID-19

Depuis le début de l'année 2020, le monde est frappé de plein fouet par la pandémie de COVID-19, qui constitue une grave menace pour la santé et la vie des populations, y compris dans la région alpine. En raison des mesures de confinement, la pandémie a également eu des répercussions économiques majeures. L'économie mondiale est confrontée à la menace d'une récession, avec un taux de chômage élevé et de nombreuses personnes en situation de détresse. Certains secteurs particulièrement importants pour l'économie des régions alpines, en particulier le tourisme, mais aussi tous les secteurs qui lui sont liés, ont été sévèrement touchés par le confinement initial et les restrictions en cours (par exemple en matière de voyages et d'organisation d'événements culturels et sportifs de grande envergure). D'autre part, certaines avancées qui avaient connu un développement très dynamique au cours des mois précédents vont être confrontées à de nouveaux défis liés à la pandémie de COVID-19 (les solutions de mobilité partagée sont par exemple moins attrayantes en période de pandémie).

La crise du COVID-19 offre de nombreuses opportunités pour le Plan d'action climat 2.0, en particulier parce que les programmes de relance mis en place pour stimuler l'économie européenne à moyen et long terme constituent des sources de financement importantes. L'approche de la « relance verte » offre un tremplin pour de nombreuses mesures proposées dans le Plan d'action climat 2.0. De telles synergies sont mises en lumière dans le présent Plan d'action climat 2.0. Par ailleurs, les mesures pour lesquelles les programmes de relance doivent être élaborés et mis en œuvre avec soin afin d'éviter tout effet de verrouillage indésirable ont été soulignées.

Structure du Plan d'action climat 2.0 – « parcours prioritaires » et réservoir d'idées

Le Plan d'action climat 2.0 fournit des informations détaillées sur les **parcours prioritaires** pour chacun des dix secteurs d'activité, avec une introduction sur les défis du secteur concerné, les objectifs correspondants du Plan d'action climat 2.0 et un bref aperçu des étapes concrètes. Ces parcours prioritaires devraient être repris par la Convention alpine, éventuellement par l'intermédiaire des Parties contractantes, des différents Organismes de travail thématiques de la Convention alpine, des organisations observatrices et d'autres parties prenantes intéressées. L'ACB guidera leur mise en œuvre effective. Il soutiendra et suivra attentivement le processus.

Le Plan d'action climat 2.0 contient en outre des propositions spécifiques sur les actions transversales à mener au niveau de la Convention alpine, notamment l'intégration du Plan d'action climat 2.0 dans le cadre plus large de la politique climatique ou la gouvernance des partenariats de mise en œuvre et leur suivi. Il définit également les éléments d'une stratégie de communication.

Enfin, le Plan d'action climat 2.0 décrit le processus et les responsabilités de la mise en œuvre.
Le Plan d'action climat 2.0 donne en annexe de sa version complète les détails sur les 16 parcours prioritaires et les 14 autres parcours de mise en œuvre. Ils constituent un réservoir d'idées qui permettront de développer des activités complémentaires pour la transition vers des Alpes neutres pour le climat et résilientes au changement climatique à l'horizon 2050.

2. Priorités pour l'action climatique – définition des activités pour les différents secteurs du Système alpin d'objectifs climat 2050

Le secteur des **transports** est l'un des principaux émetteurs de CO_2 dans les Alpes ; la mise en place d'une stratégie commune de transfert modal et de décarbonisation ainsi que l'adoption d'une approche coordonnée pour l'intégration de solutions de mobilité alternatives sont identifiées comme des actions prioritaires.

Réaliser la transition énergétique dans les Alpes exige des solutions sur mesure soutenues par un réseau de coordinateurs **Énergie** régionaux et par des actions pilotes sur les modes de vie et les modèles d'entreprise neutres pour le climat.

Le **tourisme** en tant qu'activité économique clé et interface avec d'autres secteurs, nécessite une coordination plus étroite des stratégies et des outils afin de gérer la transformation vers la neutralité climatique et la résilience au changement climatique.

Les **risques naturels** ne s'arrêtent pas aux frontières régionales ou nationales et nécessitent donc une approche commune de la gestion des risques pour faire face aux risques transfrontaliers.

Les réseaux hydrographiques des Alpes sont fortement imbriqués au-delà des frontières et exigent une approche à l'échelle alpine pour une gestion de l'**eau** résistante au climat, incluant la mise en place d'un plan de gestion intégrée de la sécheresse.

Les structures spatiales spécifiques des Alpes exigent des approches sur mesure reposant sur un concept alpin d'**aménagement du territoire** pour l'action climatique.

Les **sols** alpins sont confrontés à de multiples défis liés au changement climatique et exigent un cadre commun pour préserver la qualité et la quantité des sols.

Les agricultrices et agriculteurs des Alpes démontrent des approches visant à décarboniser l'**agriculture** en améliorant les techniques de l'agriculture biologique et neutre pour le climat et ainsi que les chaînes de valeur locales.

Les **forêts** jouent un rôle « multitâches » pour des Alpes neutres pour le climat et résilientes, mais seulement si les techniques de gestion et la conversion des forêts sont accélérées.

Les **écosystèmes** alpins sont un point chaud de la **biodiversité** mondiale, mais sont très sensibles aux perturbations et nécessitent donc une gestion rigoureuse qui renforce leur résilience et assure le maintien de leurs services.

TRANSPORTS

Le seceur des transports est l'un des principaux émetteurs de CO_2 dans les Alpes ; ...

Le secteur des transports est l'un des principaux responsables du changement climatique dans les Alpes. Près de 30 % de tous les gaz à effet de serre sont dus aux émissions du transport de passagers et de marchandises. Le transport de marchandises, en particulier, pose des problèmes spécifiques dans les Alpes, car plusieurs corridors centraux du réseau de transport européen traversent le périmètre alpin. Ces flux de transport de marchandises à longue distance représentent une part importante des émissions de CO_2 du secteur des transports dans les Alpes, en particulier le long des principaux corridors de transit, et ne peuvent être décarbonisés que dans le cadre d'une approche commune, en coopération avec des partenaires à l'échelon régional, national et européen, et avec les acteurs concernés du secteur des transports.

De même, les stratégies de transfert modal pour le transport de passagers doivent répondre aux défis spécifiques de la région alpine, liés à la mobilité transfrontalière, aux besoins de mobilité dans les régions reculées ainsi qu'aux types de demandes spécifiques en matière de trafic touristique. Les véhicules de transport public doivent être adaptés aux besoins spécifiques des Alpes (prévoir par exemple un espace pour le transport des vélos) et utiliser des technologies neutres pour le climat. Pour accroître l'attractivité des transports publics et des options de mobilité partagée, des informations facilement accessibles sur les services proposés et des solutions attrayantes pour la billetterie sont nécessaires. Dans le cadre de la récente pandémie de COVID-19, maintenir l'attractivité des solutions de transport public est devenu un défi majeur. Une approche intégrée des systèmes de billetterie pourrait également permettre d'améliorer la disponibilité de systèmes de réservation intelligents, afin d'optimiser les capacités en cas de restrictions.

... la mise en place d'une stratégie commune de transfert modal et de décarbonisation ainsi que l'adoption d'une approche coordonnée pour l'intégration de solutions de mobilité alternatives sont identifiées comme des actions prioritaires ...

Dans le cadre du présent Plan d'action climat 2.0, **la Conférence alpine convient de promouvoir l'élaboration d'une stratégie commune de transfert modal pour le transport de marchandises dans les Alpes, ainsi que la mise en place d'une approche à l'échelle alpine pour intégrer et décarboniser les solutions de mobilité alternatives.**

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle alpine

- pour éviter des effets de répartition indésirables entre les corridors alpins ;
- pour veiller à ce que les stratégies et actions destinées à décarboniser le transport de marchandises et de passagers soient pleinement efficaces.

Pour poursuivre une telle stratégie de transfert modal, **la Conférence alpine reconnaît l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- La mise en œuvre d'un cadre politique commun pour le transfert modal, basé sur des mesures d'orientation telles que Toll Plus, un système de péage ciblé et harmonisé pour les zones de montagne sensibles, ou la bourse du transit alpin (*Alpine Crossing Exchange* ACE), un système de plafonnement et d'échange destiné à limiter le volume total des transports.
- Un soutien aux parties prenantes pour leur permettre de s'équiper de technologies innovantes,

en particulier pour le rail et le transport combiné (fret) et pour les véhicules de transport public, afin de garantir que ces éléments du réseau de transport restent dans la course à l'innovation.
- L'élaboration de recommandations pour l'abandon progressif des véhicules à moteur à combustion interne (MCI) sur les corridors de transit alpin, pour s'assurer que le parc de véhicules à plus faible émissions possible soit utilisé dans l'environnement sensible des Alpes.
- La mise en œuvre d'un système d'information et de billetterie intégré pour les transports publics à l'échelle alpine.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes suivantes, qui sont décrites en détail dans l'annexe de la version complète :

Pour le transport des marchandises

- **Activités de lobbying pour le système Toll Plus**, afin de sensibiliser à l'importance de la directive Eurovignette en tant que cadre européen essentiel pour la tarification routière, ainsi qu'à la nécessité de ne pas s'écarter de l'approche ambitieuse du processus de révision en cours.
- **Mise en place d'un pôle de connaissances alpin intégré consacré aux technologies innovantes pour le rail et le transport combiné**, afin d'encourager et de soutenir l'innovation dans ces segments.
- **Lancement de stratégies régionales pour l'abandon progressif des véhicules à moteur à combustion interne** sur la base d'une discussion sur la manière de réglementer leur utilisation dans les différents segments du transport routier de marchandises.
- **Soutien à la mise en œuvre d'un système de péage Toll Plus** par le biais de recommandations spécifiques sur la manière de mettre en œuvre le système Toll Plus au niveau national, afin de créer des incitations financières supplémentaires pour le transfert modal (après l'achèvement du processus de révision de la directive Eurovignette).
- **Bourse du transit alpin** : renforcement du soutien à une approche de plafonnement et d'échange telle que la bourse du transit alpin, en discutant les options possibles pour soutenir politiquement la mise en œuvre de ce dispositif.

Pour le transport des passagers :

- **Extension du pass « Youth Alpine Interrail »** pour poursuivre le projet « Youth Alpine Interrail » et lui apporter un soutien supplémentaire dans les années à venir.
- **Finalisation et mise en œuvre d'un système d'information et de billetterie à l'échelle alpine** pour les transports publics et les solutions de mobilité alternatives, intégré dans les plans de mobilité locaux et régionaux.
- **Nouveaux billets de mobilité – poursuite du développement d'un Interrail alpin** pour augmenter l'acceptation et l'utilisation des transports publics, notamment dans le cadre de la mobilité transfrontalière et de la mobilité touristique.
- **Coordination des mécanismes de financement alpins pour des flottes de transport public neutres pour le climat**, afin de faire de la région alpine une région modèle pour l'adoption de véhicules de transport public neutres pour le climat.

ÉNERGIE

Réaliser la transition énergétique dans les Alpes exige des solutions sur mesure …

Les pays alpins soutiennent la Vision Alpes renouvelables, qui exige des mesures de promotion et un développement ambitieux des sources d'énergie renouvelables dans les Alpes. Face à un environnement alpin sensible et aux conflits potentiels entre les nouveaux projets d'énergie renouvelable et le paysage ainsi que la protection de l'environnement, cette vision nécessite une approche coordonnée intelligente pour orienter le développement des énergies renouvelables vers des sites à haut potentiel, et pour s'assurer que les compromis environnementaux et sociétaux seront bien pris en considération. En outre, le développement de solutions d'efficacité énergétique doit répondre aux besoins spécifiques des zones à faible densité de population. Pour réaliser des économies d'énergie ambitieuses, la transition vers des Alpes neutres pour le climat passera également par une évolution des comportements, des modes de vie et des modèles d'entreprise, qui ont des caractéristiques spécifiques dans les Alpes et nécessitent des approches sur mesure. Enfin, en matière d'adaptation, les effets négatifs du changement climatique sur le système énergétique devront faire l'objet d'une attention particulière.

Les niveaux régional et local sont des interfaces essentielles pour la mise en œuvre des mesures en matière d'énergies renouvelables et d'efficacité énergétique. Ils nécessitent donc un soutien spécifique pour la mise en œuvre de solutions d'atténuation et d'adaptation répondant à la situation alpine.

… soutenues par un réseau de coordinateurs Énergie régionaux et par des actions pilotes sur les modes de vie et les modèles d'entreprise neutres pour le climat …

La Conférence alpine convient de promouvoir la création d'un réseau alpin de coordinateurs Énergie régionaux et la mise en œuvre d'actions pilotes sur les modes de vie et les modèles d'entreprise neutres pour le climat.

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle alpine

- pour combler les lacunes de la mise en œuvre et fédérer les besoins de différentes communes afin de développer des solutions partagées (mutualisation des activités) ;
- pour soutenir des campagnes de sensibilisation ciblées ainsi que des instruments relatifs aux modes de vie neutres pour le climat et à leurs besoins spécifiques dans les Alpes, en vue de déclencher des actions ambitieuses dans le secteur privé (effets multiplicateurs).

Pour faire avancer le développement de telles structures de soutien au niveau régional et encourager les changements de comportement au niveau local, **la Conférence alpine reconnaît l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Installer et institutionnaliser un réseau de coordinateurs Énergie régionaux dans les Alpes, en s'appuyant sur les structures déjà existantes dans certains pays alpins, et en aidant les agences de l'énergie existantes à jouer un rôle de coordination plus important. La mise en place de ce réseau de coordinateurs permettra d'améliorer les compétences et les savoir-faire en matière de transition énergétique dans les Alpes, et de lancer des mesures de mise en œuvre spécifiques. Tous les coordinateurs « Énergie » régionaux devraient être mandatés pour développer des actions pilotes innovantes et ambitieuses, en tenant compte des enjeux d'atténuation et d'adaptation.
- Développer un programme de formation pour les coordinateurs « Énergie » régionaux et une plateforme de transfert de connaissances pour soutenir l'échange régulier au sein du réseau.
- Accorder une attention particulière à l'évolution des modes de vie et des modèles d'entreprise dans les Alpes. À cette fin, une boîte à outils destinée aux ménages et aux PME des Alpes sera développée afin d'identifier leur impact sur le climat et de définir des options pour l'action individuelle. Les actions proposées dans cette boîte à outils seront testées et présentées dans tous les pays alpins dans le cadre d'actions pilotes.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes suivantes, qui sont décrites en détail dans l'annexe de la version complète :

Soutenir la mise en place d'un réseau de coordinateurs Énergie régionaux :

- **Approche stratégique et mise en place du réseau de coordinateurs régionaux**, en s'appuyant sur les structures existantes, avec pour objectif principal de développer une approche commune pour assurer un transfert de connaissances efficace.
- **Réalisation d'actions pilotes visant à soutenir des solutions énergétiques décentralisées dans les Alpes** mises en œuvre par le biais du nouveau réseau (y compris des solutions de réseau intelligent).
- **Programme de formation à l'échelle alpine** pour les membres du réseau de coordinateurs Énergie visant à leur proposer une formation et des instructions spécifiques et à favoriser leurs échanges.
- **Phase d'élargissement et de diffusion** pour implanter le réseau dans de nouvelles régions de l'arc alpin ou dans des régions situées dans le périmètre élargi.

Soutenir des modes de vie et des modèles d'entreprise neutres pour le climat dans les Alpes :

- **Compilation de boîtes à outils existantes sur les modes de vie et les modèles d'entreprise neutres pour le climat** pour développer une boîte à outils alpine, incluant par exemple un calculateur en ligne de l'empreinte carbone des Alpes ou des outils pour les programmes d'audit énergétique au niveau régional.
- **Projets pilotes sur les modes de vie et les modèles d'entreprise à faible émission de carbone** pour tester l'acceptation et l'impact des mesures de soutien et d'incitation.

TOURISME

Le tourisme en tant qu'activité économique clé et interface avec d'autres secteurs …

Le tourisme est l'une des principales sources de revenus dans les Alpes ; 40 % des communes alpines ont des activités touristiques significatives. Les destinations touristiques sont confrontées au défi de mettre leurs offres en adéquation avec la nouvelle demande touristique de vacances neutres pour le climat, et de veiller à respecter les nouvelles réglementations relatives à la législation sur l'énergie et le climat dans leurs cadres nationaux et régionaux respectifs. Cette transformation doit également tenir compte des impacts potentiels du changement climatique sur le tourisme et nécessite des stratégies de diversification intelligentes. Pour relever ces multiples défis et garantir que le développement du tourisme soit intégré dans les stratégies d'aménagement du territoire, dans les plans de gestion des risques et dans les programmes de protection de la nature, une coordination plus étroite des stratégies et des outils de planification du tourisme est nécessaire.

La récente pandémie de COVID-19 est à la source de nombreux nouveaux défis pour les destinations touristiques alpines, qui doivent adapter leurs offres aux restrictions et aux réglementations en vigueur. Cette situation ouvre toutefois une fenêtre d'opportunité pour les offres de tourisme individuel fortement axées sur des solutions respectueuses de l'environnement. Ces solutions sont souvent compatibles avec une « approche de distanciation physique » dans le tourisme, et présentent de nombreux cobénéfices avec les stratégies de résilience au climat. Ces défis et opportunités supplémentaires doivent donc être pris en compte dans l'approche stratégique au niveau alpin.

… nécessite une coordination plus étroite des stratégies et des outils afin de gérer la transformation vers la neutralité climatique et la résilience au changement climatique …

La Conférence alpine convient de soutenir le développement d'une vision commune pour un tourisme alpin neutre pour le climat et résilient au changement climatique.

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle alpine

- pour éviter les effets de distribution indésirables entre les destinations touristiques qui pourraient se produire en cas de non adéquation entre les stratégies et les approches de développement touristique (offres intensives vs. durables/extensives) ;
- pour veiller à ce que la capacité d'accueil des sites touristiques spécifiques ne soit pas dépassée, en tenant compte des impacts potentiels du changement climatique ;
- pour optimiser de manière qualitative le développement global des activités touristiques en respectant la condition préalable de la décarbonisation.

Pour soutenir la transformation du tourisme dans les Alpes, **la Conférence alpine reconnaît l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Développement d'une vision commune pour le tourisme durable, incluant notamment la coordination des approches stratégiques visant au développement d'offres touristiques neutres pour le climat et résilientes au changement climatique, un accord sur des buts/objectifs climatiques communs ainsi que les questions de suivi et de rapport.
- Discussion sur l'alignement des flux de financement et des mesures d'incitation financière pour soutenir le développement d'offres touristiques neutres pour le climat et résilientes au changement climatique dans les Alpes.
- Activités de soutien aux mesures de formation et au renforcement des capacités dans le secteur du tourisme alpin, en tenant compte des restrictions dues à la pandémie de COVID-19.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes suivantes, qui sont décrites en détail dans l'annexe de la version complète :

- **Identification des facteurs de succès et des indicateurs pour un tourisme alpin respectueux du climat et résilient au changement climatique**, sur la base d'exemples de bonnes pratiques et d'un examen ciblé des solutions durables et innovantes.
  Dans le contexte de la crise du COVID-19 et de l'essor actuel des loisirs de pleine nature, les activités liées à toutes les pratiques proposées dans les offres de tourisme nature devraient constituer l'un des axes de l'enquête (par exemple, les offres touristiques basées sur le vélo).
- **Comblement des lacunes dans les données relatives aux impacts du changement climatique sur le tourisme dans les Alpes** et diffusion auprès des acteurs.
- **Coordination des stratégies touristiques au niveau alpin** pour encourager la transformation des destinations touristiques.
- **Alignement des flux de financement** pour soutenir un développement touristique durable et respectueux du climat, sur la base d'une évaluation des subventions/mécanismes de soutien financier actuels.
- **Mise en place d'un dispositif de rapport climatique** pour les destinations touristiques alpines définissant les besoins en matière de rapports, les méthodes utilisées pour les destinations touristiques ainsi que le processus de suivi ultérieur.
- **Formation et renforcement des capacités** de tous les acteurs concernés du secteur du tourisme pour améliorer leurs savoir-faire et leurs qualifications, en vue de transformer le secteur du tourisme et d'obtenir un soutien pour la mise en œuvre des activités déclenchées au sein du présent plan d'action.

RISQUES NATURELS

Les risques naturels ne s'arrêtent pas aux frontières régionales ou nationales …

Les Alpes sont particulièrement exposées à des aléas naturels de portée et d'intensité différentes, qui peuvent être des événements locaux tels que les avalanches, les chutes de pierres, les risques torrentiels et les glissements de terrain, ou des événements plus importants tels que des inondations ou des tempêtes violentes. La hausse générale de la population et l'accumulation de biens économiques et d'établissements humains dans des zones à risque, ainsi que la recrudescence des événements extrêmes tendent à accroître le risque d'aléas naturels. Les risques naturels ne s'arrêtent pas aux frontières régionales ou nationales : un cadre commun est donc nécessaire à l'échelle alpine pour faire face aux impacts à grande échelle et potentiellement transfrontaliers de ces phénomènes. Une attention particulière doit être accordée aux zones de pergélisol et aux risques potentiels liés à l'instabilité du pergélisol, ainsi qu'aux inondations de grande ampleur ayant des impacts sur des bassins fluviaux entiers et sur les forêts de protection. Ces risques naturels sont susceptibles d'avoir des répercussions à grande échelle au-delà des frontières, affectant à la fois les établissements humains et les infrastructures essentielles des Alpes.

… et nécessitent donc une approche commune de la gestion des risques pour faire face aux risques transfrontaliers …

Sur la base des conclusions du 7e Rapport sur l'état des Alpes « Gouvernance des risques naturels », **la Conférence alpine approuve la proposition d'élaborer un plan de gestion des risques dans les Alpes afin de gérer les risques transfrontaliers par une approche coordonnée.**

La Conférence reconnaît la valeur ajoutée d'une approche à l'échelle alpine car

- les expériences ne peuvent être échangées efficacement et les interfaces ne peuvent fonctionner que sur la base d'un cadre coordonné pour la collecte et la présentation des informations et des données, qui mutualise les connaissances réunies dans le cadre des approches nationales de gestion des risques ;
- les synergies en matière de risques transfrontaliers aident à garantir l'efficacité des systèmes d'alerte précoce et une réponse coordonnée à l'échelle alpine.

Afin de soutenir la mise en place d'un plan de gestion des risques à l'échelle alpine et de garantir que ce plan se concentre sur les risques transfrontaliers ayant des impacts potentiels à grande échelle, la **Conférence alpine convient de soutenir les actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Développement d'un plan de gestion des risques à l'échelle alpine en matière de risques transfrontaliers, avec notamment la définition de méthodes coordonnées pour la cartographie et la surveillance des risques, une étroite coordination des approches destinées à faire face aux

risques résiduels et une boîte à outils commune (incluant des technologies innovantes).
- D'autres actions visant à développer le suivi du pergélisol et de l'érosion dans l'ensemble des Alpes, ainsi que des approches de prévention et de gestion des inondations à l'échelle alpine.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres acteurs intéressés à joindre leurs forces pour mettre en œuvre les étapes suivantes, qui sont décrites en détail dans l'annexe de la version complète :

- **Synthèse de la planification de la gestion des risques naturels et de la prise en compte des risques transfrontaliers**, afin de réunir davantage d'informations sur les approches de gestion des risques pour les risques transfrontaliers dans les pays alpins.
- **Cartographie des zones de risques élevés pour les infrastructures critiques et les implantations humaines**, en portant une attention particulière aux zones de risques pour les infrastructures de transport, d'énergie et de communication, ainsi que pour les infrastructures de santé et les implantations humaines.
- **Cadre commun pour la gestion des risques transfrontaliers**, incluant notamment une compréhension partagée du cycle de gestion des risques, des méthodes et des normes communes pour la cartographie et le suivi des risques, ainsi que des recommandations et des outils pour les mesures de prévention des risques transfrontaliers.
- **Développement d'un dispositif commun de suivi du pergélisol**, basé sur un inventaire et une cartographie exhaustifs des activités, stations et réseaux de surveillance du pergélisol existants dans les Alpes, en tenant compte du potentiel offert par les données et les services de télédétection.

EAU

Les réseaux hydrographiques des Alpes sont fortement imbriqués au-delà des frontières …

La gestion de l'eau dans les Alpes est confrontée à de nouveaux défis liés au changement climatique, qui nécessitent à la fois des activités d'adaptation et d'atténuation. Le changement climatique exercera une pression supplémentaire sur les ressources en eau des Alpes en raison de la modification du régime des précipitations, de la réduction de la couverture neigeuse en hiver et de l'augmentation des températures, qui vont entraîner des situations exceptionnelles à la fois de pénurie d'eau et d'inondations nécessitant des solutions d'adaptation efficaces. Parallèlement, la gestion de l'eau et son intégration dans les processus d'aménagement du territoire font partie des éléments de la réduction des impacts du changement climatique et doivent être coordonnées à l'échelle des bassins fluviaux. Les systèmes d'eau de surface et les nappes phréatiques des Alpes sont fortement imbriqués au-delà des frontières. Une approche commune est donc nécessaire pour faire face à ces défis supplémentaires pour la gestion de l'eau.

Les rivières et les lacs alpins ont également une grande valeur récréative, qui a été particulièrement appréciée pendant la pandémie de COVID-19 avec ses restrictions de voyage. Ceci peut créer des occasions supplémentaires pour financer des projets de renaturation / réhabilitation des eaux.

… et exigent une approche à l'échelle alpine pour une gestion de l'eau résistante au climat, incluant la mise en place d'un plan de gestion intégrée de la sécheresse …

Sur la base des conclusions de la récente Conférence sur « Ressources en eau et rivières alpines : adaptation aux défis du changement climatique », organisée par la présidence française en février 2020 à Annecy, **la Conférence alpine convient de soutenir la mise en place d'un cadre à l'échelle alpine pour l'intégration de l'atténuation et de l'adaptation au changement climatique dans la gestion de l'eau, et de développer une approche coordonnée pour faire face aux nouveaux défis liés aux épisodes de sécheresse.**

La Conférence reconnaît la valeur ajoutée d'une approche à l'échelle alpine, car

- l'accent mis sur le caractère transfrontalier dans les plans actuels de gestion des bassins hydrographiques, même pour les grands fleuves, est encore insuffisant, et constitue une condition préalable à la mise en adéquation des systèmes de gestion de l'eau avec les impératifs climatiques ;
- la gestion de la sécheresse est un défi relativement nouveau dans les Alpes, et doit être abordée conjointement pour tenir compte des besoins et des pressions existants dans chaque bassin hydrographique et pour éviter les effets indésirables en amont et en aval.

Pour promouvoir l'intégration de l'atténuation et de l'adaptation au changement climatique dans les systèmes de gestion de l'eau et la mise en place d'une gestion efficace de la sécheresse dans les Alpes, la **Conférence alpine convient de soutenir les actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Mise en place d'un cadre à l'échelle alpine pour promouvoir les outils de planification et les processus de participation transfrontaliers et pour favoriser la coopération intersectorielle (niveau administratif) ainsi que l'intégration des principaux groupes d'acteurs d'un bassin fluvial au-delà des processus nationaux des plans de gestion des bassins fluviaux, afin de ren forcer la mise en œuvre de la directive-cadre sur l'eau de l'UE et d'autres lignes directrices pertinentes.
- Développement d'une approche commune pour la gestion de la sécheresse dans l'ensemble des Alpes, en tenant compte de la disponibilité de l'eau dans l'ensemble du bassin fluvial. Une telle approche doit tenir compte des besoins et des pressions potentiels d'autres foyers de sécheresse en aval, y compris au-delà du périmètre de la Convention alpine, et garantir que les mesures de gestion de la sécheresse s'inscrivent dans la préservation des écosystèmes et de leurs services.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres acteurs intéressés à joindre leurs forces pour mettre en œuvre les étapes suivantes, qui sont décrites en détail dans l'annexe de la version complète :

Soutenir un cadre commun pour l'intégration de l'atténuation et de l'adaptation au changement climatique dans les systèmes de gestion de l'eau :

- **Identification des zones sensibles et cartographie des activités de coordination en cours** pour identifier des bassins fluviaux modèles au niveau alpin, dans lesquels une coopération accrue entre pays voisins permettrait d'éviter les conflits entre les différents intérêts liés à l'utilisation de l'eau.
- **Promotion de projets modèles pour une gestion de l'eau intégrée, transfrontalière et résiliente au changement climatique** afin de renforcer la coopération régionale et transfrontalière.
- **Élargissement des structures de gouvernance pour la gestion des conflits** sur la base d'alliances étendues et efficaces pour la gestion des conflits liés à l'eau dans les bassins hydrographiques modèles identifiés.

Développer une approche commune de la gestion de la sécheresse :

- **Carte interactive des foyers de sécheresse** intégrant différents scénarios climatiques, sur la base d'une méthode commune quant aux seuils, à la définition des scénarios et au système de classification.
- **Systèmes d'alerte précoce et plans d'urgence face aux sécheresses**, afin d'identifier les situations de sécheresse à un stade précoce et de déclencher les mesures appropriées.
- **Programme de mesures infrastructurelles visant à réduire la consommation d'eau potable** à des fins non potables, par exemple pour les toilettes à eau, l'irrigation et la production de neige artificielle.

AMÉNAGEMENT DU TERRITOIRE

Les structures spatiales spécifiques des Alpes exigent des approches sur mesure ...

En raison de l'espace restreint à disposition pour l'implantation d'habitats permanents, des besoins spécifiques en matière de transport et de mobilité et des défis démographiques, l'aménagement du territoire est déjà un domaine politique transversal majeur dans les Alpes. L'aménagement du territoire vise à équilibrer durablement les exigences sectorielles, les conflits d'utilisation des sols et à établir des priorités pour certaines utilisations. Il vise également à utiliser les ressources en tenant compte des conditions en évolution. Le changement climatique est l'une de ces nouvelles conditions: le changement climatique se manifeste plus rapidement dans les Alpes et y a un impact plus important que dans les autres régions européennes. Dans le cadre de la transition vers des Alpes neutres pour le climat et résilientes au changement climatique, l'aménagement du territoire a un nouveau rôle: l'intégration des mesures d'atténuation et d'adaptation dans toutes les activités liées à l'aménagement du territoire est un point de départ optimal pour d'autres activités sectorielles, et permet d'éviter les effets de verrouillage en ce qui concerne le développement de l'habitat et des infrastructures. La définition d'un cadre à l'échelle alpine pour des concepts d'aménagement du territoire intégrant tous les aspects se rattachant au changement climatique peut permettre de garantir des règles du jeu équitables dans tout l'arc alpin.

Dans la plupart des pays alpins, les municipalités jouent un rôle essentiel pour le développement territorial et la mise en œuvre des objectifs de planification spatiale. La mise en place d'un cadre à l'échelle alpine doit donc se faire dans le cadre d'une démarche ascendante visant à renforcer et soutenir le niveau municipal.

... reposant sur un concept alpin d'aménagement du territoire pour l'action climatique...

La Conférence alpine reconnaît la nécessité de développer à l'échelle des Alpes un concept d'« aménagement du territoire pour l'action climatique », afin de garantir l'établissement d'un cadre d'aménagement du territoire intégrant tous les aspects se rattachant au changement climatique.

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle alpine

- pour veiller à ce que l'aménagement du territoire, en tant qu'interface avec d'autres activités sectorielles, soit pris en compte dans une approche commune pour intégrer les nouveaux défis liés aux politiques d'atténuation et d'adaptation ;
- pour veiller à ce que les concepts d'aménagement du territoire renforcent les autres activités prévues dans le Plan d'action.

Pour faire progresser un tel concept d'« aménagement du territoire pour l'action climatique » à l'échelle des Alpes, la **Conférence alpine reconnaît l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Élaborer une vision d'ensemble des impacts du changement climatique sur l'utilisation des sols ou résultant de cette l'utilisation des sols, qui servira de base à l'élaboration d'un concept à l'échelle des Alpes, en mettant l'accent sur les axes prioritaires pour les actions futures et sur les principaux défis.
- Développement d'une approche commune de protection des sols, qui sera un moteur essentiel pour les actions d'atténuation, sur la base de données harmonisées sur l'artificialisation des sols, d'une enquête sur les objectifs de protection des sols dans les pays alpins et d'un échange sur les bonnes pratiques en matière de stratégies de croissance et de décroissance.
- Lignes directrices en matière d'« aménagement du territoire pour l'action climatique » à l'attention des communes situées dans le périmètre de la Convention alpine, afin de réunir des recommandations et des informations sur la manière d'intégrer les enjeux d'atténuation et d'adaptation dans les pratiques locales d'aménagement du territoire.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres acteurs intéressés à joindre leurs forces pour mettre en œuvre les étapes suivantes, décrites en détail dans l'annexe de la version complète :

- **Base de données commune sur les effets du changement climatique sur l'utilisation des sols** ou résultant de cette l'utilisation des sols, mettant en évidence les effets de portée transfrontalière, par exemple les incidences sur les infrastructures transfrontalières, la production d'énergie et le développement des implantations humaines à partir de différents scénarios climatiques.
- **Échange de bonnes pratiques en matière de stratégies de croissance et de décroissance**, incluant notamment une étude sur les objectifs de protection des sols mis en œuvre dans les pays alpins et sur les défis liés à cette mise en œuvre.
- **Sensibilisation au lien entre action climatique et aménagement du territoire**, en soulignant les bénéfices du contrôle de l'étalement urbain en termes d'atténuation.
- **Orientations pour les communes en matière d'utilisation durable (par exemple résistante au climat) des sols** et d'adaptation sur la base des approches et outils existants.

SOLS

Les sols alpins sont confrontés à de multiples défis liés au changement climatique …

Les sols alpins sont particulièrement vulnérables au changement climatique et subissent en même temps des pressions en matière d'utilisation, d'artificialisation et d'imperméabilisation des sols. La préservation des sols alpins est essentielle pour l'atténuation du changement climatique, car seuls des sols en bonne santé peuvent stocker l'humidité et le carbone. La région alpine comprend de nombreux types de sols spécifiquement riches en carbone, comme les tourbières, les landes ou les zones humides. Tant la qualité que la quantité des sols doivent être protégées en réduisant la pression exercée par les demandes croissantes d'espaces destinés au trafic, à l'habitat, à l'économie et aux loisirs, et en même temps par des pratiques agricoles et forestières qui constituent une menace pour la préservation des sols. La préservation de la santé des sols est également une condition préalable à de nombreuses mesures d'adaptation, par exemple dans les zones habitées, pour éviter les effets d'îlots de chaleur ou pour soutenir la maîtrise des inondations par des zones de rétention.

Ces défis ne concernent pas uniquement un État alpin, mais constituent des thématiques transfrontalières urgentes pour tous les pays alpins. Une amélioration des connaissances sur les sols alpins, un échange entre les parties prenantes des États alpins et un cadre commun pour préserver les sols alpins en tant que puits de carbone semblent donc nécessaires.

… et exigent un cadre commun pour préserver la qualité et la quantité des sols …

La Conférence alpine reconnaît la nécessité d'élaborer un cadre à l'échelle des Alpes pour préserver les sols riches en carbone ainsi que pour réduire l'artificialisation et l'imperméabilisation des sols (quantité de sols).

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle alpine

- pour veiller à ce que les sols riches en carbone soient identifiés sur la base d'une approche comparable dans l'ensemble des Alpes et soient ciblés par des activités de préservation supplémentaires ;
- pour développer une approche commune en matière de réduction de l'artificialisation des sols, intégrée dans le concept d'aménagement du territoire proposé dans le présent Plan d'action climat ainsi que dans d'autres activités sectorielles.

Pour faire progresser un tel cadre alpin en matière de protection des sols, la **Conférence alpine reconnaît l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Étude et cartographie des sols basées sur un système commun de classification des sols, et destinées à fournir des informations sur les types de sols riches en carbone et sur la nécessité d'engager des mesures de préservation. Des connaissances supplémentaires sur les types de sol dans les zones de haute altitude sont en particulier nécessaires.
- Développement d'un cadre commun pour la préservation du carbone dans les sols, incluant notamment des recommandations de mesures visant à conserver et augmenter le stock de carbone dans les sols et à protéger et/ou restaurer les tourbières, les landes et les zones humides, et une campagne de sensibilisation à l'échelle alpine.
- Développement d'une définition commune de l'artificialisation et de l'imperméabilisation des sols ainsi que du redéveloppement des friches industrielles, et d'une compréhension commune du suivi des évolutions dans ces domaines, afin d'établir un cadre pour le redéveloppement des friches industrielles et la réduction de l'artificialisation des sols, et

préserver ainsi la quantité de sols.

- Mise en place d'un cadre de réglementation des systèmes d'incitation et d'exemples de bonnes pratiques pour encourager les efforts visant à éviter l'artificialisation des sols et à renforcer le redéveloppement des friches industrielles, en s'appuyant sur les recommandations élaborées par les réseaux alpins de protection des sols et d'aménagement du territoire. Les enseignements tirés de l'utilisation de ces systèmes d'incitation seront intégrés dans des documents d'orientation pour l'aménagement du territoire au niveau municipal.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes suivantes, décrites en détail dans l'annexe de la version complète :

Soutenir la préservation et la séquestration du carbone dans le sol :

- **Système de classification et cartographie des sols à l'échelle des Alpes** sur la base d'un accord commun sur les types de sols (en particulier les types de sols riches en carbone tels que les tourbières, les landes et les zones humides). Ce système de classification pourrait servir de base pour favoriser les échanges entre d'autres initiatives et les parties prenantes engagées dans la protection des sols.
- **Campagne de communication sur la protection des sols** pour sensibiliser le public à l'importance du carbone dans les sols.
- **Recommandations sur les mesures de prévention, de protection et de compensation** destinées en particulier à maintenir et restaurer les stocks de carbone dans le sol et à réactiver les tourbières, et soutien de projets pilotes pour mettre en œuvre ces recommandations.

Mettre en place un cadre commun pour éviter l'artificialisation et l'imperméabilisation des sols, et pour accroître le redéveloppement des friches industrielles :

- **Élaboration d'une définition commune de l'artificialisation et de l'imperméabilisation des sols ainsi que du redéveloppement des friches industrielles**, basée sur une compilation des données existantes concernant la qualité et les fonctions des sols et compatible avec les statistiques existantes sur l'utilisation des sols dans les pays alpins, en vue de mettre en œuvre une approche commune pour le suivi de l'artificialisation des sols et du redéveloppement des friches industrielles à l'avenir.
- **Accompagnement des responsables de l'aménagement du territoire et des décideurs** à travers le renforcement de la communication sur l'importance de l'aménagement du territoire comme outil de protection des sols, et sur la nécessité de prendre en compte dans l'aménagement du territoire les données relatives à la qualité et aux fonctions des sols.
- **Recommandations à l'échelle alpine pour un système d'incitation économique** et activités de démonstration liées.
- **Définition d'orientations pour les plans d'occupation des sols au niveau municipal et pour la communication**, incluant notamment des actions stratégiques en matière d'aménagement du territoire, des mesures à petite échelle pour réduire l'imperméabilisation des sols et une campagne de communication pour diffuser ces orientations.

AGRICULTURE DE MONTAGNE

Les agricultrices et agriculteurs des Alpes démontrent des approches visant à décarboniser l'agriculture …

L'agriculture de montagne joue un rôle central dans la conservation du paysage traditionnel alpin, des races d'élevage et des espèces régionales ainsi que dans la préservation de la culture locale, du patrimoine et des techniques traditionnelles. Les produits alimentaires alpins sont souvent des produits de niche de haute qualité, qui attirent des marchés de consommation spécifiques et sont souvent bien intégrés dans les chaînes de valeur locales. Les consommateurs de ces produits sont souvent très sensibilisés au changement climatique : ils devraient donc également être disposés à contribuer à l'action climatique des agriculteurs de montagne. L'agriculture de montagne pourrait ainsi servir de « laboratoire » pour tester des techniques de production agricole et alimentaire à faibles émissions de gaz à effet de serre et pour développer des chaînes de valeur locales. De telles approches entraîneraient un certain nombre de bénéfices environnementaux, notamment parce que l'agriculture biologique a un impact environnemental direct sur les sols moins important que les approches traditionnelles.

Une meilleure intégration des produits de montagne dans les chaînes de valeur locales peut soutenir d'autres activités définies dans le cadre du présent Plan d'action climat 2.0, notamment le développement d'offres touristiques neutres pour le climat. Elle renforce par ailleurs l'autonomie des régions alpines : les expériences de la pandémie de COVID-19 ont mis en évidence les effets positifs de telles approches par rapport à une forte dépendance vis-à-vis des importations de produits alimentaires.

… en améliorant les techniques de l'agriculture biologique et neutre pour le climat ainsi que les chaînes de valeur locales …

La Conférence alpine reconnaît le potentiel de l'agriculture de montagne pour tester et démontrer les techniques de production et de distribution neutres pour le climat et soutient des mesures supplémentaires pour accroître leur utilisation.

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle alpine

- pour veiller à ce que les efforts soient déployés au-delà des frontières régionales et nationales, car les chaînes de valeur des produits alimentaires alpins ont souvent un caractère transfrontalier ;
- pour assurer des synergies avec d'autres efforts sectoriels coordonnés au niveau alpin, en particulier la protection des sols et des eaux ainsi que le tourisme.

Pour soutenir davantage les techniques de l'agriculture biologique et neutre pour le climat et les intégrer dans les chaînes de valeur locales, la **Conférence alpine reconnaît l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Promotion des produits alpins locaux et renforcement de la valeur ajoutée locale grâce à la commercialisation et à la distribution de produits respectueux du climat aux niveaux local et régional. Toutes les activités de promotion doivent être basées sur une évaluation préalable des impacts carbone liés au renforcement des produits alpins et des chaînes de valeur locales.
- Mise en place d'un programme pour une agriculture à faibles émissions de carbone ou neutre en carbone dans les Alpes, basé sur une forte augmentation de la part de l'agriculture alpine utilisant des méthodes agricoles respectueuses du climat et biologiques, qui réduira également de manière significative l'utilisation de produits chimiques dans l'agriculture.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes suivantes, décrites en détail dans l'annexe de la version complète :

Renforcer davantage le développement de chaînes de valeur locales pour les produits alimentaires alpins :

- **Indicateurs pour des exploitations agricoles alpines durables et respectueuses du climat**, à appliquer au niveau de l'exploitation (organisation) ou des produits agricoles (produits).
- **Mise en place d'une stratégie régionale alpine pour une agriculture respectueuse du climat**, avec notamment des stratégies de soutien et de marketing, des initiatives de marketing, des achats publics verts, des incitations à la commercialisation directe des produits agricoles alpins etc.
- **Création d'une « Journée de l'UE pour les produits alpins ou de montagne »** avec des événements de grande envergure, soutenue par une campagne à l'échelle de l'UE.

Encourager l'adoption de techniques agricoles respectueuses du climat :

- **Inventaire de l'agriculture biologique dans les Alpes et élaboration de scénarios en la matière**, comprenant notamment des informations sur les techniques de gestion et leur potentiel spécifique de réduction des gaz à effet de serre ainsi que d'autres impacts environnementaux.
- **Identification de techniques de gestion innovantes** et démonstration dans le cadre d'activités pilotes visant à tester de telles techniques soutenant la transition vers un poids plus important de l'agriculture biologique dans les Alpes à des coûts raisonnables.
- **Politiques de soutien à la transition vers une agriculture biologique alpine**, incluant un inventaire des initiatives politiques existantes dans les régions alpines et, sur cette base, l'élaboration de recommandations spécifiques pour de nouvelles actions politiques visant à augmenter la part de l'agriculture biologique.

FORÊTS DE MONTAGNE

Les forêts jouent un rôle « multitâches » pour des Alpes neutres pour le climat et résilientes …

Les forêts alpines jouent un rôle clé dans les stratégies d'atténuation et d'adaptation. En raison du changement climatique, les forêts de montagne sont confrontées à des risques accrus dus aux périodes de sécheresse et aux événements extrêmes tels que les rafales de vent et les incendies de forêt. Les arbres affaiblis deviennent également plus vulnérables aux maladies dues aux parasites. En parallèle, le couvert forestier s'étend dans les Alpes en raison de l'abandon des zones cultivées et de l'augmentation des températures. Les forêts alpines agissent comme un puits de carbone, fournissent du bois utilisé par exemple comme matériau de construction ou comme source d'énergie renouvelable, et font partie d'une approche d'adaptation fondée sur les écosystèmes en servant de barrières naturelles pour protéger les implantations humaines et les infrastructures des risques naturels.

Pour garantir que les fonctions de protection et d'atténuation des forêts de montagne puissent être pleinement utilisées, elles doivent faire l'objet de techniques de gestion rigoureuses et spécifiques.

Pour tirer parti des possibilités liées à la relance verte, les activités qui nécessitent de la main-d'œuvre et qui soutiennent la conversion des forêts devraient faire partie d'une stratégie à court terme, par exemple en offrant des possibilités de travail temporaire aux étudiants ou aux employés actuellement en chômage partiel etc.

… mais seulement si les techniques de gestion et la conversion des forêts sont accélérées …

La Conférence alpine reconnaît le rôle important des forêts de montagne pour la vision d'un espace alpin à la fois neutre pour le climat et résilient au changement climatique. Elle soutient en particulier une coordination des techniques de gestion afin d'utiliser pleinement le potentiel des forêts de montagne et de soutenir leur conversion.

La Conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle des Alpes

- pour veiller à ce que des approches de pointe fondées sur la nature soient appliquées dans l'ensemble des Alpes afin d'utiliser pleinement les services écosystémiques des forêts de montagne ;
- pour veiller à ce que les forêts de montagne de tous les pays alpins soient gérées au sein d'un cadre commun, en soutenant d'autres activités sectorielles.

Afin de soutenir davantage une gestion optimisée des forêts de montagne, la **Conférence alpine reconnaît tout particulièrement l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Développement et application d'orientations à l'échelle alpine en vue de la conversion des écosystèmes forestiers en forêts plus résilientes et proches de l'état naturel, sur la base d'une approche large avec les parties prenantes et en tenant compte des autres activités sectorielles dans le cadre du présent Plan d'action.
- Poursuite du développement de l'échange de connaissances sur les forêts de montagne en tant que protection contre les risques naturels.
- Renforcement de la chaîne de valeur ajoutée régionale du bois dans le contexte de l'économie circulaire et de la bio-économie.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes suivantes, décrites en détail dans l'annexe de la version complète :

- **Scénarios de développement forestier dans le cadre du changement climatique dans les Alpes**, avec notamment des informations sur les types de forêts (essences) ainsi que leur âge.
- **Définition d'orientations pour la conversion des forêts alpines** sur la base des résultats de l'étude des scénarios forestiers ci-dessus, en incluant des exemples concrets et des directives sur les techniques de gestion.
- **Expérimentation de systèmes d'incitations financières dans des zones pilotes** afin d'apporter un soutien financier à une sylviculture résiliente dans l'ensemble des Alpes.
- **Mise en œuvre de chaînes de valeur régionales du bois dans les régions alpines.**

ECOSYSTÈMES ET BIODIVERSITÉ

Les écosystèmes alpins sont un point chaud de la biodiversité mondiale…

La région alpine offre un large éventail de paysages naturels et culturels spécifiques essentiels pour les espèces (menacées) de la flore et de la faune. Ces paysages sont confrontés non seulement aux impacts du changement climatique, mais aussi des changements qui affectent l'utilisation agricole des sols, de l'urbanisation et du développement des infrastructures, qui nécessitent d'engager des actions incluant la restauration d'éléments naturels et culturels spécifiques, de biotopes et d'écosystèmes. Le changement climatique entraîne des déplacements des espèces, des habitats et des processus écologiques. La connectivité écologique des aires protégées et des autres zones de conservation joue de ce fait un rôle essentiel pour garantir la biodiversité et les services écosystémiques dans les Alpes. La taille des aires protégées et la surface de leurs zones périphériques doivent également être augmentées pour améliorer la résilience des écosystèmes et de la biodiversité face aux défis supplémentaires du changement climatique. La poursuite du développement des infrastructures vertes et bleues peut soutenir tous ces éléments d'une gestion des écosystèmes et de la biodiversité résiliente au changement climatique.

La pandémie de COVID-19 a montré que le bon fonctionnement des écosystèmes et le respect de la biodiversité sont essentiels pour la santé humaine. Il existe des liens majeurs entre la stabilité des écosystèmes, l'environnement, les habitats intacts et la santé humaine, en particulier les zoonoses.

… mais sont très sensibles aux perturbations et nécessitent donc une gestion rigoureuse qui renforce leur résilience et assure le maintien de leurs services …

La Conférence alpine reconnaît l'importance des paysages naturels et culturels et la grande valeur des services écosystémiques pour l'espace alpin, et soutient le développement d'une approche de gestion commune pour assurer ces fonctions dans le cadre du changement climatique.

La conférence reconnaît la valeur ajoutée d'une approche coordonnée à l'échelle des Alpes

- pour veiller à ce que le territoire alpin reste perméable et vivable pour toutes les espèces, en protégeant et en gérant les paysages et les écosystèmes vulnérables et spécifiques aux Alpes ;
- pour renforcer la coopération transfrontalière en matière de connectivité écologique, y compris entre les Alpes et leur périphérie et avec d'autres régions de montagne.

Pour soutenir davantage la mise en place d'une approche de gestion coordonnée des écosystèmes et des paysages alpins et renforcer la connectivité écologique, la **Conférence alpine reconnaît tout particulièrement l'importance des actions suivantes proposées par le Comité consultatif sur le climat alpin :**

- Élaboration de recommandations pour la planification, la protection, la restauration et la gestion des paysages vulnérables et spécifiques aux Alpes, en appliquant des approches

fondées sur les écosystèmes. Ces recommandations devront s'appuyer sur un inventaire complet des paysages vulnérables, des paysages et écosystèmes spécifiques aux Alpes, des zones de nature sauvage, ainsi que de la distribution et de l'occurrence des espèces exotiques envahissantes, afin de développer une compréhension commune des actions nécessaires.
- Mise en place d'un concept commun pour la gestion des espèces envahissantes (néobiontes).
- Élaboration d'un « plan de gestion du changement climatique » pour les aires protégées et autres zones de conservation, contenant à la fois des aspects d'atténuation et d'adaptation et assurant une intégration intelligente dans les instruments d'aménagement du territoire.
- Soutien des échanges entre les parties prenantes (aires protégées et autres zones de conservation) et réunions régulières.

… avec les étapes de mise en œuvre suivantes, dans le cadre du présent Plan d'action climat 2.0 :

La Conférence alpine invite les Parties contractantes, les Organismes de travail thématiques, les organisations observatrices et les autres parties prenantes intéressées à joindre leurs forces pour mettre en œuvre les étapes décrites dans l'annexe de la version complète :

Protéger et gérer les paysages et les écosystèmes vulnérables et spécifiques aux Alpes :

- **Inventaire des paysages, des écosystèmes et des réserves naturelles dans les Alpes, ainsi que des services écosystémiques qu'ils fournissent**, qui servira de base pour toutes les activités futures.
- **Collecte de données sur les espèces exotiques envahissantes dans la région alpine**, comprenant notamment une cartographie de la distribution des néobiontes.
- **Recommandations pour la gestion et la préservation des paysages alpins spécifiques** afin d'améliorer leur planification, leur gestion, leur restauration et leur préservation.
- **Suivi de la mise en œuvre des réglementations existantes dans la région alpine**, notamment le règlement européen 1143/2014 relatif à la prévention et à la gestion de l'introduction et de la propagation des espèces exotiques envahissantes, le programme de l'UNESCO sur l'Homme et la biosphère, la Convention de Berne relative à la conservation de la vie sauvage et du milieu naturel de l'Europe, les directives européennes « Habitats » et « Oiseaux » et les stratégies et rapports de la Convention sur la diversité biologique des Nations-Unies.

Développer davantage la connectivité écologique dans les Alpes en mettant l'accent sur les impacts climatiques :

- **Réalisation d'un inventaire dans la région alpine (en mettant l'accent sur les zones transfrontalières)**, incluant les aires protégées et autres zones de conservation ainsi que les définitions de ces zones.
- **Mise en place d'un réseau de parties prenantes et de réunions régulières** basées sur les initiatives existantes, dans le but de faciliter l'échange et la coopération des gestionnaires dans le cadre de la coopération transfrontalière.
- **Renforcement des aspects d'atténuation et d'adaptation dans les plans de gestion**, notamment par la mise en œuvre de solutions fondées sur la nature, et **désignation de nouvelles aires protégées**, par exemple des réserves de biosphère de l'UNESCO, pour couvrir les espèces, les habitats et les processus écologiques qui, par effet des déplacements dus au changement climatique, ne seraient plus inclus.

3. Actions transversales

Intégrer le Plan d'action climat 2.0 dans une législation plus large sur le climat

Le Plan d'action climat 2.0 est conçu pour soutenir l'action en faveur du climat aux niveaux national, régional et européen en se concentrant sur les activités réalisées au sein de la région alpine et à caractère spécifiquement alpin, mais doit inversement être encadré par une législation climatique plus large. Les actions menées au niveau alpin ne peuvent devenir pleinement efficaces que si la politique générale et le cadre réglementaire en matière d'atténuation et d'adaptation dans les pays alpins s'inscrivent également dans une approche ambitieuse. Par ailleurs, des incitations financières sont nécessaires pour encourager la décarbonisation et des solutions d'adaptation efficaces, ainsi que le désinvestissement des technologies, des processus et des modes de vie à forte intensité de carbone. La réalisation des objectifs du Système alpin d'objectifs climat 2050, à savoir la neutralité climatique et la résilience des Alpes au changement climatique d'ici 2050, ne sera possible que si les prix reflètent les coûts environnementaux et sociaux, et si des incitations supplémentaires stimulent les investissements dans l'action climatique.

La Conférence alpine soutient donc les politiques clés suivantes pour encourager et financer les activités proposées dans le présent Plan d'action climat 2.0 :

- Un prix élevé du CO_2, établi soit dans le cadre de la législation nationale, soit sous la forme d'un système européen d'échange de quotas d'émission élargi, permet de s'appuyer sur une approche fondée sur le marché pour améliorer la compétitivité des technologies économes en énergie et neutres pour le climat. Les pays alpins devraient s'efforcer d'adopter une approche commune pour lancer un signal fort par le biais du prix du CO_2.
- L'approche d'une réforme budgétaire verte, qui vise à remplacer la taxation du travail par une fiscalité environnementale, crée de nouvelles incitations financières pour la mise en place d'une action climatique ambitieuse. La Conférence alpine soutient la poursuite de la coordination et des échanges sur ces approches, qui créent des synergies avec son Programme d'action pour l'économie verte.
- Le financement vert devrait être le principe fondamental de la prochaine période de programmation des programmes de financement et d'investissement de l'UE. La Conférence alpine soutient donc pleinement l'approche du Pacte vert de l'UE en général, et se félicite de la nouvelle orientation proposée pour le Programme Espace Alpin 2021-2027, qui met l'accent sur l'action climatique et d'autres questions environnementales.
- Le bien-être alpin pourrait être mesuré à l'aide d'un échantillon d'indicateurs allant au-delà du simple PIB.
- Les programmes de relance visant à lutter contre les effets économiques de la pandémie de COVID-19 devraient également suivre ce principe et adopter une approche de « relance verte ». Il conviendra de s'assurer que les plans nationaux de résilience et de relance maximisent la part de leurs dépenses liées au climat et saisissent cette occasion pour accélérer le développement de technologies neutres pour le climat et de solutions d'adaptation fondées sur la nature.

Activités transversales du Comité consultatif sur le climat alpin

L'ACB joue un rôle de premier plan en soutenant et en guidant la mise en œuvre du présent Plan d'action climat 2.0. L'ACB soutiendra les équipes de mise en œuvre qui s'engagent à concrétiser les activités du Plan. Ce sera la tâche principale de l'ACB dans les années à venir. L'interaction étroite entre les équipes de mise en œuvre du Plan d'action et l'ACB avec ses représentants et représentantes

des États permettra de créer des synergies avec les activités au niveau national, et de s'assurer que les nouveaux développements au niveau national seront pris en compte par les équipes de mise en œuvre. Par ailleurs, l'ACB continuera à développer sa base de connaissances afin d'orienter les activités de mise en œuvre, et avancera sur certaines actions transversales :

- L'ACB poursuivra l'approche actuelle consistant à mettre en valeur des actions « vitrines », par exemple à travers le soutien et la promotion d'un festival du climat à l'échelle des Alpes.
- En étroite collaboration avec les réseaux existants au sein de la Convention alpine, l'ACB mettra également l'accent sur le renforcement de l'action municipale, reconnaissant que le niveau municipal est l'interface clé pour mettre en œuvre une action climatique efficace et pour permettre l'interaction entre tous les acteurs concernés par la mise en œuvre du Plan d'action.
- Convaincu qu'une base financière solide est essentielle pour établir des partenariats de mise en œuvre efficaces, l'ACB soutiendra l'identification de nouvelles sources de financement pour la mise en œuvre du Système alpin d'objectifs climat 2050, en incluant des options de financement innovantes. La Conférence alpine appelle les Parties de la Convention alpine à proposer des financements pour la mise en œuvre du Plan d'action climat 2.0.
- Afin d'orienter les actions futures, de favoriser la prise de décision sur la base de données probantes et de suivre l'évolution de la situation, l'ACB veillera également à mettre régulièrement à jour son rapport d'inventaire. Les résultats seront communiqués à la Conférence alpine et aux équipes de mise en œuvre du Plan d'action afin de permettre un développement dynamique des activités futures.
- L'ACB renforcera la collaboration avec d'autres cadres/plateformes/initiatives régionaux et institutions concernées, en particulier dans les régions de montagne et les régions voisines, afin de créer des synergies et d'encourager l'apprentissage et l'échange de connaissances.

Dans toutes ces activités transversales, l'ACB prendra en compte dans son travail le contenu du Programme d'action pour l'économie verte.

Activités de communication

L'ACB appelle à des partenariats forts pour l'action climatique dans les Alpes.

La mise en œuvre du Système alpin d'objectifs climat 2050 peut réussir si elle bénéficie du soutien des acteurs publics et privés concernés. Ce soutien exige une communication poussée pour mieux informer les parties prenantes sur les activités de l'ACB et renforcer leurs capacités à s'impliquer dans les actions de suivi.

L'ACB s'appuie sur une stratégie de communication centrée sur les groupes cibles. Les groupes identifiés comme importants sont les suivants :

- Administration publique
- Décideurs politiques
- Secteur privé
- Communautés scientifiques
- Médias
- Éducateurs
- Jeunesse

Sur cette base, l'ACB distingue deux grands groupes cibles :

- Le groupe cible I est appelé « communicateurs de la Convention alpine » et recouvre le réseau existant de la Convention alpine, avec ses Parties contractantes, les Organismes de travail thématiques, les organisations observatrices, le Secrétariat permanent de la Convention alpine, etc.
- Le groupe cible II est appelé « grand public ».

Les deux principaux groupes cibles se composent de parties prenantes issues des groupes mentionnés ci-dessus. Ils se distinguent par leur niveau de connaissances sur la Convention alpine et le travail de l'ACB. L'objectif des activités de communication de l'ACB est d'étendre le réseau, afin d'atteindre l'administration publique, les décideurs politiques, les communautés scientifiques, les médias, les milieux de l'éducation et les jeunes, qui ne sont pas familiarisés avec la Convention alpine ou l'ACB.

Le succès de telles activités de communication se traduira d'une part par un nombre important de personnes / d'équipes chargées de la mise en œuvre, et d'autre part par une augmentation du nombre de ceux et celles qui peuvent répondre à la question suivante : Que signifient le Système alpin d'ojectifs climat 2050 et les parcours de mise en œuvre pour la vie, les modes de vie, les habitudes de consommation et les changements de comportement dans les Alpes à l'horizon 2050, et comment puis-je y contribuer ?

L'ACB a besoin de personnes qui atteignent le « grand public » et l'impliquent. Une approche de communication intégrée semble jouer ici un rôle clé. L'ACB se concentre sur les trois maximes suivantes :

- *« Fais du bon travail et parles-en autour de toi. »*
  L'ACB a développé le Système alpin d'objectifs climat 2050, les parcours de mise en œuvre et le Plan d'action climat 2.0. Il est important de diffuser l'information sur ces produits et leurs contenus.
- *« Ne réinvente pas la roue à chaque fois. Laisse les autres parler à ta place. »*
  Au lieu d'élaborer une stratégie de communication précise et complète, l'ACB considère qu'il est plus utile d'utiliser les moyens de communication existants et de s'efforcer de communiquer lui-même de manière précise et complète pour faire passer ses messages. La raison est manifeste : l'ACB ne sera pas en mesure de mettre seul en œuvre le Système alpin d'objectifs climat 2050. Il doit atteindre le groupe cible II et dépend des canaux de communication du groupe cible I pour communiquer à grande échelle. Par conséquent, l'ACB doit utiliser les canaux de communication du groupe cible I.
- *« Crée des liens, connecte et mets à profit les synergies. »*
  L'enjeu est ici de prendre contact avec les personnes qui ont déjà engagé des mesures de communication pour les Alpes et pour les objectifs climatiques des Alpes, et de préparer des informations détaillées à leur intention, afin qu'elles soient encore plus impliquées et engagées. L'ACB est en quête de « champions » et de partenaires (de matchmaking) pour la mise en œuvre du Système alpin d'objectifs climat 2050.

Pour atteindre ces objectifs, l'ACB a déjà pris les mesures suivantes :

- Une nouvelle présentation graphique pour les secteurs du Système alpin d'objectifs climat 2050, alignée sur l'identité visuelle de la Convention alpine.
- Développement du site web www.alpineclimate2050.org.
- Coup d'envoi d'un événement de matchmaking pour créer des équipes de mise en œuvre du Système alpin d'objectifs climat 2050.
- Soutien à ALPACA, le Partenariat alpin pour l'action climatique locale, en particulier en ce qui concerne les activités de communication sur le climat.

Les étapes et projets stratégiques prévus pour la prochaine période de travail sont les suivants :

- Développer et améliorer le nouveau site web de l'ACB www.alpineclimate2050.org, en particulier la plate-forme communautaire.
- Poursuivre les activités de matchmaking en organisant régulièrement des ateliers pour promouvoir les activités de suivi et la formation d'équipes.
- Poursuivre la coopération avec les organisations observatrices, par exemple ALPACA, le Partenariat alpin pour l'action climatique locale, en particulier à la suite des résultats de la conférence sur la communication climatique.
- Trouver au sein du groupe cible I des communicateurs qui s'adresseront au groupe cible II. Les organisations observatrices et les autres parties prenantes du groupe cible I peuvent répondre aux attentes de différents groupes cibles en matière d'information. Dans un premier temps, il conviendra de dresser un bilan pour se faire une image claire de la situation : QUI atteint QUELLE CIBLE.
- Développer une vision globale, en montrant de quel type d'information le groupe cible I a besoin pour atteindre le groupe cible II, par exemple des informations sur le travail de l'ACB pour les sites web des organisations observatrices, des articles pour les bulletins d'information, des présentations pour des événements, etc.
- Coopérer étroitement avec le Secrétariat permanent de la Convention alpine, qui élabore actuellement une nouvelle stratégie de communication globale. Ce sera l'opportunité de parler d'une seule voix pour présenter la Convention alpine, ses objectifs et ses actions.
- Développer des outils de communication spécifiques, par exemple un jeu en ligne (pour compléter le jeu ClimCards développé en 2019).

4. Mise en œuvre du Plan d'action climat 2.0

Les activités proposées dans le présent Plan d'action climat seront mises en œuvre avec le soutien d'équipes de mise en œuvre réunissant les parties prenantes concernées. Les rôles et les responsabilités pour la mise en œuvre seront répartis de la manière suivante :

- Les Parties contractantes sont invitées à s'engager dans les activités spécifiques prévues dans le Plan d'action et à diriger, rejoindre et soutenir les équipes de mise en œuvre concernées, notamment en fournissant des ressources financières.
- Les Présidences de la Convention alpine sont invitées à mettre l'accent sur certaines activités du Plan d'action qui seront développées et/ou mises en œuvre au cours de leur Présidence.
- Dans les années à venir, les Organismes de travail thématiques de la Convention alpine sont invités à intégrer dans leurs mandats et programmes de travail des activités (parcours de mise en œuvre ou étapes individuelles) proposées dans les fiches de synthèse.
- Les organisations observatrices, les autorités régionales, les communes, le secteur privé, la science et la société civile sont invités à jouer un rôle actif dans les projets contribuant à la mise en œuvre du Plan d'action climat 2.0.

La Conférence alpine reconnaît le rôle essentiel de l'ACB dans le soutien à la mise en œuvre du Plan d'action, et convient donc de prolonger le mandat de l'ACB pour la prochaine période de travail.

Dans le cadre de son nouveau programme de travail, l'ACB fera office de plate-forme pour les équipes de mise en œuvre :

- L'ACB assurera la maintenance et la gestion de la plate-forme communautaire déjà mise en place sur le site Internet de l'ACB : www.alpineclimate2050.org. Il instaurera pour chaque secteur une communauté spécifique ainsi qu'une personne responsable de cette communauté. Ces responsables feront le lien entre les partenariats de mise en œuvre et l'ACB, et veilleront à ce que toutes les activités s'inscrivent dans les objectifs du Système alpin d'objectifs climat 2050.
- L'ACB soutiendra et encouragera des actions « vitrines » ainsi que des activités transversales, par exemple un festival alpin dédié au climat.
- L'ACB continuera à travailler en étroite collaboration avec les Organismes de travail thématiques de la Convention alpine, afin de faciliter leur contribution à la mise en œuvre du Système alpin d'objectifs climat 2050 et leur soutien aux équipes de mise en œuvre.
- L'ACB mettra également l'inventaire à jour, en se concentrant si nécessaire sur des sujets spécifiques. Les résultats de l'inventaire seront partagés avec les équipes de mise en œuvre afin de s'assurer que les synergies soient exploitées tout au long du processus.
- L'ACB assurera le suivi de la mise en œuvre globale des parcours et communiquera régulièrement les résultats obtenus. À cette fin, une approche de suivi sera élaborée et appliquée au cours de la période à venir.
- L'ACB engagera un dialogue avec d'autres institutions, structures et cadres pertinents pour partager les expériences et les enseignements tirés, afin d'aider à développer des stratégies de changement climatique dans d'autres régions de montagne.
- L'ACB poursuivra ses activités de veille sur les nouvelles évolutions et les tendances émergentes au niveau transnational et mondial, et proposera si nécessaire des ajustements aux activités de mise en œuvre.

5. Annex - Implementation pathways of the Alpine Climate Target System 2050

Table of contents - Annex

A1. TRANSPORT

1.1 IP_Tr1: Strategies for decarbonisation of Alpine freight transport

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">Freight transport is responsible for a large share of CO_2-emissions in the EU and volumes are expected to keep rising (e.g. due to the further increase of global freight transport flows, changing consumption patterns (online shopping)).
The Alps as a sensitive mountain environment are particularly sensitive to impacts of road freight transport. At the same time, the Alpine transit corridors connect the northern and southern parts of Europe and are key elements of the TEN-T network with its core corridors.

Up to now, all efforts to reduce road freight transport were limited. Traffic volumes are still growing on all corridors, except in Switzerland. Ambitious efforts are thus still necessary. Solutions, which have not been harmonized, lead to traffic shifts between corridors. Therefore, these ambitious approaches should be developed at an Alpine-wide level with the objective to reduce overall transport volumes across the Alps.</td></tr>
<tr><td>Final output</td><td colspan="4">• Implementation of a policy framework for steering modal shift (e.g. Toll Plus, ACE)
• Strategies/recommendations on phasing-out internal combustion engine vehicles on the Alpine transit corridors
• Knowledge hub</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">The Alps are at the crossroad of European transport systems but with a very high sensitivity. The large share of long-distance freight transport on the Alpine corridors increases the challenges for decarbonisation and alternative technologies are – up to now – rather focusing on short-/medium-distance freight vehicles.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>X</td><td>Adaptation</td><td></td></tr>
<tr><td colspan="4">Focus is decarbonisation via modal shift and improvement of vehicle fleet.</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td colspan="4">Position of pathway on the 2050 timeline:
2020 — 2035 — 2050</td></tr>
<tr><td colspan="3">Start of first implementation step</td><td>immediately</td></tr>
<tr><td colspan="3">End of last implementation step</td><td>2035</td></tr>
<tr><td colspan="3">Starting point already available?</td><td>yes</td></tr>
</table>

Link to target system	• Direct link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_Tr4: Decarbonised transport fleet • Indirect link: T_Tr1: Modal shift of Alpine freight transit; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy
Sequence of implementation steps	
Starting point and links to stocktaking[4]	• Activities of WG Transport, e.g. analysis of innovative technologies for freight transport (stocktaking No. 34) • iMONITRAF! • EUSALP AG4 • Zurich process • Different projects financed by Alpine Space Programme
Preliminary step: Lobbying for Toll Plus **2020**	The Eurovignette Directive defines the framework for road charging in Europe and includes provisions on external cost charging in general and in mountain areas in particular. The proposal for the revision of the Eurovignette Directive (as agreed by the European Parliament in Oct 2018) will be discussed in the European Council throughout 2020 and the German EU Presidency has the objective to come to a conclusion on the dossier. The discussion process on national level to prepare the Council meeting as well as the following trilogue discussions should be used for lobbying for an ambitious approach on road charging in mountain regions to set effective incentives for modal shift and decarbonisation of the vehicle fleet.
Step 1: Support innovative technologies rail/CT **2021-2022**	Based on existing activities of WG Transport and other networks, a further exchange on best practices and experiences with improving innovation in the rail and combined transport (CT) sector will be supported. The aim should be the development of an integrated Alpine-wide knowledge hub.
Step 2a: Kickstart regional strategies for phasing-out of ICE vehicles **2022-2025**	The ACB, in collaboration with WG Transport, will launch a discussion on the future role of internal combustion engine (ICE) vehicles in the Alps and on how a phase-out in the different segments of road freight transport can be achieved (regional/local logistics, long-distance transit traffic, medium-distance transport between Alpine centres). Experiences of these approaches are exchanged via the ACB and the WG Transport.
Step 2b: Support for implementing a Toll Plus system **2022-2025**	Based on the outcomes of the ongoing revision process of the Eurovignette Directive (see preliminary step) and the results of the next ministerial meeting of the Zurich process, the ACB will identify options for supporting the implementation of Toll Plus at national level to set additional financial incentives for modal shift and decarbonisation of the vehicle fleet.

4 References to stocktaking: https://www.alpconv.org/fileadmin/user_upload/Organization/TWB/ACB/ACB_Stock-taking_report_2019.pdf

Step 3: Alpine Crossing Exchange **2035**	The cap-and-trade approach Alpine Crossing Exchange (ACE) is one potential instrument to limit overall CO_2-emissions of freight transport (via limitation of overall transport volumes on the Alpine corridors). Based on experiences with measure step 2b, the ACB together with WG Transport will identify options on how to politically support the implementation of the ACE (based on ongoing discussions and windows-of-opportunity at EU level). The cap-and-trade logic of the ACE will support the financial incentives which are generated by Toll Plus in step 2b.	
Stakeholders needed for implementation	• National administrations • Other networks dealing with freight transport in the Alps • European Commission and Parliament (specifically for ACE)	
Indicators for monitoring this pathway	• Implementation of the knowledge hub (y/n) and quantification of users/year • Quantification of Alpine countries, which have implemented the recommendations for phasing-out ICE vehicles • Qualitative description of networking/lobbying activities (Toll Plus and ACE; y/n) • Development of modal shift as general objective on the Alpine transit corridors	
Link to other pathways	• Indirect link: IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_E1: Set up a network of regional energy coordinators; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB can share know-how on Toll Plus with national administrations, together with WG Transport. • ACB can support set up of knowledge hub (step 1) or promotion/extension of existing hubs (e.g. EUSALP platform of knowledge).
	Governance setup	-
	Twinning/know-how transfer	• ACB can support exchange of experiences with strategies to phasing-out ICE vehicles (step 2a).
	Outreach	• Specific outreach activities to promote Toll Plus and ACE, targeted at EU and national level decision makers
	Knowledge hub	• Knowledge hub on innovative transport solutions (step 1) to be integrated with ACB hub.

Integration in the ACB communication strategy	**Content**	Information on new policy instruments and exchange of best practices
	Tools	-

1.2 IP_Tr2: Developing the Alps into a model-region for reduced working mobility

Basic information				
Background and description of the pathway	Working mobility/commuting makes up a considerable share of passenger traffic in the Alps, leading to considerable environmental impacts. The specific challenge of cross-border commuter mobility makes it difficult to work towards effective solutions – national or regional approaches do not consider cross-border commuter flows. An Alpine-wide approach would thus be necessary to effectively reduce working mobility, including smart approaches to deal with cross-border mobility but also incentive systems to reduce overall commuter traffic (e.g. by implementing remote working options, teleworking, decentralized working spaces etc.).			
Final output	• Establishment of a network of regional mobility coordinators • Recommendations for an Alpine-wide framework for reducing commuter mobility • Enabling the largest share of Alpine employees to (partly) make use of flexible work solutions			
Alpine-specific character	The large share of cross-border commuter traffic requires a common approach – purely national or regional approaches often do not consider this aspect. Also, the specific settlement patterns in the Alps and the concentration of jobs in the major economic centres lead to high commuter traffic, which often overlaps with tourism traffic during peak times.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	
	Focus is reduction of overall transport volume and shift to public transport.			

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2030
	Starting point already available?	yes
Link to target system	• Direct link to: T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_MA3: Networks of CO_2-free municipalities • Indirect links to: T_MA_1: Municipalities as transition engines; T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes	
Sequence of implementation steps		
Starting point and link to stocktaking	• Current ARPAF project. Cross-border mobility • PeMo project (stocktaking No. 53)	
Step 1: Follow-up on activities of "Cross-border mobility" project and transfer to pilot regions **2022-2025**	In the frame of the ARPAF project "Cross-border mobility", several effective commuter cooperation models have already been identified. A toolbox has been developed and a first round of training courses was implemented. As the project was focused on some pilot areas, the experiences can be extended to other regions of the Alpine area (transfer). The pilot projects should also explore potentials for reducing overall commuter mobility, e.g. options for teleworking, decentralized workspaces etc.	
Step 2a: Set up of network of regional mobility coordinators **2025**	Network of regional mobility coordinators (parallel to energy coordinators in pathway E1 "Set up a pathway of regional energy coordinators") as interface between company level, municipalities, and regions will be set up.	

Step 2b: Pilot projects for location-flexible work solutions **2025-2030**	Based on experiences in step 1, several pilot projects with companies and municipalities are developed to test different approaches for location-flexible work solutions (e.g. experiments with teleworking/work floating approaches). This could include large companies, which are major employers in a specific region (bottom-up) or municipalities/regions with a large share of outgoing commuter traffic (top-down). • Pilot projects and experiments could have different focuses: general working times, times during peak travel seasons, ensuring productivity during winter seasons/natural hazard events….) • Should make use of existing platforms or apps (e.g. for carpooling). • Should test financial incentives for teleworking models
Step 3: Recommendations for Alpine companies on decentralized work and living solutions **2030**	Based on first experiences of the regional mobility coordinators, a set of recommendations for Alpine companies to facilitate decentralized work and living solutions will be developed.
Stakeholders needed for implementation	• Companies • Municipalities (-> ALPACA network) • Coworking office spaces/suppliers
Indicators for monitoring this pathway	• Quantification of follow-up pilot actions on commuter mobility • Quantification of participants of training sessions • Quantification of mobility coordinators installed • Quantification of companies that apply the recommendations
Link to other pathways	• Direct link: IP_Tr4: Developing the Alps into a model region for shared mobility; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_SP2: Spatial planning measures for reducing the need of individual car traffic • Indirect link: IP_E1: Set up a network of regional energy coordinators; IP_SP1: Alpine-wide concept „Spatial planning for climate action“

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB can coordinate the extension of the toolbox (step 1), e.g. in coordination with WG Transport.
	Governance setup	• ACB in coordination with other relevant bodies of the AC can launch the set up of regional mobility coordinators (link to pathway E1 “Set up a network of regional energy coordinators”).
	Twinning/know-how transfer	• Support for pilot activities, making use of expertise of ACB members and their networks • Twinning approach for mobility coordinators
	Outreach	• Raise awareness at national level on activities implemented at local/regional level
	Knowledge hub	• Toolbox (step 1) to be implemented in ACB knowledge hub
Integration in the ACB communication strategy	**Content**	Information on pilots, trainings, best practices etc.
	Tools	Toolbox for mobility managers

1.3 IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport

Basic information	
Background and description of the pathway	Reducing car-dependency by shifting to public transport solutions will be a core task for decarbonising passenger transport in the Alps. Activities and projects on modal shift for passengers however, need to recognise the specific challenges in the Alps, especially related to cross-border mobility as well as mobility needs in remote regions. Also, the different needs of local citizens and tourists need to be considered, especially regarding easily accessible information. To ensure that public transport is in-line with the climate-neutral and climate-resilient Alps vision, public transport solutions should also, as far as possible, build on low-carbon technologies (e.g. electric buses, electrified or hydrogen railways).
Final output	• Implementation of an Alpine-wide information and integrated ticketing system for public transport • All public transport vehicles (road and rail) are powered by alternative fuels/electric mobility.

Alpine-specific character	Integration and decarbonisation of public transport can only be realized, if those topics are treated as Alpine-wide cross-border aspects. The Alpine area faces specific challenges in providing user-friendly public transport solutions, e.g. in remote areas. In this area, also mobility needs of tourists are of major importance.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	
	Focus is reduction of overall transport volume and shift to public transport.			
Implementation timeframe	Position of pathway on the 2050 timeline: 			
	Start of first implementation step			immediately
	End of last implementation step			2030
	Starting point already available?			yes
Link to target system	• Direct link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_Tr3: Reduced transport demand (passenger and freight); T_Tr4: Decarbonised transport fleet; T_Tou1: Car-free, attractive tourism traffic; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_MA3: Networks of CO_2-free municipalities • Indirect link: T_E3: Decentralized, sustainable energy solutions for the Alps; T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport)			
Sequence of implementation steps				
Starting point and links to stocktaking	• LINKING ALPS (new project Alpine Space Programme on developing an integrated multimodal information system) • Mobility solutions in the Alps Database (stocktaking No. 33) • AlpInfoNet project (stocktaking No. 44) • Alpine Pearls (stocktaking No. 47) • MELINDA - Mobility Ecosystem for Low-carbon and INnovative moDal shift in the Alps (stocktaking No. 81) • Yoalin: Youth Alpine Interrail • E-moticon and e-Smart projects (Alpine Space programme) • Several initiatives on national and regional level			

Step 1a: Extension of youth Alpine Interrail tickets **2021-2027**	Youth Alpine Interrail is a project of the CIPRA Youth Council and CIPRA International, in cooperation with Eurail and promoted by the signatory States of the Alpine Convention. It enabled 100 selected young people (age 16-27) to travel sustainably across the Alps by means of public transport for 50-80 Euros for one month in the summers of 2018 and 2019. This approach will be continued until a broader approach for a new mobility ticket in the Alps is proposed (see step 2b).
Step 1b: Completion and addition of Alpine-wide information and ticketing system **2025**	Based on the results of the AlpInfoNet as well as the Linking Alps project, which has the objective to develop an integrated information system on public transport and alternative mobility solutions, there will be a need for further developing this system into a fully integrated information and ticketing system for the overall Alpine Space. Especially, the aspect of integrated ticketing will be a high value added to provide attractive alternative transport solutions.
Step 2a: Integration of information and ticketing system into local and regional mobility plans **2027**	With the help of the regional mobility coordinators (see pathway Tr2) the information and ticketing system will be integrated into local and regional mobility plans and communication strategies. This will also include a coordination of the information and ticketing system with parking space pricing, park-and-ride solutions etc. The mobility coordinators will promote the information on the national and regional systems towards private stakeholders (e.g. links to companies or tourism destinations).
Step 2b: Support of new mobility tickets – further development of Alpine Interrail **2027**	To increase the acceptance and use of public transport, especially regarding cross-border mobility as well as tourism mobility, an Alpine-wide approach for new mobility tickets is explored: e.g. temporal flat-rate tickets for commuters or tourists, discounted multiple trip tickets, which can be used in overall Alpine-wide public transport network etc. These mobility tickets should be targeted at actual mobility needs and should avoid the creation of unwanted additional traffic volumes due to wrong incentive structures.
Step 3: Coordination of Alpine funding schemes for low-carbon public transport fleet **2030**	The public transport fleet in the Alps needs to build on best-available technologies, especially electric mobility solutions or alternative fuels. This however requires additional funding to support operators to renew their vehicle fleet. A coordination of funding schemes at regional and national level (e.g. regarding funding rates, requirements etc.) could support the renewal of the vehicle fleet and develop the Alpine region into a model region for the take-up of a low-carbon public transport fleet (e.g. testing electric buses under difficult topographical conditions).

Stakeholders needed for implementation		• Transport operators, transport associations/authorities • Municipalities (ALPACA network) • National authorities
Indicators for monitoring this pathway		• Quantification of regional transport information and ticketing systems, which are integrated in the platform • Quantification of users/quantification of search queries/quantification of bookings via the information system • Quantification of public transport vehicles/rolling stock, which are changed into vehicles powered by alternative fuels/year
Link to other pathways		• Direct link: IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism • Indirect link: IP_Tr1: Strategies for decarbonisation of Alpine freight transport; IP_E1: Set up a network of regional energy coordinators; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB, together with WG Transport, EUSALP AG4 and other relevant networks can identify options for extending the platform (step 1) and for facilitating its further development. • ACB can support continuation of Youth Alpine Interrail. • ACB can kickstart discussion on Alpine mobility tickets, if possible in line with WG Transport and GEAP processes.
	Governance setup	• ACB can identify stakeholders with private interest in setting up funding scheme.
	Twinning/know-how transfer	• Twinning/know-how transfer will be ensured via regional mobility coordinators
	Outreach	-
	Knowledge hub	-
Integration in the ACB communication strategy	**Content**	Information on pilots, trainings, best practices etc.
	Tools	Information and ticketing system

1.4 IP_Tr4: Developing the Alps into a model region for shared mobility

Basic information				
Background and description of the pathway	Car-pooling and other alternative forms to reduce car dependency will play an important role for decarbonising Alpine transport but at the same time to ensure accessibility of all regions of the Alpine area (e.g. individual transport via Alpine-Uber). Car sharing, especially in tourism destinations, will play a crucial role in reducing the need for private vehicles and can support the modernization of the vehicle fleet.			
Final output	• Implementation of an Alpine-wide information system, which links existing Apps for shared mobility • Shared mobility solutions implemented in at least one Alpine municipality/tourism destination (integrated in label approach) in each Alpine state • Set up of new shared mobility vehicles (bikes and cars) in every Alpine state through funding programme • New label/ network for tourism destinations, which offer shared mobility options			
Alpine-specific character	Tourism transport in the Alps has a high relevance: many tourists still travel to the Alps by private car as they want to be flexible during their vacation. The availability of shared mobility solutions in their travel destination might be an alternative to bringing the private car. Offering shared mobility solutions in remote/densely populated areas brings along specific challenges (especially regarding costs).			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	
	Focus is reduction of overall transport volume on the road			
Implementation timeframe	Position of pathway on the 2050 timeline: 2020 ◆ 2035 → 2050			
	Start of first implementation step	immediately		
	End of last implementation step	2030		
	Starting point already available?	yes		

Link to target system	• Direct link: T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_Tou1: Car-free, attractive tourism traffic; T_MA3: Networks of CO_2-free municipalities • Indirect link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy
Sequence of implementation steps	
Starting point and links to stocktaking	• Mobility solutions in the Alps Database (stocktaking No. 33) • Alpine Pearls (stocktaking No. 47 • MELINDA - Mobility Ecosystem for Low-carbon and INnovative moDal shift in the Alps (stocktaking No. 81) • Several initiatives at national and regional level (e.g. stocktaking No. 97)
Step 1: Set up of an Alpine-wide information system to link Apps for shared mobility solutions **2021-2022**	• Bring together users/suppliers of carpooling (unpaid neighbour services as well as paid “Uber-like” solutions) • Information on availability of bike and car rentals • Pooling of logistic services/local deliveries
Step 2a: Develop a label and award for shared mobility solutions in the Alps **2022-2025**	Based on the experiences of the Alpine Pearls network, either a new label or an extension of the Alpine Pearls label is established to promote and reward good solutions for shared mobility in the Alps (focus on both local citizens as well as tourists). In addition, an annual award is implemented to improve visibility of the issue (could be extension of Constructive Alps/ClimaHost Award).
Step 2b: Support to pilot projects **2025-2030**	Different elements of shared mobility will be tested in different pilot activities, e.g. regarding the potential of carpooling/logistics pooling in remote areas, the integration of shared mobility solutions into travel plans for tourists, the realisation of shared call for tenders by municipalities for car sharing/carpooling operators, the integration of cargo bikes into sharing solutions etc.

Step 3: Coordination of funding programmes for set up of shared mobility stations **2030**	The set up of shared mobility solutions (especially bike and car rentals) requires substantial funding. An Alpine-wide coordinated approach for funding schemes, which set incentives for installing shared mobility infrastructures/ vehicles could help. The coordinated approach should focus on innovative vehicle technologies to support the decarbonisation of the Alpine vehicle fleet.
Stakeholders needed for implementation	• Municipalities (ALPACA network) • Tourism stakeholders • National authorities
Indicators for monitoring this pathway	• Quantification of services/offers, which are linked by the info system; quantification of users, quantification of “bookings” (Apps) • Quantification of tourism destinations that joined the label • Quantification of pilots • Quantification of funding systems, which are coordinated in the common approach
Link to other pathways	• Direct link: IP_Tr2: Developing the Alps into a model-region for reduced working mobility; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models ; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams) • Indirect link: IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_NH3: Support measures to enhance individual risk precaution; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB can support the set up of an information system to link existing Apps (step 1), the leading role should however be taken over by a stakeholder with stronger roots in the mobility sector.
	Governance setup	• ACB can kickstart discussion on label and award (step 2a), e.g. linked to Alpine Pearls network. • Identification of private stakeholders, which are interested in setting up an investment framework
	Twinning/know-how transfer	-
	Outreach	-
	Knowledge hub	• Information system on Mobility Apps can be linked to knowledge hub.
Integration in the ACB communication strategy	**Content**	• Information on pilots, trainings, best practices etc.
	Tools	• Information system, which links Apps on shared mobility; label and award

A2. ENERGY

2.1 IP_E1: Set up a network of regional energy coordinators

Basic information				
Background and description of the pathway	The municipal level is crucial for implementing effective climate change mitigation and adaptation solutions and is a key interface for incentivizing climate-friendly behaviour of the general public. However, decision makers at local level often have limited capacities to develop and implement sustainable energy action plans (with links to other sectors), to identify opportunities for funding investments, to join forces and use synergies with other stakeholders etc. Regional energy coordinators have the potential to close this "implementation gap", serving as knowledge gateway for decision makers at local level (technical and procedural advice, knowhow on funding opportunities, communication support). Regional energy coordinators shall also bring together the needs from different municipalities to develop joint solutions (bundling of activities). In many Alpine regions, regional and local energy agencies are taking up this responsibility together with local authorities in their daily interactions.			
Final output	• Regional energy coordinators are installed in the Alps, based on existing organisations such as local and regional energy agencies. • The networking of all regional energy coordinators is institutionalized with regular exchanges and a platform for knowledge transfer (to be defined: expected number of network members) • Implementation of pilot actions • Establishment of an Alpine training programme for regional coordinators			
Alpine-specific character	The energy transition entails specific challenges in the Alps, e.g. regarding the development of renewable energy production in the sensitive Alpine environment or energy-efficiency solutions in areas with low-population density and the resilience of the energy system to climate change impacts. On the other hand, there are many small municipalities in the Alps, which have limited resources for international exchange. An Alpine-wide network of regional energy coordinators would allow the exchange of relevant experiences and support the implementation of "Alpine-fit" mitigation and adaptation solutions.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	Adaptation should be an integral part of the network.			

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2025
	Starting point already available?	yes
Link to target system	• Direct link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_E4: Alpine energy democracy/citizen involvement • Indirect link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_NH3: Individual risk precaution; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Agr1: Energy self-sufficiency of Alpine farms; T_MA1: Municipalities as transition engines; T_MA3: Networks of CO_2-free municipalities	
Sequence of implementation steps		
Starting point and links to stocktaking	• Regional, national and European energy planning schemes ranging from the European Energy Award to national schemes (e.g. Austrian E5 programme, Italian ComuneClima, Energie Stadt Schweiz, Energie Kommunen Germany), to ICLEI (Local Governments for Sustainability) and the Covenant of Mayors and several EU level smart city initiatives as well as regional schemes like the Positive Energy Scheme (TEPOS) supported by the Rhône-Alpes Council • First elements of network of regional coordinators and related activities as established under the PEACE_Alps project (ASP 2015-18) • ALPACA (stocktaking No. 48) • PEACE Alps • EUSALP AG9: EUSALP Energy collaboration platform, Network for the Promotion of local Energy Management Systems (EMS), Report: Operationalising one-stop-shops on local level • Experiences of specific projects, e.g. SINFONIA (stocktaking No. 78) • Experiences with the set up of networks at regional level (e.g. in Bavaria)	
Step 1: Define strategy and Initialize operational network **2021-2022**	Develop a strategy and set up of an operational network of regional coordinators, if possible, in the whole Alpine area to: • Increase capacity of local decision makers • Ensure an effective knowledge transfer • Support implementation measures (RES, EE, communication) • Providing information on available European funds for supporting mitigation and adaptation policies at local level	

Step 2a: Support and promote pilot actions **2022-2025**	The network of regional energy coordinators should be used to promote and support pilot actions to develop decentralized energy solutions (also including smart grid solutions). This network should be based on existing organisations, when possible.
Step 2b: Alpine training programme for energy coordinators **Start: 2022**	An Alpine training programme for regional energy coordinators would enable an instruction of regional coordinators and an exchange of experience between coordinators (could also include an "Erasmus"-type exchange for specific professions, e.g. mountain building professionals). All training courses of this programme shall be based on a common curricula for training and exchange.
Step 3: Diffusion of experiences **2025**	Experiences of the first phase of the network should be enlarged to cover additional regions of the Alpine area (if not yet covered in step 1) or to reach out to regions in the broader perimeter: • Development of twinning approaches • Involvement of regional coordinators in EU projects to facilitate access to enable funding etc.
Stakeholders needed for implementation	• Existing regional energy coordinators and climate alliances • Network ALPACA for communication and coordination • Alliance in the Alps, Alpine Town of the Year Association • Decision makers at local and regional level • Existing energy planning schemes and initiatives (see list in "starting point")
Indicators for monitoring this pathway	• Quantification of additional regional coordinators that are installed in the regions of the Alps, description of value added of networking approach • Quantification and type of pilot actions that are developed/initiated by regional coordinators • Quantification of participants of Alpine training programmes per year

Link to other pathways	• Direct link: IP_E2: Enabling an Alpine-wide energy democracy; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_E4: Supporting Alpine administrations as forerunners and models for the energy transition on their premises • Indirect link: IP_Tr1: Strategies for decarbonisation of Alpine freight transport; IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Set up of network: The ACB together with EUSALP AG8 and AG9 can define a strategy to implement the network, including a work description/profile for regional energy coordinators.
	Governance setup	• AC National Focal Points can call on national and regional authorities to set up regional coordinators.
	Twinning/know-how transfer	• Bottom-up initiatives as developed within the network should be assisted through partners in ACB, e.g. members of the ACB support pilot projects of the regional coordinators. • Members of the ACB or other Alpine Convention bodies can use contacts within their country/region to extend the approach.
	Outreach	• ACB can raise the visibility of impacts of regional-coordinators at national level.
	Knowledge hub	• The knowledge hub of the ACB can be used for linking regional energy coordinators, e.g. via specific share point section.
Integration in the ACB communication strategy	**Content**	Energy coordinators provide: information on the network (towards potential members), on best practices (for replication), on trainings (towards potential participants)
	Tools	-

2.2 IP_E2: Enabling an Alpine-wide energy democracy

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">With the energy transition, new stakeholders have the chance to enter the energy supply sector and to develop investment solutions for energy-efficiency and renewable energy projects. Energy communities are now defined in Art. 16 of the Directive on the Internal Market for Electricity Directive on “Citizen Energy Communities” and in Art. 22 of the Directive on the promotion of the use of energy from renewable sources on “Renewable Energy Communities”. Citizens get an opportunity to invest into small-scale energy-solutions and thus to shape the energy transition. Several types of financial participation have been developed on the market:

• Energy cooperatives: citizens invest in local projects and are directly involved in developing and shaping these projects.[5]
• Lending-based crowdfunding for RES or EE projects: citizens lend money for investment with a fixed return rate.
• Equity-based crowdfunding (crowdinvest): citizens invest in projects or start-ups and become shareholders. The returns depend on the market-success.

To enable crowdfunding options, several funding platforms have already been set up by private market players (e.g. BetterVest). These however include projects that do not have an Alpine-specific focus and do not enable Alpine citizens to search for investment opportunities in the Alps as they were developed by these market players.</td></tr>
<tr><td>Final output</td><td colspan="4">• Recommendations on innovative financial participation formats, with specific focus on Alpine-specific needs
• Set up of an Alpine-wide platform for marketing of investment options in the Alps and communication campaigns
• Implemented pilot projects (to be defined: specify quantification)</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">Energy crowdfunding in the Alps has the opportunity to create co-benefits in other fields of action.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>X</td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">Focus is on mitigation.

If measures support the transition towards energy-autonomy, the pathway also has a strong link to adaptation.</td></tr>
</table>

5 Energieagentur Rheinland-Pfalz GmbH (2016): „Geschäftsmodelle für Bürgerenergie¬genossenschaften. Markterfassung und Zukunftsperspektiven.

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2030
	Starting point already available?	yes
Link to target system	• Direct link: T_E4: Alpine energy democracy/citizen involvement • Indirect link: T_MA1: Municipalities as transition engines; T_MA2: Climate action institutionalized in municipal action; T_MA3: Networks of CO_2-free municipalities	
Sequence of implementation steps		
Starting point and links to stocktaking	• Green Economy Action Programme (stocktaking No. 9) • Existing platforms and solutions that enable crowdfunding and participation in energy cooperatives	
Step 1: Analyse and adapt innovative financing solutions for RES and EE projects in the Alps **2021-2022**	• Review of existing crowdfunding platforms and (green) financing solutions for RES and EE projects (e.g. public-private-(people) partnerships (PPP(P), cooperatives). • Review of outputs from existing EU project dealing with the topic, such as Alpgrids (ASP project), Smart village (ASP project). → Identify Alpine-specific challenges and needs to further support such solutions in the Alps.	
Step 2: Pilot projects with focus on Alpine-specific characteristics **2022-2025**	To test solutions for the specific challenges, a set of pilot projects is launched: e.g. to develop energy cooperatives with a link to preserving historic buildings, crowdfunding for investments linked to biogas use etc.	

Step 3a: Recommendations for innovative Alpine energy financing **2030**	Recommendations that highlight co-benefits with other fields of action, especially benefits for Alpine ecosystems, mountain agriculture and forestry etc. are developed
Step 3b: Alpine-wide platform for investment solutions **2030**	Investment opportunities in the Alps (including energy cooperatives but also broader crowdfunding options) are integrated in an Alpine-wide platform.
Stakeholders needed for implementation	• Market players involved in crowdfunding platforms • Local and regional administrations, private stakeholders, companies, sports clubs, tourism stakeholders etc. to identify potential projects • Regional and national associations of cooperatives
Indicators for monitoring this pathway	• Quantification of pilot projects developed • Quantification of new energy cooperatives developed in the Alps • Quantification of investment projects, which are finalized on the Alpine-wide platform for energy crowdfunding
Link to other pathways	• Direct link: IP_E1: Set up a network of regional energy coordinators; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_E4: Supporting Alpine administrations as forerunners and models for the energy transition on their premises • Indirect link: IP_Tr1: Strategies for decarbonisation of Alpine freight transport; IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_Tou1: Development of a coordinated vision for climate-neutral and climate- resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate- neutral tourism; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_SP2: Spatial planning measures for reducing the need of individual car traffic ; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Review in step 1 and development of recommendations in step 3a, in line/coordination with GEAP process, EUSALP AG9 and other relevant stakeholders
	Governance setup	• Identify relevant stakeholders with private interest to set up a platform for investment solutions, give a mandate to these stakeholders to further develop the approach
	Twinning/know-how transfer	• Indirect support of pilot projects, main support should be given by regional energy coordinators
	Outreach	• Increase visibility of pilot projects and of recommendations for Alpine energy crowdfunding
	Knowledge hub	• Platform for investment solutions can be linked to knowledge hub.
Integration in the ACB communication strategy	**Content**	Information on best practices/pilot projects, opportunities of crowdfunding solutions in general
	Tools	Online platform for investment solutions

2.3 IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business

Basic information	
Background and description of the pathway	The transition towards climate-neutral and climate-resilient Alps will require a change in behavioural patterns, lifestyles and business models, especially to support energy savings. To create an impact, all stakeholders and the civil society need to support the energy transition – but they are, in many cases, still unaware of the need for action or reluctant to change. Awareness raising campaigns and tools as well as a stronger involvement of the civil society in decision making processes, focusing on the specific challenges of the energy transition in the Alps, will create broader awareness on the need for action and can trigger specific activities at private level.

Final output	• Compilation of toolboxes for Alpine households and SMEs to recognise their climate impact and to identify options for individual action. • Identification of 3-5 pilot regions/municipalities in each Alpine country, which will test the toolbox.			
Alpine-specific character	Changing lifestyles and business models towards climate-neutrality brings along specific challenges in the Alps: longer travel distances, lower population densities with specific building structures, supply of regional products etc.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	
	Focus is on mitigation.			
Implementation timeframe	Position of pathway on the 2050 timeline: 2020 ◆ 2035 → 2050			
	Start of first implementation step			immediately
	End of last implementation step			2030
	Starting point already available?			yes
Link to target system	• Direct link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_E4: Alpine energy democracy/citizen involvement • Indirect links: T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_MA1: Municipalities as transition engines			
Sequence of implementation steps				
Starting point and links to stocktaking	• Citizens: 100max project (stocktaking No. 50) • All projects implemented by the Alpine mountaineering clubs (stocktaking No. 61-64) • SMEs: EUSALP AG9: Enhance Energy Efficiency in Alpine Small and Medium-Sized Enterprises, incl. CAESAR project			

Step 1: Compilation of toolboxes to support low-carbon/low-energy lifestyles and business models **2021-2022**	Existing tools and online platforms are brought together into a compilation of Alpine toolboxes for low-energy lifestyles and business models. It could include: • Online calculator for Alpine carbon footprint • Calculator for product footprints, including comparison between Alpine and non-Alpine products • Tools for energy auditing schemes at regional level (e.g. based on results of the CEASEAR project (ARPAF)) • Toolbox for measures
Step 2: Pilot projects on low carbon/ low-energy lifestyles and business models **2023-2030**	• In each Alpine country, 3-5 pilot regions/municipalities are identified to test the acceptance and impacts of support measures focusing on behavioural change and low-carbon/low-energy business models(e.g. based on the experiences of the 100max project)
Stakeholders needed for implementation	• Local and regional administrations as well as SMEs for implementing pilot actions as well as for assessing needs for climate governance
Indicators for monitoring this pathway	• Quantification of specific tools implemented in the toolbox • Quantification of pilot projects implemented

Link to other pathways	• Direct link: IP_Tr2: Developing the Alps into a model-region for reduced working mobility; IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_Tr4: Developing the Alps into a model region for shared mobility; IP_E2: Enabling an Alpine-wide energy democracy; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming • Indirect link: IP_Tr1: Strategies for decarbonisation of Alpine freight transport; IP_E1: Set up a network of regional energy coordinators; IP_E4: Supporting Alpine administrations as forerunners and models for the energy transition on their premises; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_NH3: Support measures to enhance individual risk precaution; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions; IP_SP1: Alpine-wide concept „Spatial planning for climate action"; IP_S2: Defining Alpine-wide guidelines for minimised land take and sealing; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests; IP_Fo2: Promoting Alpine forests as carbon sinks; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB can kickstart the implementation of the toolbox in step 1a, which then should be further developed in an independent project (e.g. Alpine Space programme, LIFE climate etc.). • Review of options to improve climate governance can be implemented by ACB or other relevant body of the AC.
	Governance setup	-
	Twinning/know-how transfer	• ACB members can support pilot activities. In general, ACB can facilitate that activities are linked and integrated with ALPACA activities.
	Outreach	• ACB can facilitate that results of pilots are transferred to other interested municipalities (e.g. via ALPACA).
	Knowledge hub	-

Integration in the ACB communication strategy	**Content**	Information on pilot activities, recommendations, process etc.
	Tools	Contents of toolbox developed under step 1a

2.4 IP_E4: Supporting Alpine administrations as fore-runners and models for the energy transition on their premises

Basic information				
Background and description of the pathway	Local and regional administrations have great potential to serve as forerunners and models to showcase potential actions to improve energy-efficiency and to install RES in small-scale public settings. Also, they can showcase different options for adapting buildings to climate change impacts, e.g. via increasing passive cooling systems, green roofs/green walls etc. Many people visit public buildings (schools, kindergartens, libraries, swimming pools etc.) during their daily activities and can thus get in touch with best practices implemented in these buildings. Also, administrations can use further options to improve awareness on the transition towards climate-neutral and climate-resilient Alps, e.g. during information events etc.			
Final output	• Recommendations and minimum requirements for Alpine administrations to reduce CO_2-emissions on their premises and to adapt their building stock to climate change impacts • Implementation of 50/50 projects aiming at mobilizing energy savings in public buildings or similar coordination projects in public buildings (especially schools, kindergartens, public sports facilities with many users) • Energy retrofitting of the largest amount of public buildings in the Alps			
Alpine-specific character	The Alpine area faces specific challenges in terms of the energy transition. The Alpine area could and should live up to the objective of becoming a model region for this transition.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	Focus is on mitigation.			

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2040
	Starting point already available?	yes
Link to target system	• Direct link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_E4: Alpine energy democracy/citizen involvement • Indirect link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_MA1: Municipalities as transition engines	
Sequence of implementation steps		
Starting point and links to stocktaking	• Review of existing projects and programmes: European Energy Award, KlimaAktiv in Austria etc. • Covenant of mayors • ALPACA (stocktaking No. 48) • Alpine building conference (stocktaking No. 38) • Existing training activities implemented in the Alps (e.g. climate adaptation consulting in Tyrol, stocktaking No. 115)	
Step 1: Recommendations for Alpine administrations **2021-2022**	Based on a review of existing activities of public administrations and existing guidelines, specific recommendations to support Alpine administrations in becoming a forerunner for climate action (mitigation and adaptation) are developed. These should include examples on how to implement 50/50 projects to involve and motivate users of public buildings. Overall, the recommendations should highlight solutions to Alpine-specific challenges.	
Step 2a: Training courses for public building managers **2023-2030**	Training courses for public building managers (e.g. in the frame of the Alpine training programme, see Pathway IP_E1 “Set up a network of regional energy coordinators”). • One week teaching courses, focusing on a transnational exchange and learning, or • Regional training courses, organized in the different Alpine languages	

Step 2b: **Set up 50/50 projects with schools and other public buildings** **2023-2030**	• Implementation of 50/50 projects in schools, kindergartens, sports facilities or other public buildings in which the users can affect energy consumption (a lot good feedback from experiences made in France, based on the "Positive energy family challenge" that was duplicated in Savoie and Isere for schools and even for municipalities)
Step 3: **Energy retrofitting and climate proofing of majority of public buildings in the Alps** **2030-2040**	• Most public buildings in the Alps are retrofitted towards climate-neutral buildings and are climate proofed to meet new needs under a changing climate.
Stakeholders needed for implementation	• Local and regional administrations • ALPACA network • Local and regional energy agencies
Indicators for monitoring this pathway	• Quantification of regional and local administrations that have implemented the recommendations • Quantification of participants of new training courses • Quantification of 50/50 projects implemented (or similar) • Percentage of public buildings, which are retrofitted towards climate-neutral and climate-resilient buildings
Link to other pathways	• Direct link: IP_Tr2: Developing the Alps into a model-region for reduced working mobility; IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_Tr4: Developing the Alps into a model region for shared mobility; IP_E1: Set up a network of regional energy coordinators • Indirect link: IP_E2: Enabling an Alpine-wide energy democracy; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB in collaboration with ALPACA can develop the recommendations in step 1.
	Governance setup	• ACB can support the set up of a training institution (step 2a), if possible in combination with the Alpine training programme (Pathway IP_E1: “Set up a pathway of regional energy coordinators”). • ACB can support private investment scheme to which 50/50 projects (step 2b) can be linked.
	Twinning/know-how transfer	• ACB can set up contacts to relevant experts that could teach in the training courses.
	Outreach	-
	Knowledge hub	-
Integration in the ACB communication strategy	**Content**	Information on pilot activities, recommendations, process etc.
	Tools	-

A3. TOURISM


NASSFELD
Passo Pramollo
Oe.AV., Sekt. Hermagor
BIV. LOMASTI
Bivak Lomasti
KARNISCHER HÖHENWEG
Alta via Alpi Carniche
Oe.AV., Sekt. Hermagor

3.1 IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams)

Basic information	
Background and description of the pathway	Tourism is one of the main sources of income in the Alps. Some 40% of the Alpine municipalities display significant tourism activities. However, tourism as cross-cutting economic activity faces several challenges related to climate change (mitigation and adaptation needs) but also to meet other environmental, social and economic objectives. The Alpine Convention has already worked intensively on the promotion of sustainable tourism, but additional efforts are needed to meet the objectives of climate proofing the Alpine tourism. As tourism destinations already start i) to align their offers to new tourism demand for low-carbon vacations as well as to new regulations regarding energy and climate legislation in their respective national and regional frameworks and ii) to diversify their offers to adapt to climate change impacts, a stronger coordination of strategies and tools seems necessary. Aims are: i) avoiding unwanted distributional effects between tourism destinations that could arise from different approaches on developing climate-friendly and climate-neutral tourism offers, ii) ensuring that the carrying capacity of specific tourism sites is not overstressed, taking into account potential impacts of climate change and iii) optimizing overall development of tourism activities in a qualitative way under the precondition of decarbonisation. This includes a coordination of strategic approaches towards the development of climate-neutral and climate-resilient tourism offers, climate goals/targets as well as financial aspects related to tourism development (and other incentive measures) as well as monitoring and reporting issues.
Final output	• Set up of an Alpine strategy on coordinated climate-neutral and climate-resilient tourism • Alignment of financing streams (from intensive tourism, which does not take into account climate mitigation and adaptation needs towards sustainable, climate-friendly and climate-resilient tourism) • Set up of a reporting framework for tourism destinations on sustainable tourism
Alpine-specific character	Alpine tourism destinations have interactions on different levels and several of them already coordinate their offers and marketing activities to attract specific target groups. Due to the close distance between tourism destinations and the multiple destinations with comparable facilities and offers, there might be partly unwanted distributional effects between tourism regions if they do not align their strategies and take different approaches on tourism development (intensive vs. sustainable/extensive offers).

<table>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>X</td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">Actions to develop climate-neutral and climate-resilient Alpine tourism shall take an integrated approach, considering synergies between the two elements.</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td colspan="4">Position of pathway on the 2050 timeline:
 
</td></tr>
<tr><td colspan="3">Start of first implementation step</td><td>immediately</td></tr>
<tr><td colspan="3">End of last implementation step</td><td>2030</td></tr>
<tr><td colspan="3">Starting point already available?</td><td>yes</td></tr>
<tr><td>Link to target system</td><td colspan="4">• Direct link: T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_Tou1: Car-free, attractive tourism traffic; T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Agr2: Alpine value chains for agricultural products; T_MA1: Municipalities as transition engines; T_MA3: Networks of CO_2-free municipalities
• Indirect link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_E4: Alpine energy democracy/citizen involvement; T_E5: Climate proofed Alpine hydropower; T_Tr1: Modal shift of Alpine freight transit; T_Tr4: Decarbonised transport fleet; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_Eco4: Alpine ecological connectivity; T_Agr1: Energy self-sufficiency of Alpine farms; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S1: Minimised land-take and sealing; T_MA2: Climate action institutionalized in municipal action; T_RD1: The Alps as model region for vulnerability assessments</td></tr>
<tr><td colspan="5">Sequence of implementation steps</td></tr>
<tr><td>Starting point and links to stocktaking</td><td colspan="4">• Report on the state of the Alps (RSA)4 “Sustainable Tourism in the Alps” (2013)
• Report of the WG Sustainable Tourism (2016)
• „Mobility solutions in the Alps“ database (2015)
• Initiatives of NGOs (“… einfach schön” of Alpenvereine Deutschland, Österreich, Südtirol)</td></tr>
</table>

Step 1a: Success factors and indicators for climate-friendly and climate-resilient Alpine tourism **2021-2023**	Based on a synthesis of existing best practice collections on climate-friendly and climate-resilient tourism and a targeted review of new and innovative solutions, a list of success factors for the implementation of sustainable climate-friendly and climate-resilient Alpine tourism will be developed. This should also take into account a status-quo analysis of tourism demand and specific tourism needs regarding climate-friendly Alpine tourism. These success factors (derived from tourism supply and demand analysis) will be transposed into potential indicators to measure the transformation of Alpine tourism, a basis for further steps within this pathway.
Step 1b: Filling data gaps on CC impacts in the Alps and dissemination to stakeholders **2021-2023**	At the same time, some data gaps on CC impacts on Alpine tourism need to be filled to ensure a broad and science-based information basis for the strategic activities. Especially, the following gaps have been identified: • More detailed information on climate change impacts, with data resolved to the local level, on tourism in the Alps (transposing “hard” scientific facts into economic and social impacts on regional/local level) • Exploring potential ambivalent effects: vulnerabilities of different Alpine tourism types to CC impacts (i.e. are climate-friendly tourism destinations more vulnerable to CC impacts than tourism destinations without a specific focus on climate aspects? intensive tourism offers?) • Filling data gaps regarding information on tourism demand: tourists motivation as well as touristic distribution patterns and behaviour, linked to climate change and environmental factors. Findings from these exercises should be disseminated to relevant stakeholders to ensure that they are considered in further planning processes (e.g. dissemination via information hub).

Step 2a: Coordination of tourism strategies at Alpine-wide level **2023-2028**	Based on this broad knowledge on impacts and success factors, a broad strategic coordination process at Alpine level will be launched to better coordinate the transformation of tourism destinations (participation of regional and local authorities as identified in the frame of the Transport Protocol, Art. 4). This coordination process has to build on needs of the tourism sector to find acceptance in the market. It thus has to build on a broad stakeholder participation and will include the following elements (based on guidelines already identified in the Tourism Protocol, Art. 6): • Delimitation of areas/tourism destinations that further develop intensive tourism offers vs. areas/destinations that focus on soft and sustainable tourism: exchange on good practices and recommendations on approaches, which are replicable in other Alpine tourism destinations. • Definition of "carrying capacities" for tourism hot-spots and tools to steer tourism demand in these areas (linked to preservation objectives and enhancement of resilience) • Coordination of further development of specific tourism offers ⇢ joint destination marketing, with clear focus on climate-friendly and climate-resilient tourism offers • Definition of a common set of specific CO_2-reduction targets as well as climate-resilience targets for Alpine tourism, if possible defined at level of tourism destinations
Step 2b: Alignment of financing streams to support climate-neutral and climate-resilient tourism offers **2023-2028**	A discussion of financing streams and incentive programmes for sustainable and climate-friendly tourism development will be launched: • Assessment of status-quo: analysis of existing subsidies/financial support to different tourism segments • Discuss options on how to better align these funding streams to the success factors and indicators as defined in step 1b and the strategic approach as defined in step 2a
Step 3: Set up of climate reporting framework **2028-2030**	Taking into account the results of step 2a, especially the set of goals/targets, a climate-reporting framework for Alpine tourism destinations will be developed. This framework takes into account methodological approaches of other indicator systems (e.g. UNWTO Network of Sustainable Tourism Observatories[6]) and defines the reporting needs and methods for tourism destinations as well as the further monitoring process (beyond 2030).

[6] http://insto.unwto.org/

Stakeholders needed for implementation	This pathway needs a broad involvement of experts of existing networks and stakeholders of tourism in the Alps ("big players", testimonials of different sectors like hotels/gastronomy, public transport, specific tourism offers etc.). Further: • National and regional administrations and bodies involved in tourism development (including representatives from strategic development as well as marketing) • Representatives/stakeholders of tourism destinations • NGOs involved in promoting sustainable tourism (CIPRA, Alpenvereine, ALPARC e.g.) • Meteorological services
Indicators for monitoring this pathway	• Qualitative description of achieved results (y/n) • Quantification and classification of tourism destinations that participate in the coordination process (classification: e.g. including data on surface, inhabitants, quantification of tourism beds, overnight stays and quantification of arrivals/year (summer/winter). • Qualitative description of discussion process (y/n) • Qualitative description of reporting framework (y/n) • Quantification of destinations, which agree to participate in the reporting
Link to other pathways	• Direct link: IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_E1: Set up a network of regional energy coordinators; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture • Indirect link: IP_Tr1: Strategies for decarbonisation of Alpine freight transport; IP_Tr4: Developing the Alps into a model region for shared mobility; IP_E2: Enabling an Alpine-wide energy democracy; IP_E4: Supporting Alpine administrations as forerunners and models for the energy transition on their premises; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB together with other Thematic Working Bodies of the AC can develop best practice synthesis and launch project on data gaps.
	Governance setup	• ACB proposes set up of a steering group to guide the coordination process for an Alpine-wide tourism strategy. This steering group will be responsible for further steps on this pathway. • National Focal Points can reach out to decision makers at national as well as at destination level to gain support for a coordinated strategy and to launch political discussion on financing streams.
	Twinning/know-how transfer	-
	Outreach	• Specific outreach activities of the ACB to involve stakeholders involved in destination management and to inform about coordinated Alpine tourism strategy
	Knowledge hub	• Information on climate-reporting framework for tourism destinations can be linked to knowledge hub
Integration in the ACB communication strategy	**Content**	Information on results of the filled data gaps on climate change impacts in the Alps, model regions, best practices etc.
	Tools	If relevant: tools and methods to guide the reporting framework for tourism destinations

3.2 IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism

Basic information				
Background and description of the pathway	Decarbonising Alpine tourism and ensuring that climate-resilience of tourism destinations and offers is improved requires considerable know-how and expertise of all relevant stakeholders, which are involved in providing tourism services and infrastructure. Regarding mitigation of climate change, this requires detailed knowhow on types and impacts of potential mitigation measures; with respect to adaptation, tourism stakeholders need specific knowhow on potential climate impacts as well as different options for diversifying tourism offers to reduce their vulnerability to these impacts. As many of these stakeholders are small- to medium-scale actors, they often do not have the relevant background to consider the full scope of necessary measures and to evaluate different measures and options within their range of action. There is a lack of specific education on energy efficiency, the role of regional value chains etc.; for example for stakeholders in the gastronomy and hotel sector. The same is true for operators of large tourism infrastructures, which need to understand the full extent of potential climate threats to climate proof their existing and potential new infrastructure as well as for destination managers, which require information regarding diversification needs and potentials. In line with IP_Tou1 “Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism”, this pathway implements several forms of support, coaching and capacity building methods to ensure that the vision is fully implemented by all stakeholders involved in the tourism sector and that existing know-how and innovative approaches are fully explored.			
Final output	• Installation of “climate watchers” for Alpine tourism in each tourism destination • Open-access manual with sector-specific support tools for tourism stakeholders to enable mitigation and adaptation measures at company level • Decision making tool for developing new and diversified tourism offers in a participatory approach • Coordinated framework for destination and tourism services marketing, which are linked to climate-neutral vacations			
Alpine-specific character	Tourism plays an important economic role for the Alpine economy. At the same time, tourism destinations will be highly affected by climate change and need to adapt their offers and services			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			

<table>
<tr><td>Implementation timeframe</td><td colspan="2">Position of pathway on the 2050 timeline:
 
</td></tr>
<tr><td></td><td>Start of first implementation step</td><td>immediately</td></tr>
<tr><td></td><td>End of last implementation step</td><td>2030</td></tr>
<tr><td></td><td>Starting point already available?</td><td>yes</td></tr>
<tr><td>Link to target system</td><td colspan="2">• Direct link: T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_Tou1: Car-free, attractive tourism traffic; T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Agr2: Alpine value chains for agricultural products; T_MA1: Municipalities as transition engines; T_MA3: Networks of CO_2-free municipalities
• Indirect link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_E4: Alpine energy democracy/citizen involvement; T_E5: Climate proofed Alpine hydropower; T_Tr1: Modal shift of Alpine freight transit; T_Tr4: Decarbonised transport fleet; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_Eco4: Alpine ecological connectivity; T_Agr1: Energy self-sufficiency of Alpine farms; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S1: Minimised land-take and sealing; T_MA2: Climate action institutionalized in municipal action; T_RD1: The Alps as model region for vulnerability assessments</td></tr>
<tr><td colspan="3">Sequence of implementation steps</td></tr>
<tr><td>Starting point and links to stocktaking</td><td colspan="2">• RSA4 “Sustainable Tourism in the Alps – Report on the State of the Alps” (2013)
• „Mobility solutions in the Alps“ database (2015)
• Report of the WG Sustainable Tourism (2016)
• Activities implemented in the frame of the German Presidency: “Best practice guide on energy management in Alpine hotels” (stocktaking No. 41), “Workshop „Sustainable Economy in the Alps – Climate mitigation and Energy Efficiency in Hotel and Restaurant businesses“ (stocktaking No. 42), “Online platform „Alpine Energy“ for knowledge transfer on Energy Efficiency in the Hotel and Restaurant businesses” (stocktaking No. 43).
• Support tools implemented by mountaineering clubs, e.g. „Energieeffizienz im Hüttenwesen (Energy efficient mountain huts)“ (stocktaking No. 62)
• Good practice examples and learnings of the participants of the Clima-Host contest that showed innovative solutions for climate action and energy efficiency in the hotel industry and gastronomy in the Alpine region</td></tr>
</table>

Step 1: Strategy and set up of climate caretaker network **2021-2022**	Develop a strategy and set up of an operational network of "climate watchers", as broad as possible across the Alps: • Enhance capacity of tourism stakeholders on mitigation of and adaptation to climate change • Link to know-how and expertise of other regional coordinators (if not integrated) • Support implementation measures, including communication and awareness raising activities (link to climate-neutral tourism packages as proposed in pathway IP_Tou3 "Exploring the use of tourism packages for climate-neutral tourism")
Step 2a: Open-access manual for climate proofing Alpine tourism **2021-2025 (continuous update)**	Development of a manual for different stakeholders in the tourism sector to improve their CO_2-footprint and to identify potential climate impacts: • Energy efficiency of buildings (gastronomy, hotels) • Tourism mobility/transport • Provision of regional products/establishing regional value chains • Information and communication The manual should be developed as open-access tool, which can be improved and updated continuously by the users (e.g. including a help function). If possible, the manual can be linked to the climate-neutral tourism packages as developed in pathway IP_Tou3.
Step 2b: Decision making tool for evaluating new tourism offers **2022-2025**	Similar to the manual in step 2a, a decision making tool for evaluating different diversification strategies is developed. This decision making tool can be used by the "climate watchers" together with stakeholders of tourism destinations to develop new tourism offers.
Step 3: Coordinated framework for destination marketing **2030**	Considering the experiences made under steps 1 and 2, a coordinated framework for destination marketing, linked to climate-neutral vacations, will then be developed together with the network of "climate watchers" and relevant stakeholders. This common destination marketing should also provide a link to the climate-neutral tourism packages as developed in pathway IP_Tou3.

Stakeholders needed for implementation	This pathway needs a broad involvement of experts of existing networks and stakeholders of tourism in the Alps ("big players", testimonials of different sectors like hotels/gastronomy, public transport, specific tourism offers etc.). Further: • National and regional administrations involved in tourism development • Representatives/stakeholders of tourism destinations • NGOs involved in promoting sustainable tourism (CIPRA, Alpenvereine, ALPARC e.g.) • Regional coordinators as implemented in other fields of action (pathway IP_E1, IP_Tr2, IP_NH1)
Indicators for monitoring this pathway	• Quantification of "climate watchers" installed in Alpine tourism destinations • Set up of a manual (y/n) + qualitative description, quantification of tools that are integrated in the manual, quantification of open access contributions, quantification of users • Set up of a decision making tool (y/n) + qualitative description, quantification of users per year • Set up of framework for destination marketing (y/n) + qualitative description
Link to other pathways	• Direct link: IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture • Indirect link: IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_Tr4: Developing the Alps into a model region for shared mobility; IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_NH3: Support measures to enhance individual risk precaution; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• The ACB together with other relevant Alpine Convention bodies can define a strategy to implement the "climate watchers", including a work description/profile as well as potential options for financing.
	Governance setup	• Manual: the ACB together with the watchers defines a steering group, which is in charge of setting-up the manual.
	Twinning/know-how transfer	• Know-how transfer/coaching can be provided via the open-access manual, e.g. authors of specific entries can offer their support/coaching to other users. ⇢ No specific need for AC bodies once the manual and the watchers network is established.
	Outreach	• The ACB can raise visibility of the approach, especially regarding the transformational impact of the tourism pathways.
	Knowledge hub	• The manual can be linked to ACB info hub.
Integration in the ACB communication strategy	**Content**	Information on all aspects in communication activities of ACB
	Tools	Manual to be linked to ACB info hub

3.3 IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism

Basic information				
Background and description of the pathway	Sustainability considerations play a more and more important role for the choice of tourism destinations. Especially in the Alps, with its high role of nature-based tourism, many tourists are already aware of the need for better protecting the Alps as sensitive environment and for reducing the CO_2-footprint of their holidays. There is already a growing demand for low-carbon holiday offers, e.g. tourists choose their hotels according to existence of energy-labelling schemes, availability of regional products, provision of public transport services, bike rental options etc. However, tourism stakeholders have difficulties in clearly defining options to reduce the CO_2-footprint of their operations and in including them in their marketing activities. An integrated approach with the provision of climate-neutral and climate-resilient tourism packages would help to overcome this problem and would provide a clear signal to tourists for climate mitigation and adaptation activities in specific hotels and/or tourism destinations and would give a clear framework to tourism stakeholders on need for action.			
Final output	• Synthesis of existing approaches for providing climate-neutral holiday packages • Recommendations on the provision of climate-neutral tourism packages • Fully climate-neutral tourism packages to be tested in several pilot sites • Framework for common promotion of climate-neutral tourism packages and reporting framework			
Alpine-specific character	Nature-based tourism plays an important role in the Alps. There is a great potential for developing the Alps into a model-region for climate-neutral tourism.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	(X)
	It needs to be checked in the process, if adaptation aspects can also be considered within the tourism packages (e.g. tourism destinations need to provide diversified tourism offers).			
Implementation timeframe	Position of pathway on the 2050 timeline: 2020 ◆ 2035 → 2050			
	Start of first implementation step			immediately
	End of last implementation step			2030
	Starting point already available?			yes

Link to target system	• Direct link: T_Tr2: Reduced car-dependency (inner-Alpine and transalpine passenger transport); T_Tr3: Reduced transport demand (passenger and freight); T_Tou1: Car-free, attractive tourism traffic; T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Agr2: Alpine value chains for agricultural products; T_MA1: Municipalities as transition engines; T_MA3: Networks of CO_2-free municipalities • Indirect link: T_E1: Alpine efficiency solutions; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_E4: Alpine energy democracy/citizen involvement; T_E5: Climate proofed Alpine hydropower; T_Tr1: Modal shift of Alpine freight transit; T_Tr4: Decarbonised transport fleet; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_Eco4: Alpine ecological connectivity; T_Agr1: Energy self-sufficiency of Alpine farms; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S1: Minimised land-take and sealing; T_MA2: Climate action institutionalized in municipal action; T_RD1: The Alps as model region for vulnerability assessments
Sequence of implementation steps	
Starting point and links to stocktaking	• RSA4 “Sustainable Tourism in the Alps – Report on the State of the Alps” (2013) • „Mobility solutions in the Alps“ database (2015) • Report of the WG Sustainable Tourism (2016) • Activities implemented in the frame of the German Presidency: “Best practice guide on energy management in Alpine hotels” (stocktaking No. 41), “Workshop „Sustainable Economy in the Alps – Climate mitigation and Energy Efficiency in Hotel and Restaurant businesses“ (stocktaking No. 42), “Online platform „Alpine Energy“ for knowledge transfer on Energy Efficiency in the Hotel and Restaurant businesses” (stocktaking No. 43). • Portal for Sustainable and Responsible Tourism in the EU: https://destinet.eu/Support tools implemented by mountaineering clubs, e.g. „Energieeffizienz im Hüttenwesen (Energy efficient mountain huts)“ (stocktaking No. 62) • Good practice examples and learnings of the participants of the Clima-Host contest that showed innovative solutions for mitigation to climate change and energy efficiency in the hotel industry and gastronomy in the Alpine region • Existing labelling schemes: Alpine Pearls Initiative (stocktaking No. 47), “Bergsteigerdörfer”/Mountaineer Villages (stocktaking No. 61).

Step 1: Synthesis of existing low-carbon or climate-neutral tourism packages and their footprinting approaches **2021-2022**	In a first step, a review will identify existing offers and services regarding the provision of climate-neutral tourism packages (Alpine countries, other EU countries, other mountain regions worldwide). The review will provide an overview on all relevant aspects, which are covered in these existing approaches (e.g. energy management systems, labelling systems on organic products, "slow food", transport-related labels etc.). Also, the review will provide information on methodological approaches, especially the methodologies for calculating the relevant carbon footprints of these packages and the use of compensation measures. A special focus during this review will be the acceptance and feasibility aspects of the existing tourism packages. An Alpine-wide approach for providing climate-neutral tourism packages should be attractive in the form of low administrative hurdles/limited reporting needs but should at the same time remain effective.
Step 2: Recommendations on climate-neutral tourism packages in the Alps **2022-2025**	Based on the results of step 1 and also step 2a: Open-access manual for climate proofing Alpine tourism of pathway IP_Tou2 "Coaching and capacity building for climate proofing Alpine tourism", a framework for climate-neutral tourism packages for Alpine tourism is developed. This framework should take into account all climate-relevant fields of action in the tourism sector, with a special focus on CO_2-free buildings, low-carbon transport within and to the destinations, food and beverages but also including criteria for communication and awareness raising campaigns, which need to be implemented by applicants. The development of the framework is conducted in a broad participatory approach, taking into account relevant tourism stakeholders and the needs and demands of tourists.
Step 3: Pilot projects on climate-neutral tourism packages **2025-2030**	In this step, the feasibility of providing entire climate-neutral holiday offers in the Alps will be tested. Within several pilot projects, tourism destinations in all Alpine countries will test the provision of "climate-neutral tourism packages", which can be booked as care-free holiday packages.
Step 4: Promotion activities for climate-neutral tourism packages and control mechanism **2026-2030**	Based on the activities in step 3, common measures for promotion and dissemination of the climate-neutral tourism packages are developed. Also, this working step includes the set up of a control mechanism for monitoring effectiveness and application of the climate-neutral tourism packages.

Stakeholders needed for implementation	This pathway needs a broad involvement of experts of existing networks and stakeholders of tourism in the Alps ("big players", testimonials of different sectors like hotels/gastronomy, public transport, specific tourism offers etc.). Further: • National and regional administrations involved in tourism development • Representatives/stakeholders of tourism destinations • NGOs involved in promoting sustainable tourism (CIPRA, Alpenvereine, ALPARC e.g.) • Regional coordinators as implemented in other fields of action
Indicators for monitoring this pathway	• Development of synthesis (y/n) + qualitative description • Development of framework for climate-neutral tourism packages (y/n) + qualitative description • Quantification of pilot projects to develop "climate-neutral tourism packages" • Set up of destination management framework (y/n) + qualitative description
Link to other pathways	• Direct link: IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture • Indirect link: IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_Tr4: Developing the Alps into a model region for shared mobility; IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_NH3: Support measures to enhance individual risk precaution; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Synthesis: ACB together with other relevant bodies of the AC can implement the synthesis of existing tourism packages. • ACB can motivate the Alpine Conference to provide financial resources to the pilot projects as developed in step 3 as well as to potential expansion and continuity of climate-neutral tourism offers.
	Governance setup	• ACB can set up a steering group, which is in charge of developing the framework for climate-neutral tourism packages (step 2) and the pilot projects for climate-neutral tourism packages (step 3).
	Twinning/know-how transfer	• Members of the ACB or other AC bodies can use their contacts to motivate regions to take part in pilot projects.
	Outreach	• All activities should be widely used in the ACB communication and outreach activities. This is an aspect with high showcase-potential.
	Knowledge hub	• The knowledge hub of the ACB can be linked to platform with information on tourism packages
Integration in the ACB communication strategy	**Content**	Broad information on all activities/results/experiences with development of framework for climate-neutral tourism packages and pilot projects
	Tools	Framework for climate-neutral tourism packages (step 2) and reporting framework (step 4) can be linked to ACB hub.

A4. NATURAL HAZARDS

4.1 IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks

Basic information				
Background and description of the pathway	The Alps face a variety of natural hazards with different scopes including local events such as avalanches, rockfalls, torrential hazards and landslides as well as larger events like floods or severe storms. As natural hazards do not stop at regional or national borders, an Alpine-wide common framework to deal with such cross-border risks needs to be developed, which also enables an exchange of experiences. Basically, risk management for cross-border risks involves the following three questions: 1) What are the potential cross-border hazard hot-spots? 2) What risk are we willing to take? 3) Which measures should we adopt? (RSA7). An Alpine-wide risk management plan on cross-border risks develops a common approach, especially regarding the methods of risk mapping and monitoring for cross-border risks, harmonisation of approaches to deal with residual risks and a common toolbox on measures (including innovative technologies). This Alpine-wide risk management plan should clearly focus on risks with large-scale and potential cross-border impacts, but should also enable an exchange on managing risks on the local scale.			
Final output	• Alpine-wide risk management plan			
Alpine-specific character	The Alps are specifically prone to natural hazards. A generally growing population and accumulation of human assets and settlements in hazard-prone areas as well as extreme events tend to increase natural hazard risks.			
Link to mitigation and/or adaptation	**Mitigation**		**Adaptation**	X
	-			
Implementation timeframe	Position of pathway on the 2050 timeline:  			
	Start of first implementation step			immediately
	End of last implementation step			2035
	Starting point already available?			yes

Link to target system	• Direct link: T_SP2: Planning systems in risk management changed from passive to proactive; T_NH1: Alpine risk management; T_NH2: Permafrost and erosion monitoring; T_NH3: Individual risk precaution; T_Fo1: Potential of protective mountain forests fully used; T_W3: Alpine-wide sustainable flood risk management; T_MA1: Municipalities as transition engines; T_RD1: The Alps as model region for vulnerability assessments; T_RD4: Research on climate-driven extreme events and climate impacts on glaciers • Indirect link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes ; T_Fo4: Alpine-wide sustainable forest management; T_Agr4: Resilient and climate-friendly mountain agriculture; T_W1: Alpine-wide optimized water management; T_W2: Drinking water security
Sequence of implementation steps	
Starting point and links to stocktaking	• Existing risk management systems implemented in the Alpine countries (e.g. Integrated Risk Management approach in CH, risk mapping approaches in Germany regarding flood risk, transboundary flood risk management plans etc.) • PLANALP activities, e.g. Alpine strategy for adaptation to climate change in the field of natural hazards (2013, PLANALP) (stocktaking No. 3), recommendations on local adaptation to climate change for water management and natural hazards in the Alps (stocktaking No. 8), RSA7 (stocktaking No. 28) • EUSALP AG8 activities • CAPA – Climate Adaptation Platform for the Alps (stocktaking No. 45) • Network of national adaptation policy makers of the Alpine countries (stocktaking No. 46) • Adapt-Alp (stocktaking No. 65) • Virtual Alpine Observatory VAO (DE, since 2014) (stocktaking No. 39)
Step 1a: Overview on natural hazard management planning and consideration of cross-border risks **2021-2022**	Information regarding natural hazard management for cross-border risks in the Alpine countries need to be gathered: • Information on relevant natural hazards and elements of the risk cycle, which are covered in the risk management plans • Specific approaches to deal with cross-border risks in national management plans • Shortcomings and best practices of national plans regarding management of cross-border risks (e.g. regarding early warning systems) • Consideration of innovative technologies in national plans, especially regarding coordination • Recommendations and lessons learned

Step 1b: Mapping hazard hot-spots for critical infrastructures and settlements **2022-2025**	Transport, energy and communication infrastructures build the backbone of the economy, especially for the Alps as crossroads for the European market and as important element of the European energy system. Also, health infrastructures have a cross-border function in the Alps. Specific risks/hot-spots for these critical infrastructures need to be identified in a common approach to develop coordinated adaptation solutions. Furthermore, hot-spots for action can arise in settlement areas, which are affected by cross-border natural risks. Such hot-spots need to be identified in order to develop coordinated approaches for risk management.
Step 2: Common framework for risk-management of cross-border risks **2030**	Based on results of steps 1a and 1b, a common Alpine-wide framework for risk management is developed. This framework should take into account existing risk management systems and their approaches (e.g. existing flood risk management systems). The following steps need to be considered: • Definition of common steps/cycle of risk management • Definition of common methods and standards for risk mapping and monitoring, based on existing national legal framework conditions • Delimitation of risks that should be considered in the common framework (local vs. cross-border impacts) (based on steps 1a and 1b) • Recommendations and toolbox on risk prevention measures for cross-border risks (e.g. regarding harmonization of early warning systems, regarding construction stops in flood-prone areas) and experiences • Definition of specific measures to deal with hazard hot-spots for critical infrastructures and settlements • Recommendations for practitioners (could also include training/exchange)
Step 3a: Alpine warning system for extreme weather events **2035**	• Coordination of early warning systems as implemented at national level: harmonization of approach and tools of warning systems • Establishing interlinkages of warning systems, also with larger warning systems implemented at EU/international level (e.g. EUMetNet, Meteo-Alarm) to improve the management of cross-border risks • Testing smart approaches for spreading information of early warning systems (Apps for smart phones/smart watches etc.)
Step 3b: Alpine-wide approach for natural hazard hot-spots **2035**	Based on results of steps 1b, a coordinated approach to deal with hot-spots is developed: • Identify financing opportunities for structural protection measures, where justified from a cost-benefit perspective • Permanent monitoring of hazard hot-spots • Preparing recovery measures if damages occur • Taking a risk governance approach that seeks to strike a balance between risk prevention goals (adequate protection levels) and risk tolerance (acceptable risk levels), against the background of (public) costs-benefit considerations
Stakeholders needed for implementation	• PLANALP working group and EUSALP AG8 • Decision makers at national and regional level • Decision makers at EU level and providers of meteorological data

Indicators for monitoring this pathway		• Quantification of Alpine countries, which submitted information regarding their hazard management approaches • Quantification of Alpine countries that have implemented the common approach on risk management • Quantification of hot-spots that are included in the coordinated approach • Alpine risk management plan adopted (y/n)
Link to other pathways		• Direct link: IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming; IP_NH3: Support measures to enhance individual risk precaution; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests • Indirect link: IP_E1: Set up a network of regional energy; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_SP1: Alpine-wide concept „Spatial planning for climate action"; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Role of ACB or other bodies of the AC in implementing specific steps of the pathway themselves (e.g. for kickstarting the process, for providing background information etc.) • ACB can work together with PLANALP to develop an approach for risk mapping of hot-spots (step 3b)
	Governance setup	-
	Twinning/know-how transfer	-
	Outreach	• Gain political acceptance for common approach on hazard hot-spots
	Knowledge hub	• Risk maps etc. can be linked to knowledge hub
Integration in the ACB communication strategy	**Content**	Information on risk management approach, hot-spot analysis etc.
	Tools	Link to toolbox, which is part of the common risk management framework.

4.2 IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming

Basic information				
Background and description of the pathway	Increasing temperatures affect the stability of Alpine permafrost. From the perspective of natural hazards prevention, it is important to know whether permafrost areas (e.g. rock glaciers) are still stable and what kind of hazards could be generated by them in the future. As permafrost areas extend beyond national borders, a coordinated approach on monitoring permafrost areas and potential erosion effects seems adequate.			
Final output	• Alpine-wide permafrost and erosion monitoring • Implementation of pilot projects			
Alpine-specific character	Especially the Alps react sensitively to temperature fluctuations. Instabilities in permafrost lead to large-scale erosion of soils and can have threatening impacts on the Alpine population and economy.			
Link to mitigation and/or adaptation	**Mitigation**		**Adaptation**	X
	-			
Implementation timeframe	Position of pathway on the 2050 timeline: 			
	Start of first implementation step			immediately
	End of last implementation step			2030
	Starting point already available?			yes
Link to target system	• Direct link: T_SP2: Planning systems in risk management changed from passive to proactive; T_NH1: Alpine risk management; T_NH2: Permafrost and erosion monitoring; T_NH3: Individual risk precaution; T_MA1: Municipalities as transition engines; T_RD1: The Alps as model region for vulnerability assessments; T_RD4: Research on climate-driven extreme events and climate impacts on glaciers • Indirect link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_Eco1: Preserved ecosystems and biodiversity			

Sequence of implementation steps	
Starting point and links to stocktaking	• Existing national permafrost monitoring systems (e.g. PERMOS for CH) • PermaNet Long-Term Permafrost Monitoring Network (stocktaking No. 72) • PLANALP activities • EUSALP AG8 activities • CAPA – Climate Adaptation Platform for the Alps (stocktaking No. 45) • Virtual Alpine Observatory VAO (DE, since 2014) (stocktaking No. 39)
Step 1a: Stocktaking and mapping of existing systems **2021-2023**	• Comprehensive Alpine-wide stocktaking and mapping of existing permafrost monitoring activities, stations and networks • Identifying and closing crucial gaps
Step 1b: Assessing potential of remote sensing data and services **2021-2023**	The availability of remote sensing data and respective services (e.g. Copernicus) and their integration in an Alpine-wide permafrost risk monitoring system will be assessed.
Step 2: Alpine-wide permafrost risk monitoring **2023-2025**	Based on steps 1a and 1b, an integrated Alpine-wide permafrost risk mapping and monitoring (continuous updates), including erosion and glacier-borne hazards is implemented.
Step 3: Pilot projects in areas exposed to permafrost thawing **2025-2030**	Implementation of pilot projects for risk mitigation and contingency planning (e.g. in concrete areas exposed to permafrost thawing, glacial lake outburst, rock-fall and erosion)
Stakeholders needed for implementation	• PLANALP working group and EUSALP AG8 • Members of VAO • Decision makers at national and regional level • Decision makers at EU level and providers of meteorological data

Indicators for monitoring this pathway	• Quantification of Alpine countries, which have integrated their permafrost and erosion monitoring systems into the Alpine-wide framework • Quantification of activities, stations and networks included in the stocktaking and mapping • Qualitative description of assessment (remote sensing), with reference to the different Alpine countries and their approaches (y/n) • Quantification of pilots	
Link to other pathways	• Direct link: IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_NH3: Support measures to enhance individual risk precaution; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB can coordinate stocktaking (step 1a) and analysis of remote sensing options (step 1b) in cooperation with PLANALP.
	Governance setup	-
	Twinning/know-how transfer	-
	Outreach	• Increase visibility of pilot projects (step 3)
	Knowledge hub	• Risk monitoring is linked to knowledge hub of ACB.
Integration in the ACB communication strategy	**Content**	Information on potential CC impacts on Alpine permafrost areas, information on risk mapping and monitoring etc.
	Tools	Risk mapping

4.3 IP_NH3: Support measures to enhance individual risk precaution

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">Full protection from natural hazards and climate change impacts through public-financed protection measures will not be feasible, private households and economic stakeholders will have to develop additional risk precaution measures. Individual measures can include no-regret measures with co-benefits (e.g. passive cooling systems to deal with increasing heat and at the same time to support energy efficiency) but also protection measures for natural hazards (e.g. provision of sandbags to protect from flooding). An Alpine-wide risk governance approach has the objective to give a stronger role to the civil society in risk management. To meet this objective, additional measures on awareness raising and capacity building are however necessary. Also, a coordination of individual measures through regional coordinators has the potential to trigger considerable activities through streamlining and making use of effects of scale.</td></tr>
<tr><td>Final output</td><td colspan="4">• Development of a comprehensive toolbox for capacity building and supporting individual risk precaution measures
• Implementation of network of adaptation coordinators
• Implementation of funding/incentive scheme to support individual risk precaution measures.</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">The vulnerability to natural hazards is particularly high in the Alps. Measures, which enable individuals to take part in risk precaution, are of importance.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>(X)</td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">The focus is clearly on adaptation – through capacity building and awareness raising, the pathway however also contributes to a better understanding of climate change and the need for mitigation.</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td colspan="4">Position of pathway on the 2050 timeline:
2020 ◆ 2035 2050</td></tr>
<tr><td colspan="3">Start of first implementation step</td><td>immediately</td></tr>
<tr><td colspan="3">End of last implementation step</td><td>2030</td></tr>
<tr><td colspan="3">Starting point already available?</td><td>yes</td></tr>
</table>

Link to target system	• Direct link: T_SP2: Planning systems in risk management changed from passive to proactive; T_NH1: Alpine risk management; T_NH2: Permafrost and erosion monitoring; T_NH3: Individual risk precaution; T_MA1: Municipalities as transition engines; T_RD1: The Alps as model region for vulnerability assessments • Indirect link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_E4: Alpine energy democracy/citizen involvement; T_RD4: Research on climate-driven extreme events and climate impacts on glaciers
Sequence of implementation steps	
Starting point and links to stocktaking	• Existing best practices: "local natural hazard advisor" in Switzerland or the "adaptation advisory services for municipalities" in Austria • Project on developing regional adaptation strategies: e.g. https://klar-anpassungsregionen.at/, KLIMZUG programme in Germany (until 2014) • Project KlimaAlps (INTERREG Austria-Bavaria) • Project FRANCA (flood risk anticipation and communication in the Alps) (EU LIFE programme) • Project PATCH:ES - Private Adaptation Threats and Chances: Enhancing Synergies with the implementation of the Austrian NAS (National Climate Adaptation Strategy) • See all measures listed for IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming • GoApply – Multidimensional governance of climate change adaptation in policy making and practice (Alpine Space Programme) (stocktaking No. 69) • Klima-Toolbox Surselva (stocktaking No. 88) • Local adaptation to climate change in Alpine municipalities in Italy (seminars for practitioners) (stocktaking No. 110) • Climate adaptation consulting for municipalities (stocktaking No. 115)
Step 1a: Toolbox for individual risk precaution **2021-2022**	Alpine adaptation toolbox: • Teaching materials • Toolbox to develop local/regional adaptation planning • Tools to assess risk at household level and to explore adaptation options • Linked to risk maps • Linked to CAPA
Step 1b: Network of regional adaptation coordinators **2022**	Set up of an operational network of regional adaptation coordinators, if possible in all regions of the Alpine area to: • Increase capacity of local decision makers and the civil society • Ensure an effective knowledge transfer • Support and coordinate specific implementation measures

Step 2a: Implementation of Alpine-wide standardized qualification programme **2025-2030**	Capacity building programme for teachers, educators, education institutions etc.
Step 2b: Road show with risk-experience **2025-2030**	Roadshow targeting at citizens, educators, local authorities etc. with hands-on experiences: • Virtual Reality experiences, e.g. to visualize impacts of permafrost thawing • Visualisation of risk maps etc. • Training session on using protection materials
Step 3: Incentive programme for individual measures **2030**	• Incentivizing individual risk precaution measures (e.g. flood-protection measures for buildings, climate-neutral solutions for cooling etc.)
Stakeholders needed for implementation	• Existing regional energy coordinators and climate alliances • Network ALPACA for communication and coordination • Alliance in the Alps, Alpine Town of the Year Association • Decision makers at local, regional and national level • PLANALP working group and EUSALP AG8
Indicators for monitoring this pathway	• Quantification of tools integrated in the toolbox • Quantification of regional adaptation coordinators organised in an Alpine-wide network • Quantification of participants in the qualification programme • Quantification of road show stops and participants • Quantification of protection measures incentivised
Link to other pathways	• Direct link: IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming • Indirect link: IP_W2: Tools and methods for drought management in the Alps; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Implementation of roadshow together with PLANALP
	Governance setup	• National Focal Points can call on national and regional authorities to set up adaptation coordinators. • The ACB could support identification of potential funding sources. • Kickstart the set up of a standardized qualification programme (link to Alpine Academy) • Encourage coordination with insurance sector to identify options for incentive programmes to support individual risk precaution measures
	Twinning/know-how transfer	-
	Outreach	• Outreach to increase awareness on role of adaptation coordinators and their qualification, identify potential applications for the position
	Knowledge hub	• Toolbox on individual risk precaution can be linked to knowledge hub.
Integration in the ACB communication strategy	**Content**	Information on new policy instruments and exchange of best practices
	Tools	Toolbox for individual risk precaution; roadshow

A5. WATER

5.1 IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management

Basic information	
Background and description of the pathway	Climate change will put additional pressures on Alpine water resources: Changes in precipitation patterns, reduced snow cover in winter as well as rising temperatures will have effects on the quantitative water balance and water availability. This is already affecting the runoff regimes of rivers, groundwater availability and discharges of springs as well as water levels in natural and artificial lakes. On regional scale, exceptional situations of both water scarcity and floods are expected to become more frequent and more severe, with those Alpine regions that are already affected by dropping groundwater levels and temporal water scarcity today being highly vulnerable in the future. At the same time, water management and its integration in spatial planning processes is an element of climate mitigation and adaptation strategies, which also needs to be coordinated at river basin scale. As surface water systems and groundwater aquifers in the Alps are highly interlinked across borders (all rivers flow into five main Alpine river basins), a common approach to deal with these additional challenges for water management is needed. The EU Water Framework Directive (WFD) already provides a set of guidelines for Integrated River Basin Planning, which also allows for integrating water management into climate mitigation and adaptation strategies as well as for closer integration between spatial planning processes and water management. In practice, all Alpine countries already have River Basin Management Plans according to the WFD, and several pilot projects on transboundary River Basin Management are on the way, but in most cases the transboundary focus is still missing, even for larger rivers, which cross two or more Alpine countries. An Alpine-wide framework should promote transboundary planning tools and participation processes as well as enable intersectoral cooperation (administrative level) and integration of the key stakeholder groups within a river basin beyond the national processes of River Basin Management Plans.
Final output	• Identification of hot-spots regarding water conflicts and mapping of ongoing coordination activities at transboundary rivers of great urgency for cross-border cooperation • Implementation of transboundary model projects in every Alpine country to promote a transboundary focus in mainstreaming climate change into water management and for integrating water management into spatial planning and climate mitigation and adaptation planning

<table>
<tr><td>Alpine-specific character</td><td>Rivers and lakes in the Alpine river basins are closely interlinked and pressures on water resources have effects beyond regional and national borders. Also, Alpine waters have an effect on large downstream river basins.

So far, the Alps have profited from sufficient water of good quality. But climate change shifts the scope of Alpine water management more and more towards managing fluctuations in water resources: Changing patterns in temperatures and precipitations increase the frequency and volumes of floods. Simultaneously, droughts – hitherto a lesser concern and only an issue in the southern parts of the Alpine Arc – are an increasing threat. At the same time, climate change increases the users´ demands (for irrigation, cooling, artificial snowmaking and other recreation activities, hydropower etc., see more about this topic in IP_W2: Tools and methods for drought management in the Alps). Atmospheric temperature increases and the average temperature increase in the Alpine area is nearly twice as high as in the surrounding areas. Because of that also the water temperature of surface and groundwater bodies of Alpine rivers and lakes rises. This directly affects water quality, aquatic ecosystems and their populations as well as biodiversity.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td><table><tr><td>Mitigation</td><td></td><td>Adaptation</td><td>X</td></tr></table></td></tr>
<tr><td>An optimized water management focuses on both quantitative and qualitative water status and has a link to flood and drought risk management, but increases the climate-resilience of the river ecosystems as well as of the humans depending on the water resources-</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td>Position of pathway on the 2050 timeline:
 
</td></tr>
<tr><td><table><tr><td>Start of first implementation step</td><td>immediately</td></tr></table></td></tr>
<tr><td><table><tr><td>End of last implementation step</td><td>2026</td></tr></table></td></tr>
<tr><td><table><tr><td>Starting point already available?</td><td>yes</td></tr></table></td></tr>
<tr><td>Link to target system</td><td>• Direct link: T_E4: Alpine energy democracy/citizen involvement; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_Eco4: Alpine ecological connectivity; T_W1: Alpine-wide optimized water management; „T_W2: Drinking water security; T_W3: Alpine-wide sustainable flood risk management; T_RD1: The Alps as model region for vulnerability assessments
• Indirect link: T_SP2: Planning systems in risk management changed from passive to proactive; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_NH1: Alpine risk management; T_Agr1: Energy self-sufficiency of Alpine farms; T_S1: Minimised land-take and sealing; T_S2: Enhanced Alpine soil quality; T_RD3: Alpine-wide climate-data availability</td></tr>
</table>

Sequence of implementation steps	
Starting point and links to stocktaking	• RSA2 “Water and water management issues” (2009) • Guidelines on local adaptation to Climate Change for Water Management and Natural Hazards in the Alps (Platform Water Management, 2014) (stocktaking No. 8). • Initiative “Strategic planning: How to face drought periods in the Alpine Region” (stocktaking No. 10). • 5th International Water Conference „Water in the Alps - and beyond: adapting Alpine and mountain river basins to climate change“ (2014): online proceedings • 7th International Water Conference (Breitenwang 2018, together with the ForumAlpinum) • Water Conference “Water resources and Alpine rivers: adaptation to the challenges of climate change” (Annecy 2020) • Project SPARE - Strategic Planning for Alpine River Ecosystems (Alpine Space Programme) • Project AlpWaterScarce – Water Management Strategies against Water Scarcity in the Alps (Alpine Space Programme) • Project C3-Alps – Capitalising Climate Change Knowledge for Adaptation in the Alpine Space: pilot activities on water management in France and Italy (Alpine Space Programme) • Project SILMAS – Sustainable Instruments for Lakes Management in the Alpine Space (Alpine Space Programme) • EEA (2009): Regional climate change and adaptation: The Alps facing the challenge of changing water resources. EEA Report No 8/2009 • Best practise examples presented at the AC Water Conference in Annecy in February 2020 • EUSALP AG 6 study on Alpine Water Governance • EUSALP AG 7 list of rivers with a need for enhanced transboundary cooperation
Step 1: Identification of hot-spots regarding water conflicts, mapping of ongoing coordination activities at transboundary rivers and of transboundary rivers of urgency for cross-border cooperation **2021-2022**	Based on the mapping exercise, which was carried out during the ForumAlpinum 2018 in Breitenwang, the approach will systematically be further developed with the objective to obtain a comprehensive conflict map for the Alpine region. This can be compared with the National River Basin Management Plans as well as the proposed hot-spot analysis in pathway IP_W2 and links to ongoing activities on national or transnational level, e.g. as already initiated in the large Alpine river basins (e.g. Rhône, Inn, Ticino) as well as to activities of EUSALP AG6 and AG7. Ongoing coordination activities as well as information about transboundary rivers of urgency for cross-border cooperation shall be integrated in the mapping approach to allow a comprehensive overview of conflicts as well as status-quo. On this basis, model river basins are identified where increased cooperation between neighbouring countries would support the avoidance of conflicts between different water use interests, as well as increase the resilience of the river ecosystems and the adaptive capacities of the user management.

Step 2a: Implementation of model projects for transboundary and climate proof integrated water management **2022-2026**	With respect to the model river basins, respectively regions identified in step 1, workshops will be organized to increase regional and transboundary cooperation, by promoting • Participatory and cooperative methods and water governance approaches to improve conflict management, especially making use of water-based spatial planning approaches • Nature-based solutions and opportunities for water storage/retention management by considering ecosystem-based approaches as a priority (working with nature to avoid negative impact of grey infrastructures and to achieve various co-benefits i.e. through flood plains, afforestation, ecosystem restoration etc.) • Innovative solutions to water reuse • Regulation of zones without any water extraction/water rehabilitation zones (e.g. linked to remaining riparian wetlands and springs from glaciers) • Consistency of water investment plans with climate change adaptation strategies • Making use of forecasting approaches in water management: Forward-looking assessment of groundwater resources (addressing demand side before considering additional supply) and improved consideration of higher water temperatures and low water levels in the management of water resources in all the countries of the river basins.
Step 2b: Broadening governance structures for effective conflict management **2023-2026**	Based on step 1, new, respectively more effective alliances for managing water-related conflicts through integrative approaches are established for the identified model river basins, and disseminated into all major Alpine river basins. This includes all larger water users as well as stakeholders that represent the downstream needs. Also, the general public should be integrated into participatory processes to raise awareness on climate-related pressures on Alpine waters. Stakeholders that need to be integrated into this governance structure are mentioned below.
Stakeholders needed for implementation	• Sub-regional, regional and national administrations (as responsible for implementation of the Water Framework Directive (WFD) and related legislation on water and natural resources) • Authorities responsible for spatial planning • Organisations for protection of transboundary river basins (e.g. ICPDR) and other coordinators of River Basin Management Plans • Authorities responsible for natural resource management and protection, water and nature stewardship organizations • Associations and stakeholders related to specific economic water use interests: electricity producers, agricultural sector, recreation and tourism, drinking water suppliers and households etc.

Indicators for monitoring this pathway	• Map of existing conflicts and model river basins (y/n) • Quantification of transboundary model projects • Quantification of Alpine river basins, which have climate-resilient transboundary River Basin Management Plans, including broad stakeholder involvement processes
Link to other pathways	• Direct link: IP_W2: Tools and methods for drought management in the Alps; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions • Indirect link: IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_SP1: Alpine-wide concept „Spatial planning for climate action; IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB members and Observers can support the identification of model river basins and to initiate the first steps of projects.
	Governance setup	• ACB together with other Thematic Working Bodies can promote water governance processes in Alpine river basins.
	Twinning/know-how transfer	• ACB can support twinning approaches between model regions and follow-up activities.
	Outreach	• The lessons learnt from the transboundary model regions to be disseminated in all larger Alpine river basins, encouraging transboundary cooperation
	Knowledge hub	• Methods for stakeholder involvement processes • Methods for creating a common landscape identity for transnational river basins
Integration in the ACB communication strategy	**Content**	Information on results of model regions, lessons learned etc.
	Tools	-

5.2 IP_W2: Tools and methods for drought management in the Alps

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">Due to their generally large water availability and the specific topographical conditions in the Alps, the impacts of climate change on drinking water security will – on an overall level – be less underlined than in other European regions. However, in combination with seasonal shifts in precipitation and higher evapotranspiration in summer, some regions in the Alps (e.g. inner-Alpine dry valleys, peri-Alpine locations in the South and East, areas with high water needs) are already affected by temporal droughts. These droughts lead to recurring bottlenecks in water supply during dry periods as well as to impacts on hydropower generation and artificial snowmaking due to changing capacities of water reservoirs. In line with climate change projections (changing interactions between glaciers and river water regimes, changing snow distribution and precipitation patterns), it has to be expected that these regions that are already prone to water scarcity will become highly vulnerable drought hot-spots in the future (affecting drinking water, process water for industry and SMEs, hydropower generation snowmaking). Thus, a common approach to deal with drought management throughout the Alps seems necessary.
Furthermore, following the approach introduced at EU level by the Water Framework Directive and taking into account SDG 6, the use of the water resources should carefully take into account the water availability in the whole river basin, thus considering also the possible needs and pressures coming from other drought hot-spots downstream. Also, it needs to be ensured that drought management measures are in line with the preservation of ecosystems and their services.</td></tr>
<tr><td>Final output</td><td colspan="4">• Map with drought hot-spots under different climate scenarios and water uses, which are affected in these hot-spots (drinking and process water, hydropower, artificial snowmaking, ecosystems of the wetlands, agriculture etc.)
• Early warning systems for water scarcity linked to intervention measures in identified hot-spot regions
• Concept/recommendations on improving water efficiency and infrastructure for use of raw water/process water and water reuse</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">As Alpine water systems as well as water uses are closely interlinked across borders, a transnational approach for dealing with threats from droughts and thus to drinking water security seems necessary.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td></td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">-</td></tr>
</table>

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2050
	Starting point already available?	yes
Link to target system	• Direct link: T_E4: Alpine energy democracy/citizen involvement; T_Eco3: Maintained and restored Alpine ecosystem services; T_W1: Alpine-wide optimized water management; T_W2: Drinking water security; T_S2: Enhanced Alpine soil quality; T_RD1: The Alps as model region for vulnerability assessments • Indirect link: T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco4: Alpine ecological connectivity; T_Agr1: Energy self-sufficiency of Alpine farms; T_W3: Alpine-wide sustainable flood risk management; T_S1: Minimised land-take and sealing	
Sequence of implementation steps		
Starting point and links to stocktaking	• RSA2 “Water and water management issues” (2009) • Guidelines on local adaptation to Climate Change for Water Management and Natural Hazards in the Alps (Platform Water Management, 2014) (stocktaking No. 8). • Initiative “Strategic planning: How to face drought periods in the Alpine Region” (stocktaking No. 10) and report “Facing droughts in the Alpine region. Experiences, approaches and common challenges” of the Water Platform of the Alpine Convention (2019) • Project AlpWaterScarce (stocktaking No. 67) • Project C3-Alps – Capitalising Climate Change Knowledge for Adaptation in the Alpine Space (pilot activities in France and Italy; Alpine Space Programme) • DriDanube projects and other projects implemented for international river basins • EUSALP AG6 recommendations and good practices on green infrastructure solutions • Project ADO (Alpine Drought Observatory), approved and co-financed by the Alpine Space Programme in late 2019	

Step 1: Hot-spot analysis **2021-2022**	Based on the dataset and conflict analysis identified in the pathway IP_W1: "Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management" an Alpine-wide climate impact modelling/assessment approach will identify potential drought hot-spots under different climate scenarios, taking into account current climate sensitivity of regional water supply systems. This requires a common methodology as well as the identification of a common threshold on how to identify hot-spots as well as the application of comparable climate scenarios and tools. This hot-spot analysis shall consider that water scarcity can result from different regional characteristics, so that a classification of hot-spots seems necessary (see e.g. AlpWaterScarce recommendations). As final output, an interactive map with potential drought hot-spots and an overview on affected water users in these hot-spots under different scenarios and for different timeframes shall be established.
Step 2a: Set up early warning and emergency plan **2022-2025**	Based on results in previous projects (see starting points above), early warning systems as well as intervention concepts for these hot-spots will be developed. Up to now, occurrence of droughts is recognised at a late stage, when the signs become visible and when a drought is already underway. It is thus necessary to develop methods and (short-term/seasonal) forecasting techniques to identify drought situations at an early stage and to trigger relevant measures. The early warning system can be linked to the early warning system for natural hazards (see pathway IP_NH1 "Implementation of an Alpine-wide risk management plan") and should be in line with ongoing activities at EU level as well as adaptation strategies developed at different policy levels. To trigger effective measures, an early warning system should also include a coordinated emergency plan. This requires the development of an intervention concept including a coordinated prioritisation of water uses and regulatory measures for water saving, which come into force at specific tipping points. Such an intervention concept considers the effects that those measures have on ecological services of affected areas. Developing and achieving agreement on these measures will require participatory processes with affected stakeholders and water users.
Step 2b: Concept for infrastructural measures to reduce consumption of drinking water **2022-2025**	Careful and economical use of drinking water resources needs awareness-raising on water saving behaviour, but it can also be effectively supported by infrastructural measures. To reduce the consumption of high quality drinking water for non-drinking purposes, such as water toilets and irrigation as well as for artificial snowmaking, separate raw and/or processing water systems should be developed and installed, in particular in hot-spot regions, which are prone to droughts. This would also reduce the effects of droughts on other water uses.

Step 3: Continuous monitoring and re-evaluation of hotspots **2025-2050**	In order to continuously improve the early warning system and emergency plan, actual drought and water scarcity situations shall be monitored and re-analysed (including information on new demand seasonality, socio-economic data etc.). The early warning system will be improved accordingly. In addition, effects of measures of the emergency planning concept will be evaluated to allow for a future fine-tuning of measures.
Stakeholders needed for implementation	• See pathway IP_W1 "Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management" • Stakeholders representing industry and SMEs, hydropower generation • Nature protection authorities/organizations • Agricultural sector • Winter tourism and recreation planning • District authorities with a proper knowledge of the downstream needs
Indicators for monitoring this pathway	• Qualitative description of results of the hot-spot analysis (y/n) • Early warning system and emergency planning: set up (y/n), Quantification/percentage of vulnerable Alpine regions, which have early warning systems in place • Concept/recommendations for raw/process water systems available (y/n)
Link to other pathways	• Direct link: IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water; IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_S3: Supporting measures to preserve and enhance Alpine soil quality IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming • Indirect link: IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_NH3: Support measures to enhance individual risk precaution; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB can initiate/coordinate the hot-spot analysis: identify lead partner as well as project team to conduct the analysis.
	Governance setup	• ACB in coordination with other relevant bodies of the AC can trigger the establishment of a consortium to develop blueprints for early warning systems and emergency plans.
	Twinning/know-how transfer	• ACB can ensure transfer of best practices/experiences with emergency plan (make use and update the stocktaking report)
	Outreach	• Raise awareness on early warning system and emergency plan
	Knowledge hub	• Map with hot-spots could be linked to ACB hub.
Integration in the ACB communication strategy	**Content**	Information on hot-spot analysis, set up of early warning system etc.
	Tools	Interactive map with hot-spots, early warning system and emergency plan

5.3 IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">Changing precipitation patterns, especially extreme rainfall events, in combination with changes in snow run-off will lead to changes in flood risk in the Alps. In many regions more frequent and more severe floods risk to cause increasing damage and growing economic losses if no – or the wrong – adaptation measures are taken. Flood hazard zones are likely to extend in many places, while at the same time ongoing expansion of settlements and cumulating economic values increase the damage potential independently of climate change.

As the Alpine water system is extremely interlinked and many river systems are transboundary, a coordinated flood-risk management, which avoids upstream-downstream conflicts needs to be implemented, prioritising as much as possible “nature-based solutions” or “soft” adaptation measures (e.g. “passive flood protection” by means of spatial planning and natural retention areas vs. river engineering and structural protection measures, as well as proper forest management). The advantage of nature-based solutions lies in their flexibility towards different kinds of disaster (different water flow or precipitation patterns, floods as well as droughts).

Nature-based solutions however are only effective if even selective measures are planned in a coordinated way. Therefore transboundary cooperation is crucial.

Knowledge on regional natural risks and information on self-empowerment shall be used and spread.</td></tr>
<tr><td>Final output</td><td colspan="4">• Recommendations on flood risk management in the Alps with a focus on green/ecosystem-based solutions are disseminated
• Enhanced transboundary coordination for flood management and exchange of experiences in the Alps</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">Alpine water systems are strongly interlinked so that extreme rainfall events can lead to cumulative risks and a common approach to dealing with these risks is necessary.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td></td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">-</td></tr>
</table>

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2030
	Starting point already available?	yes
Link to target system	• Direct link: T_SP2: Planning systems in risk management changed from passive to proactive; T_E4: Alpine energy democracy/citizen involvement; T_NH1: Alpine risk management; T_Eco1: Preserved ecosystems and biodiversity; T_Eco3: Maintained and restored Alpine ecosystem services; T_W1: Alpine-wide optimized water management; T_W3: Alpine-wide sustainable flood risk management; T_S1: Minimised land-take and sealing; T_RD1: The Alps as model region for vulnerability assessments • Indirect links: T_NH3: Individual risk precaution; T_Eco2: Alpine-wide system of protected areas; T_Eco4: Alpine ecological connectivity; T_Fo1: Potential of protective mountain forests fully used; T_W2: Drinking water security; T_S2: Enhanced Alpine soil quality	
Sequence of implementation steps		
Starting point and link to stocktaking	• RSA7 „Natural Hazards Risk Governance" (2019) • Alpine Strategy for the adaptation to climate change in the field of natural hazards • Guidelines on local adaptation to climate change for water management and natural hazards in the Alps • EUSALP AG6 Green infrastructure solutions for an integrated and sustainable water management. Recommendations and good practices (2019) • Project SPARE - Strategic Planning for Alpine River Ecosystems (Alpine Space Programme) • Project AdaptAlp – Adaptation to climate change in the Alpine Space (Alpine Space Programme) • Project CLISP – Climate Change Adaptation by Spatial Planning in the Alpine Space (Alpine Space Programme) • Compliance with the Flood Directive • Considering the Flood Risk Management Plans of the EU Member States	

Step 1a: Dissemination of recommendations for Green(er) Infrastructure **2021-2025**	For instance the document "Green infrastructure solutions for an integrated and sustainable water management - Recommendations and good practices", adopted by EUSALP in 2019, already compiles good practice examples from Alpine countries and highlights recommendations for different types of rivers, with a specific focus on the dilemma of climate change adaptation needs and spatial pressure in the Alps. This document, as well as further already existing recommendations, can be adapted for use under the Alpine Convention and disseminated by integrating it into the agendas of different regional workshops already happening in the Alps.
Step 1b: Application of recommendations for specific model cases **2021-2025**	Ongoing planning processes for flood management on Alpine rivers will be identified and discussions started on how those could take into account the recommendations (see step 1a). At the same time, better coordination of planning activities in all countries of transboundary rivers are promoted by ACB members and respective representatives of the Alpine Convention Contracting Parties.
Step 1c: Enhance better cooperation between countries on transboundary rivers **2021-2025**	Better coordination of planning activities in all countries of transboundary rivers is promoted by ACB members and respective representatives of the Alpine Convention Contracting Parties. This allows for a larger planning frame on the spatial level, and therefore enhances effectiveness of the individual measures.
Step 2: Extension of early warning system on floods **2025-2030**	Floods are one of the most common natural hazard in the Alps. In cooperation with the pathway IP_NH1: Implementation of an Alpine-wide risk management plan on natural hazards, it will be checked how flood prevention measures can be integrated in the early warning system.
Stakeholders needed for implementation	• Public authorities (flood risk management, water management, forest management, civil protection, spatial planning, nature conservation) at local, regional and national level • Municipalities • Involvement of local and regional citizens (risk governance approaches)
Indicators for monitoring this pathway	• Increased awareness for nature-based solutions at national, regional and local level • Quantification of flood management plans the recommendations are applied to • Quantification of transboundary rivers with increased coordination of the flood management planning

Link to other pathways	• Direct link: IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming • Indirect link: IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_NH3: Support measures to enhance individual risk precaution; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_SP1: Alpine-wide concept „Spatial planning for climate action"; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Best practices: The ACB together with other relevant bodies of the AC and the PSAC adapts the existing recommendations to AC needs, ACB members identify and take opportunities for dissemination of the recommendations.
	Governance setup	• The AC National Focal Points call on national/regional authorities to implement recommendations. • The AC supports interlinkage of flood management planning as well as early warning systems.
	Twinning/know-how transfer	• Bottom-up initiatives as developed within the network as well as the pilot projects should be assisted through partners in the ACB, e.g. members of the ACB support application of nature-based approaches in flood planning. • Members of ACB or other Alpine Convention bodies can use contacts within their country/region to extend the approach.
	Outreach	-
	Knowledge hub	• Knowledge hub of the ACB can be used for disseminating information on best practices. Also, a platform/sharepoint for existing flood risk coordinators could be linked to the hub.
Integration in the ACB communication strategy	**Content**	Information on best practices, pilot projects, early warning systems
	Tools	Early warning system could be linked to ACB hub.

A6. SPATIAL PLANNING

6.1 IP_SP1: Alpine-wide concept „Spatial planning for climate action”

Basic information	
Background and description of the pathway	The task of spatial planning is to coordinate and balance different land uses in a way that respects ecological, economic and social needs. In the context of climate change in the Alps, these ecological needs are no longer restricted to the Alps, but acquire a global dimension. In regard to settlement and transport infrastructure, spatial planning also means planning for inhabitants, visitors and businesses to facilitate their activities in rational and efficient spatial structures and connections. Spatial planning therefore aims at sustainably using resources taking into account changing conditions (i.e. climate change). This cross-cutting issue seems like a framework for many actions connected to climate adaptation and climate mitigation and is reflected in the Roadmap to a Resource Efficient Europe[7] and its vision of no net land-take by 2050. Further, climate change increases the spatial pressure on so-far unspoiled, natural high Alpine areas, especially for ski resort expansion and water reservoirs (for artificial snow as well as hydropower) but also for agriculture in the law-land/valleys to prevent water scarcity.
Final output	• Harmonised statistical data on land-consumption and Net0[8] • Overview of impact of climate scenarios on land use • Survey on land saving targets and challenges • Collection of good practices for growth and shrinking strategies • Recommendations for the biggest challenges and opportunities/approaches to overcome them • Guidance on “Spatial planning for climate action” for municipalities of the perimeter of the Alpine Convention
Alpine-specific character	The area of permanent settlement is very limited in most parts of the Alps. Promoting spatial structures focusing on this challenge and, at the same time, being in line with the transformation towards climate-neutrality seems to be crucial. An Alpine-wide concept that assigns spatial planning a key role for climate action in the Alpine area would be a great challenge on the one hand but could also offer a big pool of opportunities for climate action on the other hand. In most Alpine countries, municipalities play a critical role in spatial development and the implementation of spatial planning objectives. Defining recommendations for sustainable spatial structures at this level is an essential part.

[7] COM(2011) 571

[8] Neto means maximum use of land that has already been built on or sealed, avoidance of re-construction of soils. Unavoidable additional land-take requires equivalent compensation by returning formerly built-up land to cultivated land or natural area. (http://ec.europa.eu/environment/integration/research/newsalert/pdf/no_net_land_take_by_2050_FB14_en.pdf , https://www.umweltbildung.at/cms/praxisdb/dateien/485_pdf.pdf)

Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			
Implementation timeframe	Position of pathway on the 2050 timeline:  			
	Start of first implementation step			immediately
	End of last implementation step			2025
	Starting point already available?			yes
Link to target system	• Direct link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_SP2: Planning systems in risk management changed from passive to proactive; T_E5: Climate proofed Alpine hydropower; T_Tr1: Modal shift of Alpine freight transit; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco4: Alpine ecological connectivity; T_W3: Alpine-wide sustainable flood risk management; T_S1: Minimised land-take and sealing; T_MA1: Municipalities as transition engines; T_MA2: Climate action institutionalized in municipal action • Indirect link: T_Tr3: Reduced transport demand (passenger and freight); T_NH1: Alpine risk management; T_Tou1: Car-free, attractive tourism traffic; T_Eco3: Maintained and restored Alpine ecosystem services; T_Fo1: Potential of protective mountain forests fully used; T_S2: Enhanced Alpine soil quality			
Sequence of implementation steps				
Starting point and links to stocktaking	• Project ESPON Alps 2050 (https://www.espon.eu/Alps2050) • Links4Soils (stocktaking No 77) and Alpine Soil Partnership with the Alpine Soil Platform (database) • Activities of EUSALP AG6 (toolbox “less land-take”, declaration on “Sustainable Land Use and Soil Protection”, new work programme in 2020) • Climate Communication measures of ALPACA • Impuls4Action (“From intelligent Landuse to sustainable municipalities”, cross national project of Alpine states) • ESPON SUPER - Sustainable Urbanization and land-use practices in European Regions (https://www.espon.eu/super) • ASP CLISP project (common spatial planning strategy for climate adaptation); http://www.alpine-space.org/2007-2013/projects/projects/detail/CLISP/show/index.html#project_outputs and https://www.bmlrt.gv.at/english/environment/Climateprotect/Austrian-Strategy-for-Adaptation-to-Climate-Change.html) • Project “Open Space Alps” (Alpine Space programme): dealing with unspoiled high Alpine areas • National strategic goals; e.g. New Spatial Development Strategy for Slovenia (target 0% net land-take by 2050)			

Step 1a: Definition and provision of data concerning the impact of climate scenarios on land use **2021-2023**	Statistical data on land-consumption and Net0 based on a municipal level shall be harmonised across the Alps. Further, data on the impact of climate scenarios (precipitation, temperatures) on the land use shall be provided where they have a cross-border relevance, e.g. the impacts on cross-border infrastructure, energy production, settlement development.
Step 1b: Collection of good practices for growth and shrinking strategies **2022**	Collect good practice examples for growth and shrinking strategies in the Alpine area and publish the collection. These examples are the starting point for the moderated discussion (Step 3b).
Step 1c: Moderated discussion about growth and shrinking strategies **2022-2025 (ongoing)**	Start a moderated discussion about growth and shrinking in the Alpine area. The consolidation of spatial structures is needed as well as making deconstruction and healthy shrinking imaginable/attractive as a solution.
Step 2: Exchange and dissemination of information and awareness raising **2021-ongoing**	An exchange of information on the link between climate action and spatial planning is needed. Make use of the communication and awareness raising campaign “Soil protection is climate protection and vice versa” of pathway IP_S1 (Soil) to communicate the connection between land-take and loss of soil, the limited availability of land as a resource, and the role of soil as carbon sink and the climate-protection-related benefits of containing sprawl, e.g. the possibility to provide regional food products.
Step 3: Survey on land saving targets and challenges **2021-2023**	Which states/countries have adopted land saving targets (or are discussing them) and what are the biggest challenges to reach these aims? An Alpine-wide survey shall give answers to these questions.

Step 4: Guidance for municipalities **2022-2024**	Municipalities are playing a key role in the development of spatial structures. A guidance for municipalities in the Alpine Convention Perimeter to analyse their potential for sustainable land use shall be developed based on existing approaches and tools. Internal development potential and balance of building land are crucial topics. To foster the exchange, best practices from mayor to mayor should be collected and disseminated (for instance via conferences or a twinning system).
Step 5: Recommendations for the biggest challenges **2024-2025**	Secondary residences, vacancies, priority areas/crop rotation areas and brown fields, access to inner-urban development potential, benefits of land saving resp. densification vs. urban sprawl, donut-effect vs. strengthening the town centre, touristic infrastructure … the biggest challenges defined in step 2 shall be collected. Experts on the national level meet, discuss and generate transferable recommendations to overcome those challenges.
Stakeholders needed for implementation	• Observer organisation and NGOs (e.g. Alpine Town of the year Association, Alliance in the Alps (AidA), CIPRA, WWF) • Working Group on Soil Protection, Ad-hoc Expert Group on Spatial Planning, and other (former) Working Groups and Boards of the Alpine Convention • EUSALP AG6 and AG7 • Spatial planner • Decision makers at local and regional level • Stakeholders of the Alpine Soil Partnership/Links4Soils • Network ALPACA for communication and coordination
Indicators for monitoring this pathway	• Alpine-wide definition of key terms like land-consumptions and Net0 (y/n) • Survey on land saving targets and challenges (y/n) • Alpine-wide publication on impact of climate scenarios on land use (y/n) • Published collection of good practices for growth and shrinking strategies (y/n) • At least one exchange workshop on the topic of growth vs. shrinking (y/n) • Written recommendations for the biggest challenges and opportunities/ approaches to overcome them (y/n) • Guidance for municipalities of the perimeter of the Alpine Convention (y/n)

Link to other pathways	• Direct link: IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas • Indirect link: IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_NH3: Support measures to enhance individual risk precaution; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions; IP_S3: Supporting measures to preserve and enhance Alpine soil quality; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB together with other Thematic Working Bodies of the AC collects saving targets and challenges for the survey. • An expert group on spatial planning frames a moderated discussion on options for growth and shrinking options in the Alpine area.
	Governance setup	• AC National Focal Points call on national and regional authorities to harmonise statistical data on land-consumption and Net0 and to support awareness raising campaigns. • AC National Focal Points call on national and regional authorities to communicate the reduction of land-take and growth and shrinking options in a more open way.
	Twinning/know-how transfer	• Support cooperation between Links4Soils/Alpine Soil Partnership, the AC Ad-hoc Expert Group on Spatial Planning, the AC Working Group on Soil Protection, the experts working on the topic of spatial planning in the Alps (ESPON) • Members of ACB or other Alpine Convention bodies use contacts within their country/region to extend the communication on land-consumption. • Especially Alliance in the Alps (AidA) and the Alpine Town of the Year Association build a bridge to the municipality level which plays a crucial part in the context of spatial planning.
	Outreach	• ACB can be part of the awareness raising and communication campaign on “Soil protection is climate protection and vice versa”. • ACB can facilitate that recommendations are offered in response to challenges identified
	Knowledge hub	• The knowledge hub of the ACB can be used as a pool of information about statistical data on land-consumption etc., as well as for guidelines, collection of best practices, challenges and recommendations.
Integration in the ACB communication strategy	**Content**	Share the definition of land-consumption; address mayors via Observer organisations (especially via AidA and Alpine Town of the Year Association); enable open discussion about shrinking and growing
	Tools	-

6.2 IP_SP2: Spatial planning measures for reducing the need of individual car traffic

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">Many spatial planning systems and strategies at transnational, national and regional level (legal and institutional framework, instruments, procedures including in cross-border regions) already give a strong priority to climate change considerations, including mitigation and adaptation aspects. A crucial point in the discussion concerning the mitigation aspect is to foster spatial structures that reduce the need for individual car traffic.</td></tr>
<tr><td>Final output</td><td colspan="4">• Best practice collection on accessibility
• Guidelines for attractive mobility interfaces
• At least one pilot region in each Alpine country (micro transport, public transport, new technologies in the mobility sector)
• Concept/Feasibility study for an Alpine Ticket or Advantage Card (Vorteils-card Alpen)</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">Some parts of the Alps are densely populated, some scarcely. Some mobility needs of inhabitants are difficult to influence, they sometimes even increase. To reduce individual car traffic, spatial planning measures should be improved to promote efficient public-transport service provision and cycling and these modes of transport must be made more convenient and promoted as an attractive alternative.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>X</td><td>Adaptation</td><td></td></tr>
<tr><td colspan="4">-</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td colspan="4">Position of pathway on the 2050 timeline:
2020 — 2035 — 2050</td></tr>
<tr><td colspan="3">Start of first implementation step</td><td>immediately</td></tr>
<tr><td colspan="3">End of last implementation step</td><td>2028</td></tr>
<tr><td colspan="3">Starting point already available?</td><td>yes</td></tr>
<tr><td>Link to target system</td><td colspan="4">• Direct link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_E5: Climate proofed Alpine hydropower; T_Tr3: Reduced transport demand (passenger and freight); T_Tou1: Car-free, attractive tourism traffic; T_S1: Minimised land-take and sealing; T_MA1: Municipalities as transition engines; T_MA2: Climate action institutionalized in municipal action
• Indirect link: -</td></tr>
</table>

Sequence of implementation steps	
Starting point and links to stocktaking	• Interrail Ticket, Youth Alpine Interrail Project (CIPRA International) • SaMBA - Sustainable Mobility Behaviours in the Alpine Region (Project consortium under lead of Regione Piemonte) • AlpInfoNet project (Bavarian Ministry of the Interior, for Building and Transport and further partners, Transport Working Group) • Mobility solutions in the Alps Database (Transport Working Group) • klimaaktiv mobil - Mobility management for leisure and tourism (Austria) • MOR€CO-project (Alpine Space Programme 2007-2013) – mobility and residential costs. Project results include a tool for assessing mobility and residential costs (e.g. for Greater Munich, the State of Salzburg)
Step 1: Definition of expectations **2021**	In a first step, expectations towards sustainable mobility in the Alps shall be defined. For instance: Which expectation raise from labels (e.g. mountaineering villages?) What does sustainable mobility mean?
Step 2: Best practice collection on accessibility solutions **2021-2022**	Based on the defined expectations best practice examples on accessibility solutions in densely and scarcely populated areas of the Alps shall be collected. Further topics to be discussed in this step are grades for the quality of accessibility and parking space regulations.
Step 3a: Guidelines for attractive mobility interfaces **2023-2025**	Define guidelines for more attractive interfaces in order to make the transfer by public transport and intermodal transport chains more attractive, e.g. by matching departure times, offer shopping opportunities and social infrastructure at the stops and transfer points.
Step 3b: Pilot regions for micro transport, public transport and new technologies **2022-2025**	Establish at least one pilot region in each Alpine state to expand micro transport (scooters, bikes) and public transport as well as the use of new technologies in the mobility sector.
Step 4: Alpine Ticket **2025-2028 (ongoing)**	Develop an Alpine Ticket – for instance like the Ticino ticket – to promote the use of public transport in the whole Alpine area. For one overnight stay you get a ticket for the public transport system financed by visitor‘s tax. Also an Advantage Card for the use of public transport in the Alps (Vorteilscard Alpen) could be an option.

Stakeholders needed for implementation	• Working Group on Transport (AC), Ad-hoc Expert Group Spatial Planning and Action Group 4 on Mobility (EUSALP) • Spatial planner and transport planner • Supplier of public transport
Indicators for monitoring this pathway	• Best practice collection on accessibility (y/n) • Guidelines for attractive mobility interfaces (y/n) • At least one pilot region in each Alpine state (micro transport, public transport, new technologies in the mobility sector) (y/n) • Alpine Ticket (y/n)
Link to other pathways	• Direct link: IP_Tr2: Developing the Alps into a model-region for reduced working mobility; IP_Tr4: Developing the Alps into a model region for shared mobility; IP_SP1: Alpine-wide concept „Spatial planning for climate action" • Indirect link: IP_Tr3: Developing an Alpine-wide approach towards integration and decarbonisation of public transport; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_S3: Supporting measures to preserve and enhance Alpine soil quality

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• A Thematic Working Body of the AC (Working Group on Transport) collects accessibility solutions for densely and scarcely populated areas. • The ACB supports the establishment of pilot regions for micro transport, public transport and new technologies. • AC National Focal Points actively support the development of an Alpine Ticket by referring to successful implementation projects (Interrail, Youth Alpine Interrail, and Ticino Ticket).
	Governance setup	• AC National Focal Points call on national and regional authorities to make us of the best practice collection and the guidelines.
	Twinning/know-how transfer	• Support cooperation between stakeholders – especially supplier of public transport and spatial planner.
	Outreach	• ACB spreads the outcomes and informs about guidelines for attractive mobility interfaces, solutions in the sector of micro transport, public transport, cycling and new technology. • AC actively communicates the idea of the Alpine Ticket.
	Knowledge hub	• The knowledge hub of the ACB can be used for collecting information on expectations towards sustainable mobility in the Alps, best practice collections and guidelines.
Integration in the ACB communication strategy	**Content**	Spread the outcome of this step – especially focus on the Alpine Ticket.
	Tools	-

A7. SOIL

7.1 IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands

Basic information				
Background and description of the pathway	Soil is an important carbon pool. The preservation of soil is crucial, because only healthy soils can store carbon. The sequestration of carbon in soil organic matter is one of the main climate mitigation strategies for removing global-warming carbon dioxide (CO_2) from the atmosphere. Soil carbon sequestration is a process whereby CO_2 is removed from the atmosphere by vegetation, and stored in the soil's pool of organic carbon.[9] "Soil protection is climate protection and vice versa" is a core message. On the one hand there is the need for an awareness raising campaign for soil, especially for C-rich soils like peatland, moorland, wetland in the Alpine area. On the other hand farmers, land managers, foresters, spatial planners and decision makers on the international, national, regional and local level shall be coached to protect soils and to give priority to cultivation measures, which maintain/restore carbon stock in soils.			
Final output	• Alpine-wide comparable soil classification systems (or integration of Alpine soils characteristics into the world reference base of soils[10]) • Cross border soil maps in the Alps • Comprehensive soil survey, especially in high elevation of the Alps • Recommendations for measures to preserve and increase carbon stock in soils and for the protection and/or rehabilitation of peatlands, moorlands and wetlands • Alpine-wide soil protection network with regular exchange on topics such as preservation and increase of carbon stock in soils and for the protection and/or rehabilitation of peatlands, moorlands and wetlands • Alpine-wide awareness raising campaign for protection of soils and importance of carbon stock in soil			
Alpine-specific character	Alpine soils are highly vulnerable – they are strongly affected by threats related to climate change and land use change etc. An increase of knowledge about Alpine soils and exchange between stakeholders from the Alpine states – especially on the topic of carbon stock – is needed.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			

[9] https://ec.europa.eu/jrc/en/science-update/how-soil-organic-matter-composition-affects-carbon-sequestration
[10] http://www.fao.org/soils-portal/soil-survey/soil-classification/world-reference-base/en/

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2025
	Starting point already available?	yes
Link to target system	• Direct link: T_Eco3: Maintained and restored Alpine ecosystem services; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S2: Enhanced Alpine soil quality; T_MA3: Networks of CO_2-free municipalities; T_RD1: The Alps as model region for vulnerability assessments; T_RD3: Alpine-wide climate-data availability • Indirect link: T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Fo2: Mountain forests as carbon sink; T_S1: Minimised land-take and sealing	
Sequence of implementation steps		
Starting point and links to stocktaking	• Links4Soils (stocktaking No 77) and Alpine Soil Partnership with the Alpine Soil Platform (website) • ALPENHUMUS (German initiative that aimed at detecting effects of current climate change on C-storage in humus layers in the Alps; stocktaking No 87) • In depth revision on the topic “Economical use of soil” of the Compliance Committee of the Alpine Convention • Activities of EUSALP AG6 (declaration on “Sustainable Land Use and Soil Protection”, toolbox “less land-take”, new work programme in 2020) • Climate Communication measures of ALPACA • Impuls4Action (“From intelligent Landuse to sustainable municipalities”, cross-national project of Alpine states) • LUCAS (https://esdac.jrc.ec.europa.eu/projects/lucas) • Carbon calculator • ACRP Projekt CASAS (Carbon sequestration in Austrian soils) • Rural Development Programmes in the Alpine Countries • Literature on soil classification and mapping in the Alps[11] • Global Soil Organic Carbon Map (http://www.fao.org/global-soil-partnership/pillars-action/4-information-and-data-new/global-soil-organic-carbon-gsoc-map/en/)	

[11] e.g. Baruck et al (2016): Soil classification and mapping in the Alps; the current state and future challenges; Geoderma 264 Part B; 312-331

Step 1a: Develop an Alpine-wide soil classification system **2021-2023**	Develop a classification system for soils in the Alpine area, based on a common agreement on soil types (especially C-rich soil types like peatlands, moorlands and wetlands). Alternative options are the integration of Alpine soils characteristic to the world reference base or generating translators of the various national soil classification systems.
Step 1b: Foster exchange between initiatives aiming at soil protection **2021-2023**	Foster the exchange between and mutual enhancement of Alpine initiatives that aim at protecting or rehabilitating soils, with a special focus on the classification system of step 1a. Exchange formats can be workshop sessions in an international context as well as small peer group meetings of experts/scientist/people from the administrative level etc. Especially initiatives like the Alpine Soil Partnership and Link4Soils carry great knowledge and experiences.
Step 2a: Communicate the need for soil protection **2021-2025 (ongoing)**	Start an Alpine-wide awareness raising and communication campaign and focus on the message “Soil protection is climate protection and vice versa”. Make use of the workshops of Alpine initiatives (Step 1) to speak with one voice about challenges and need for action to protect soil in order to protect climate.
Step 2b: Map carbon rich soil types (pilot projects) **2023-2025**	Implement a classification system (as developed in step 1a): Survey to close soil survey gaps, especially at higher elevations and produce a map of Alpine soils, where carbon rich soil types like moorlands, wetlands and peatlands – also potential areas – can be identified. This should be done, in a first step, in at least one cross-border region of the Alpine perimeter. Use the Alpine-wide initiatives to communicate the results of mapping.
Step 3a: Recommendations on prevention, protection and compensation measures **2022-2025**	Collect best practices for prevention, protection and compensation measures and define recommendations for the protection, redevelopment and rehabilitation of moorlands, wetlands and peatlands; those prevention, protection and compensation measures should have a clear focus: maintain and restore carbon stock in soil and reactivate peatlands.
Step 3b: Pilot project on prevention, protection and compensation measures **2023-2025**	Implement a pilot project in a cross-border region of the Alpine perimeter (Step 2b) to apply the recommendations (Step 3a).

Stakeholders needed for implementation	• Working Group on Soil Protection of the Alpine Convention • EUSALP AG6Stakeholders of the Alpine Soil Partnership/Links4Soils • Agents for Soil protection on the international, national, regional and local level (and their networks like ELSA, ENSA, Fachbeirat für Bodenfruchtbarkeit und Bodenschutz – Committee on soil fertility and soil protection) • Decision makers at international, national, local and regional level • Alpine initiatives for the protection and/or rehabilitation of peatlands, moorlands and wetlands • Alliances of farmers, foresters and land managers • Scientific community (e.g. University Innsbruck, Boku Vienna) • Spatial planners • National land mapping institutes like BFW in Austria • JRC (Joint Research Centre) of the European Commission • Network ALPACA for communication • Authorities responsible for Natura2000 implementation
Indicators for monitoring this pathway	• Alpine-wide initiatives to protect or rehabilitate peatlands, moorlands and wetlands (y/n) • Map of carbon rich soil types (pilot action) as defined in step 1 • One pilot project in a cross-border region of the Alpine perimeter to apply the recommendations for compensation measures (y/n) • List of recommendations for prevention, protection and compensation measures (y/n) • One communication product in each Alpine state that spreads the message “Soil protection is climate protection and vice versa” (y/n)
Link to other pathways	• Direct link: IP_S3: Supporting measures to preserve and enhance Alpine soil quality; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_SP1: Alpine-wide concept „Spatial planning for climate action”; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Fo3: Accelerate forest conversion to more resilient ecosystems

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Frame a discussion on an Alpine-wide soil classification system (for instance within Working Group on Soil Protection of the AC). • Define cross-border regions for a mapping of carbon rich soil types.
	Governance setup	• AC National Focal Points call on national and regional authorities to support awareness raising campaigns.
	Twinning/know-how transfer	• Support cooperation between Links4Soils/Alpine Soil Partnership and the AC Working Group on Soil Protection. • Members of ACB or other Alpine Convention bodies use contacts within their country/region to extend the communication on soil protection.
	Outreach	• ACB can be part of the awareness raising and communication campaign on “soil protection is climate protection and vice versa”. • ACB can facilitate that results of pilots are transferred to other interested municipalities (e.g. via observer).
	Knowledge hub	• The knowledge hub of the ACB can be used for communicating classification system for soils in the Alpine area as well as for collecting best practices on recommendations for prevention, protection and compensation measures.
Integration in the ACB communication strategy	**Content**	Spread the message “soil protection is climate protection and vice versa.”
	Tools	Newsletters of the AC, link to Observers dealing with soil protection

7.2 IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing

Basic information				
Background and description of the pathway	No more additional (net) land-take, land sealing and strengthened approaches of brown field re-development by 2050– these are three key elements for the protection of soils and their ecosystem services with respect to climate mitigation and adaptation. Soils can be destroyed easily, but it takes a very long time to regenerate soil, if it is possible at all. This applies especially to high altitude areas, where soil development processes are taking place even slower. The transition towards climate-neutral and climate-resilient Alps requires an Alpine-wide understanding of the importance of minimised land-take and sealing and redevelopment of brownfields.			
Final output	• Definition of land-take/land sealing, brownfield redevelopment • Common understanding for monitoring of land-take and land sealing • Recommendations for an economic incentive system that stimulates efforts to minimize land-take and sealing. • Guidelines for land use planning at municipal level • Workshops and information events for stakeholder at the municipal level			
Alpine-specific character	The core Alpine area is subject to specific challenges such as a very limited permanent settlement area, with highly productive soils, combined with an increasing demand for space for transport, housing, economic activities and leisure. This is implicating land-take and often soil sealing leading to loss of those soils and considerable pressure on sensitive ecosystems etc. Those challenges affect not only one Alpine state – they are cross-border issues and a common urgency. Alpine-wide guidelines for minimised land-take and sealing shall be a corner stone to overcome these challenges.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			
Implementation timeframe	Position of pathway on the 2050 timeline: 2020 ◆ 2035 2050			
	Start of first implementation step			immediately
	End of last implementation step			2028
	Starting point already available?			yes

Link to target system	• Direct link to: T_Eco1: Preserved ecosystems and biodiversity; T_Eco4: Alpine ecological connectivity; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S1: Minimised land-take and sealing; T_MA1: Municipalities as transition engines • Indirect links to: T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_S2: Enhanced Alpine soil quality
Sequence of implementation steps	
Starting point and links to stocktaking	• In depth revision on the topic "Economical use of soil" of the Compliance Committee of the Alpine Convention • Links4Soils (stocktaking No 77) and Alpine Soil Partnership with the Alpine Soil Platform (website) • Activities of EUSALP AG6 (declaration on "Sustainable Land Use and Soil Protection", toolbox "less land-take", new work programme in 2020) • Climate Communication measures of ALPACA • Impuls4Action ("From intelligent Landuse to sustainable municipalities", cross-national project of Alpine states) • Working Group on Soil Protection of the Alpine Convention • No net land-take by 2050 (European Commission) • Project OpenSpaceAlps (2019-2021) • Indicator Land-take in Europe (https://www.eea.europa.eu/data-and-maps/indicators/land-take-3/assessment) • ESPON SUPER – applied research project: https://www.espon.eu/super
Step 1: Define land-take/land sealing and the need to stop both **2021**	Reach common understanding in Alpine countries about the economical use of soil and the reduction of land use. Therefore operate with an Alpine-wide definition and shared understanding of monitoring of land-take and land-sealing (definition proposal developed in the frame of the in depth review of the Compliance Committee of the Alpine Convention "Economical use of soil").
Step 2a: Use and spread exiting data on soil quality and function **2021-2022**	Compile, make use of and spread the data collection of soil quality and soil function (IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands) and consider information on soil quality and function for spatial planning decisions.
Step 2b: Coaching of spatial planners **2021-2022**	Empower the discipline of spatial planning and involving the spatial planning sector in decisions regarding land-take and sealing in all Alpine countries. Key elements are to foster communication about the importance of spatial planning as a tool for soil protection and that also data of soil quality and functions should be considered in spatial planning.

Step 2c: Alpine-wide recommendations for an economic incentive system **2022-2024**	Alpine-wide recommendations for an economic incentive system (e.g. tradeable land planning permits[12], subsidies for land unsealing), which include both net new land-take (e.g. for new infrastructures) but also land regeneration shall be made. These recommendations shall be made on the basis of a review of existing economic incentive systems for land-take in the Alpine countries and beyond.
Step 3: Define guidelines for land use plans at the municipal level **2024-2026**	Define guidelines for land use plans at the municipal level (land-take and urban regeneration), including strategic action in land planning as well as small-scale measures for soil sealing reduction.
Step 4: Communicate and spread guidelines for land use plans **2026-2028**	Stakeholders at the municipal level play a key role when it comes to the implementation of guidelines for land use plan. Workshops and information events shall be organized in the perimeter of the Alpine Convention.
Stakeholders needed for implementation	• Working Group on Soil Protection of the Alpine Convention • Stakeholders of the Alpine Soil Partnership/Links4Soils • Agents for Soil protection on the international, national, regional and local level (and their networks) • Decision makers at local and regional level (mayors) • Scientific community (e.g. TU Vienna, BOKU Vienna) • Spatial planners (e.g. national networks like ÖROK in Austria) • Stakeholders from all sectors (building, traffic, economy, agriculture and forestry, nature conservation etc.) • All those active in the Spatial planning pathways
Indicators for monitoring this pathway	• Alpine-wide definition of land-take/land sealing (y/n) • Recommendations for an economic incentive system (y/n) • Guidelines for land use plans at the municipality's level (y/n) • Workshops and information events for stakeholder at the municipal level in every Alpine country (y/n)

[12] For further information please refer to: https://www.umweltbundesamt.de/en/topics/soil-agriculture/land-use-reduction/tradable-land-planning-permits#textpart-

Link to other pathways	• Direct link: IP_SP1: Alpine-wide concept „Spatial planning for climate action"; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas • Indirect link: IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_E4: Supporting Alpine administrations as forerunners and models for the energy transition on their premises; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_NH3: Support measures to enhance individual risk precaution; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_S3: Supporting measures to preserve and enhance Alpine soil quality	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• The AC National Focal Points call on national and regional authorities to make use of the Alpine-wide definition of land-take/land sealing and the need to stop both. • The AC National Focal Points call on regional and local authorities to organize workshops and information events to communicate and spread guidelines for land use plans.
	Governance setup	-
	Twinning/know-how transfer	• ACB members can support the exchange of information on soil and spatial planning between the AC Working Group on Soil Protection, EUSALP AG6 (foreseen activities oriented on inner development) and others
	Outreach	• Spread information on Alpine-wide recommendations on economic incentive system as well as guidelines on land-use plans.
	Knowledge hub	• The knowledge hub can be used for providing information on the tradeable permit system.
Integration in the ACB communication strategy	**Content**	Definition of land-take and land sealing; brainstorming on guidelines for land use plans and communicating the results
	Tools	Newsletters of the AC, link to Observers dealing with soil protection

7.3 IP_S3: Supporting measures to preserve and enhance Alpine soil quality

Basic information				
Background and description of the pathway	Soils are multifold biotopes; among other functions soils can help to protect the climate through carbon sequestration. The Alpine Conference decided to take upon action in the field of soil protection to reach the following goals by 2050: "There is no more additional (net) land-take and land sealing. Brown field re-development approaches have been strengthened to protect Alpine-specific soils and their services." (XV Alpine Conference 2019) Use land in a way appropriate for the soil functions and protect highly functional soils – these are key factors for enhancing soil quality. In the following 3 steps, measures to enhance Alpine soil quality shall be implemented.			
Final output	• Alpine-wide definition and data collection on soil quality • Analysis of hot-spots of productive and especially valuable soils with soil function maps • Management recommendations for valuable soil types			
Alpine-specific character	Soil is a finite, non-renewable and endangered natural resource. Especially Alpine soils are highly vulnerable – they are strongly affected by threats related to climate change, land use change etc. Preserving and enhancing Alpine soil quality is a key challenge of soil protection in the Alpine area.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			
Implementation timeframe	Position of pathway on the 2050 timeline: 2020 ◆ 2035 → 2050			
	Start of first implementation step	immediately		
	End of last implementation step	2025		
	Starting point already available?	yes		
Link to target system	• Direct link: T_Eco3: Maintained and restored Alpine ecosystem services; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S2: Enhanced Alpine soil quality; T_MA3: Networks of CO_2-free municipalities; T_RD1: The Alps as model region for vulnerability assessments; T_RD3: Alpine-wide climate-data availability • Indirect link: T_Fo2: Mountain forests as carbon sink; T_S1: Minimised land-take and sealing			

Sequence of implementation steps	
Starting point and links to stocktaking	• Links4Soils (stocktaking No 77) and Alpine Soil Partnership with the Alpine Soil Platform (database) • ALPENHUMUS (German initiative that aimed at detecting effects of current climate change on C-storage in humus layers in the Alps; stocktaking No 87) • In depth revision on the topic "Economical use of soil" of the Compliance Committee of the Alpine Convention • Activities of EUSALP AG6 (declaration on "Sustainable Land Use and Soil Protection, "toolbox "less land-take", new work programme in 2020) • LUCAS (https://esdac.jrc.ec.europa.eu/projects/lucas) • H2020 project LANDMARK (www.landmark2020.eu) • ACRP Projekt CASAS (Carbon sequestration in Austrian soils) • Impuls4Action ("From intelligent Landuse to sustainable municipalities", cross-national project of Alpine states) • Working Group on Soil Protection of the Alpine Convention • Agri-environmental programmes in the Alpine countries (e.g. ÖPUL in Austria) • 4 per 1000 Initiative (https://www.4p1000.org/)
Step 1: Alpine-wide monitoring of soil quality and hot-spot analyses **2021**	The collection of information on status-quo of soil quality (as defined in IP_S1, step 1a) for the Alpine area is a first step that is directly followed by a hot-spot analysis of very productive soils and soils that have a high impact on mitigation. This data collection on the quality of Alpine soils shall be updated regularly to become a monitoring system on Alpine soils.
Step 2: Mapping soil functions in relation to potential uses (e.g. spatial planning) and ecosystem services **2021-2022**	Soil functioning maps shall be developed to communicate the importance of preserving productive and especially valuable soils. This step is guided by the aim of appropriate land use for each type of soil.

Step 3: Link and improve soil management strategies and agricultural practice **2022-2025**	Management recommendations specifically for the Alps intended to protect soils and enhance soil carbon and soil biodiversity shall be formulated. A special focus should be on wetlands, peatland, (riparian) forests, adaptation (e.g. water storage) and good agricultural practice in the sense of climate-resilience (e.g. tilling of grassland). To reach this goal, the linking and improving of soil management strategies and approaches is foreseen. Those recommendations shall include agricultural practices to build up humus/soil organic matter.
Stakeholders needed for implementation	• Working Group on Soil Protection of the Alpine Convention • Stakeholders of the Alpine Soil Partnership/Links4Soils • Agents for Soil protection on the international, national, regional and local level • Decision makers at international, national, local and regional level • Alpine Research Centres • JRC (Joint Research Centre) of the European Commission • Scientific community (e.g. University Innsbruck, Boku Vienna) • Alliances of farmers and land managers • Network of mountain pasture farmers • Managers of mountain forests • Stakeholder, who work in the field of hazard management • (Spatial planners)
Indicators for monitoring this pathway	• Alpine-wide definition and data collection on soil quality and hot-spot analysis with soil function maps (y/n) • Management recommendations for valuable soil types (y/n)
Link to other pathways	• Direct link: IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo2: Promoting Alpine forests as carbon sinks • Indirect link: IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture; IP_Fo3: Accelerate forest conversion to more resilient ecosystems; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Define areas for monitoring of soil quality and starting the hot-spot analysis (together with Working Group Soil Protection).
	Governance set-up	• AC National Focal Points call on national and regional authorities to give input for the data collection and hot-spot analysis.
	Twinning/know-how transfer	• Support cooperation between stakeholders – especially land manager and experts/manager on the local level.
	Outreach	• The ACB shall spread the recommendations on management of soil types.
	Knowledge hub	• The knowledge hub of the ACB can be used for communicating the Alpine-wide monitoring on soil quality.
Integration in the ACB communication strategy	**Content**	Spread the outcome of the hot-spot analysis; communicate the direct link between the improvement of soil quality and agricultural practice
	Tools	-

A8. MOUNTAIN AGRICULTURE

8.1 IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture

Basic information				
Background and description of the pathway	Alpine agricultural products enter value-chains extending sometimes far beyond the Alpine region. On the one hand this provides a significant economic trigger for local products, on the other hand this could be responsible for emissions from transport for food-miles. At the same time, tourist diversification represents a major phenomenon to be observed across the Alps and visitors appreciate tasting local products on site, live a comprehensive tourist experience and bring back some of them to their places of origin. Alpine farming products show an inner high natural quality, tend to be organised as niche productions, and need to see their full value (and costs) recognised in the consumer price. The resulting pathway has the objective to incorporate different trends and address both climate and socioeconomic dimensions in the agricultural sector in the Alps including support for regional agriculture, local consumption of mountain products, direct marketing (shortening of the value-chain), simplified access to mountains, promotional activities including a “climate message”, climate and value-added indicators applied at the level of farms.			
Final output	• Local consumption of Alpine agricultural products in Alpine regions • Increased share of climate friendly and locally produced animal feed and the quantification of rewetted agricultural wetlands • Promotion of local Alpine products as natural, tasty and climate-friendly • Increase in added value and income from marketing of climate-friendly local products for Alpine farmers • Evaluation/report on CO_2-impacts of a higher use of Alpine products and local value chains			
Alpine-specific character	Alpine farming products have special characteristics of naturalness and high quality. Often they derive from Alpine species and are produced through traditional or locally adapted methods. Local production and consumption allow for a reduction of CO_2-emissions, and regional tourism in the Alps especially outside winter has seen an increase in local or regional green or climate-neutral offers and packages.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	Actions to foster sustainable value-chains for products from Alpine agriculture shall take an integrated approach, considering both mitigation and adaptation needs.			

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2025
	Starting point already available?	yes
Link to target system	• Direct link: T_Tr3: Reduced transport demand (passenger and freight); T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Agr1: Energy self-sufficiency of Alpine farms; T_Agr2: Alpine value chains for agricultural products; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture ; T_MA1: Municipalities as transition engines; T_MA2: Climate action institutionalized in municipal action; T_MA3: Networks of CO_2-free municipalities; T_RD1: The Alps as model region for vulnerability assessments • Indirect links: T_Tr1: Modal shift of Alpine freight transit; T_Tou1: Car-free, attractive tourism traffic; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_Eco4: Alpine ecological connectivity; T_S2: Enhanced Alpine soil quality	
Sequence of implementation steps		
Starting point and links to stocktaking	• Green Economy Action Plan of the Alpine Convention (2019) • RSA4 “Sustainable Tourism in the Alps – Report on the State of the Alps” (2013) • Report of the WG Sustainable Tourism (2016) • PSAC (2017). ALPINE SIGNALS 8 - Alpine Convention Mountain Agriculture Platform • Local initiatives in Alpine countries (e.g. Project: Adopt an Alpine Organic Valley, Italy) • Bergsteigerdörfer (stocktaking No. 61), which have one focus on promotion and use of local and regional products • Initiative “So schmecken die Berge“ (taste of the mountains) of the German and Austrian Alpine Clubs (stocktaking No. 64)	

Step 1: Indicators for climate-friendly and sustainable Alpine farms **2021-2022**	Identification of proper indicators for climate-friendly and sustainable farming to be applied at the farm level (organisation) or at the farming product level (good): indicators have to include mitigation and adaptation dimensions (e.g. use of renewable energy, GHG emissions, water use, use of chemicals, use of locally produced and climate friendly animal feed, rewetting of agricultural wetlands etc.) as well as economic and social sustainability metrics (e.g. added value, serviced people, canteens, restaurants, shops etc.). Indicators can be collected and harmonised from existing experience within and outside the Alpine region. The resulting system of indicators should deliver a complete information on the GHG impact of products from Alpine agriculture that can be used as a basis for private and public decision making.
Step 2: Set up of an Alpine regional strategy for climate-friendly agricultural products **2021-2025**	The elements making up an Alpine regional strategy for the promotion of agricultural products can include: • Technical specific support and divulgation of better techniques and marketing strategies tailored for the Alpine farmers • Marketing initiatives for commercializing Alpine products locally in restaurants, hotels, shops, catering etc. • Green public procurement applied by local administrations within the region (e.g. school and public offices canteens etc.) • Incentivisation of direct marketing/commercialisation of Alpine farming products from farmers aimed to shorten the value-chain and increase the share of added value retained by the producer • Note that a proper consideration of the dimension of the "region" where the commercialization of Alpine farming products should be promoted is needed.
Step 3: Set up a "EU Day for the Alpine or mountain products" (EUDAMP) **2021-2025**	An "EU Day" dedicated to mountain/Alpine products with major events and supported by an EU-wide campaign should be determined and launched with a widespread support from Alpine countries and the Alpine Convention/PSAC. On this day, special voluntary public and private initiatives for promoting the consumption and knowledge of Alpine products and their attached benefits (including climate-friendliness, ecosystem services, biodiversity, cultural aspects etc.) should be held in major cities in the Alps. Commercial initiatives by farmers, restaurants, agritourist facilities etc. could be concentrated in the period around the EU Day (e.g. Alpine cuisine menus in restaurants, tasting events, courses, a multi-media campaign etc.)
Stakeholders needed for implementation	• Academics or Consultants in the field of sustainability indicators • EU Commission DG Agriculture, DG Climate Action, DG Environment • National and regional administrations involved in farming and food policies, tourism development, environmental policies • Representatives/stakeholders of tourism and mountain destinations or centres • Companies and entrepreneurs in fields linked to food value-chains • Farmers' associations • NGOs involved in promoting sustainable tourism (CIPRA, ALPARC etc.)

Indicators for monitoring this pathway		• Step 1: Quantitative and qualitative and description of achieved results (indicator system and farmers joining the scheme) • Step 2: Number of initiatives, destinations/towns, products involved and qualitative descriptions where needed • Step 3: Qualitative description of the organisational aspects of the day; number of stakeholders agreeing to participate with own initiatives, description of outreach of the activities
Link to other pathways		• Direct link: IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach • Indirect link: IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou2: Coaching and capacity building for climate proofing Alpine tourism; IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB together with other Thematic Working Bodies of the AC can support step 1 with existing materials, promote activities throughout the Alps (Step 2) and lobby for EU Day of Mountain Agriculture (EUDAMP) with EU and other institutions (Step 3).
	Governance set-up	• ACB proposes to set up a “steering group” within the AC Mountain Agriculture and Mountain Forestry Working Group (MAMF) to coordinate the steps. This steering group will be responsible for further steps on this pathway. • National Focal Points can reach out to decision makers at national level to gain support for coordinated strategy and EUDAMP.
	Twinning/know-how transfer	• Use the knowledge hub or climate portal of the AC
	Outreach	• Specific ad hoc outreach activities of ACB aimed to inform about the coordinated Alpine strategy and the EUDAMP.
	Knowledge hub	• Information on climate-reporting framework for agricultural products can be linked to knowledge hub.

Integration in the ACB communication strategy	**Content**	Information on metrics for climate-friendly Alpine farming, other statistics on the involved stakeholders and actions performed
	Tools	Include in the database, stocktaking report etc. both the reporting framework (step 1), and the draft regulations and initiatives needed for step 2.

8.2 IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming

Basic information				
Background and description of the pathway	Organic agriculture is known to exert less direct environmental impact on soils than traditional one. Moreover the use of heavy and energy-intensive methods that is often found in intensive farming and livestock farming is relatively scarce in Alpine regions also due to the limited attractiveness of the land for large productions. Against this background, farming in the Alps looks suitable for adopting and testing organic and other low impact approaches to smaller food productions. This however would require a clear productive choice to be ideally supported by regional and national policy makers in order to achieve measurable targets.			
Final output	Significant increase of the share of Alpine agriculture adopting climate-friendly and organic farming methods, resulting in the sub-outputs reported below: • Strong reduction in the use of chemicals in farming • Decrease in the use of energy and CO_2-intensive methods in mountain farming • Increase of organic farming up to 50% of Alpine farming by 2050 (with respect to agricultural land) • Introduction of Alpine scheme(s) for CO_2-friendly or CO_2-neutral agriculture in the Alps			
Alpine-specific character	Mountain agriculture plays a central role in ensuring Alpine traditional landscape, regional breeds and species and preserving local culture, heritage and traditional techniques. The characteristics of Alpine food products and their market position call for higher quality that can have a considerable impact in reducing GHG emissions of agriculture.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			

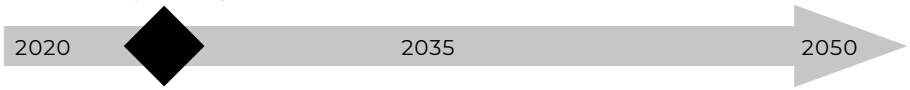
Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2030
	Starting point already available?	yes
Link to target system	• Direct link: T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_Eco4: Alpine ecological connectivity; T_Agr1: Energy self-sufficiency of Alpine farms; T_Agr2: Alpine value chains for agricultural products; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_S1: Minimised land-take and sealing; T_S2: Enhanced Alpine soil quality; T_MA1: Municipalities as transition engines; T_MA2: Climate action institutionalized in municipal action; T_MA3: Networks of CO_2-free municipalities; T_RD1: The Alps as model region for vulnerability assessments; T_RD4: Research on climate-driven extreme events and climate impacts on glaciers • Indirect link: T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Fo4: Alpine-wide sustainable forest management; T_W1: Alpine-wide optimized water management; T_W2: Drinking water security	
Sequence of implementation steps		
Starting point and links to stocktaking	• Report “Adopt an Alpine bio/organic valley” (2019) • Existing documentation of the mountain agriculture working group	
Step 1a: Stocktaking on organic agriculture in the Alps **2021-2022**	Mapping of organic farming in the Alps including information on management techniques, use of pesticides and other chemicals etc. as well as their GHG reduction potential Identification of the organic farming “gap” against the target of 50% of Alpine agriculture shifted to organic methods by 2050	

Step 1b: Organic agriculture scenarios for Alpine regions **2021-2025**	• Development of a set of scenarios for organic/climate-friendly farming in the Alps. • Gap analysis and business/strategic planning for filling the gaps • Identification of innovative management techniques being able to support the transition to a higher share of organic farming in the Alps at a reasonable cost (e.g. extensive agriculture, CO2 storage of pastures and moorlands through grazing management plans, dual purpose breeds introduced, reduced use of fertilisers, low-taxation areas or production systems, incentivisation of small mechanization etc.) • Identification of possible solutions for the reduction of the costs of transition to organic farming
Step 2: Policies for achieving Alpine organic farming at 50% of total surface (or other indicator) **2022-2025**	Inventory of existing initiatives at different territorial levels supporting a transition from traditional to organic farming in the Alpine regions Identification of the multiple benefits of organic farming also through the approach of ecosystem services (ESS; including the social positive spillover effects e.g. in terms of contrasting out-migration etc.) Identification of the "policy gap" (i.e. existing legal or institutional barriers to a shift to organic/climate friendly farming) for different territorial units Assessment of benefits and costs in alternative modes of farming (organic and traditional) in terms of e.g. yields and productivity, costs, demand for land, demand for crops and farming products and identification of situations where the transition can be sustainable (e.g. local level/alongside industrial production) Elaboration of proposals of policy actions for increasing the share of organic farming in the Alpine regions up to 50% Starting dialogue with relevant policy makers and stakeholders in the farming sector particularly Regions, associations, firms aimed at introducing incentives/removing barriers to a wider use of organic farming in the Alps The indicator/target could either refer to land use or to production (quantity or revenues or share of regional agricultural products etc.)
Step 3: Implementation of policy actions in different Alpine regions 2025-2030	Introduction/implementation or increase (depending on different countries) voluntary initiatives for organic farming (schemes) by firms and administrations (e.g. "organic/climate friendly" procurement by involved administrations and private entrepreneurs in the hospitality sector not necessarily limited to the stricter mountain regions etc.)
Stakeholders needed for implementation	• farmers' associations • consumers' groups (local and from larger towns) • policy makers (regional, local including larger towns) • consultancy firms • researchers/universities

Indicators for monitoring this pathway		• Quantification of maps and assessment of gaps • Quantification of scenarios and relative gaps • Knowledge of share or extension of land used for organic farming (y/n) • Schemes developed and applied/tested (y/n)
Link to other pathways		• Direct link: IP_S3: Supporting measures to preserve and enhance Alpine soil quality; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture • Indirect link: IP_E1: Set up a network of regional energy coordinators; IP_E2: Enabling an Alpine-wide energy democracy; IP_E3: Supporting low-carbon/low-energy Alpine lifestyles and business models; IP_E4: Supporting Alpine administrations as forerunners and models for the energy transition on their premises; IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Fo3: Accelerate forest conversion to more resilient ecosystems; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB and MAMF can spread the achieved results across the Alpine countries through their members/participants. • ACB can support regional and national initiatives aimed at testing the methods and give them the appropriate institutional visibility (link to communication).
	Governance set-up	• ACB/MAMF can participate in the elaboration of the different products foreseen within the pathway by providing expert and institutional advice.
	Twinning/know-how transfer	• Provision of data and technological infrastructure for the analyses foreseen
	Outreach	• ACB and/or MAMF can raise visibility of the approach with national bodies, regional processes, expert audiences, EUSALP etc.
	Knowledge hub	• Strong role in communicating data and schemes once prepared, also through the info hub
Integration in the ACB communication strategy	**Content**	Information on all aspects in communication activities of ACB
	Tools	Schemes and other outputs to be linked to ACB info hub

A9. MOUNTAIN FORESTS

9.1 IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests

Basic information				
Background and description of the pathway	Notwithstanding the widespread awareness of the protective function of mountain forests in the Alps and the existing national and regional initiatives supporting such a function in forest ecosystems, a scheme aimed at exploiting the full potential of Alpine protective forests applied extensively across the Alps does not exist. It could be an asset for recognising the critical mass of such an ecosystem service (ESS) on the whole Alpine region. The pathway aims at homogenising the experiences currently run across the Alps in a coordinated way aiming at developing an Alpine-wide scheme for the management and valorisation of protective functions of Alpine forests.			
Final output	Definition of a Joint Alpine scheme for monitoring the protective functions of Alpine forests under multiple dimensions, in support of the responsible institutions and stakeholders in forest management and planning.			
Alpine-specific character	Alpine regions are particularly exposed to natural hazards and protective forests can play a significant role in risk mitigation, as shown by several sources esp. by RSA7. The management of protective forests is already spread across the Alps and different countries adopt active policies in support of this ESS. Protective forests can play an important role in the region (both in the mountains and valleys) for safeguarding properties and local people's life and well-being.			
Link to mitigation and/or adaptation	**Mitigation**		**Adaptation**	X
	The pathway is primarily directed at adaptation (risk mitigation), however concomitant mitigation functions can also be performed by the same ecosystems targeted as providers at protective functions.			
Implementation timeframe	Position of pathway on the 2050 timeline:  			
	Start of first implementation step			immediately
	End of last implementation step			2025
	Starting point already available?			yes

Link to target system	• Direct link: T_SP2: Planning systems in risk management changed from passive to proactive; T_NH1: Alpine risk management; T_Eco3: Maintained and restored Alpine ecosystem services; T_Fo1: Potential of protective mountain forests fully used; T_Fo2: Mountain forests as carbon sink; T_Fo3: Accelerated forest conversion; T_Agr1: Energy self-sufficiency of Alpine farms; T_W3: Alpine-wide sustainable flood risk management; T_RD2: Open cross-cutting research questions answered • Indirect link: T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_NH3: Individual risk precaution; T_Eco1: Preserved ecosystems and biodiversity; T_Eco4: Alpine ecological connectivity; T_Fo4: Alpine-wide sustainable forest management
Sequence of implementation steps	
Starting point and links to stocktaking	• RSA7 (2019) • Statement On the Value of Alpine Forests and the Alpine Convention's Protocol on Mountain Forests in the framework of the international forestry policies beyond 2015 (2014; stocktaking No. 13) • Report on Interactions between mountain forests and flood protection (stocktaking No. 32) • MANFRED - Management strategies to adapt Alpine Space forests to climate change risks (Project ASP; stocktaking No. 70) • RocktheAlps – Harmonized ROCKfall natural risk and protection forest mapping in the ALPine Space (Project ASP; stocktaking No. 73) • Several national and regional policies across the Alps
Step 1: Stocktaking of Alpine protective forests **2021-2024**	Common guidelines for all Alpine countries are to be delivered on a practice-oriented method for identifying and delimiting the areas and properties at risk in proximity to forest ecosystems, including an economic evaluation of the service provided by them. Identification of existing protective forests and planned plantations/extensions of protective forests across the Alps
Step 2: Identification of management techniques for protective forests **2021-2023**	Survey of existing and new management techniques of protective forests and their expected impact on the protective function with particular reference to co-benefits in the field of climate change (adaptation and mitigation)
Step 3: Alpine Scheme for protective forests **2023-2025**	Definition of a "Monitoring and Planning Scheme for Protective forests in the Alps" Formal adoption of the Scheme by the ACB/Alpine Convention with the participation of selected stakeholders

Stakeholders needed for implementation	• National and regional forest services or competent ministries • Countries, national and regional administrations involved in forest policies, civil protection, natural hazards, spatial planning • Biodiversity experts • Representatives/stakeholders of forest management sector • Forest owners and their associations • NGOs involved in promoting sustainable forestry
Indicators for monitoring this pathway	• Figures on valuation of exposed people and properties (y/n) • Figures on the share and absolute extension of protective forests (existing and planned; y/n) • Quantification of techniques/approaches/tools surveyed • Adoption by Alpine Conference or Permanent Committee (y/n)
Link to other pathways	• Direct link: IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming; IP_NH3: Support measures to enhance individual risk precaution; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo2: Promoting Alpine forests as carbon sinks; IP_Fo3: Accelerate forest conversion to more resilient ecosystems; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB and PSAC support the actual implementation of the different steps requiring participation from wide Alpine territories (e.g. surveys, drafting and approval of the Scheme).
	Governance set-up	• ACB and MAMF support and send experts to the expert group involved in implementing the pathway.
	Twinning/know-how transfer	• ACB/PSAC support knowledge transfer and promotion of the scheme also through infopoint networks.
	Outreach	• Specific outreach activities of ACB to inform about the definition and contents of the coordinated Alpine strategy
	Knowledge hub	• Information from the surveys and valuation exercises can be linked to, and spread through the knowledge hub.
Integration in the ACB communication strategy	**Content**	Measures within the scheme and all information can be communicated through the ACB communication strategy, other channels and stakeholders involved in its activities.
	Tools	-

9.2 IP_Fo2: Promoting Alpine forests as carbon sinks

Basic information	
Background and description of the pathway	The role of forests as C-sinks is well-known. However, it can be further supported by the use of appropriate and scientifically sound methods, often coupled with tools that allow for a fine-tuning of the practices implemented. The pathway aims at providing Alpine forest managers with a set of calculation and management tools that allow for an effective use of Alpine forests as C-sinks.
Final output	• Database of tools to account for CO_2 storage in Alpine forests • Prioritisation of interventions planned in forests based on the assessment of their fitness in storing CO_2 • Criteria for use of different forest species aimed at maximizing C-storage

Alpine-specific character	The spread and growth of forests across the Alps qualifies the region as a potentially outstanding sink for CO_2-emissions in Europe. However, there is no complete understanding and knowledge base on the potential of Alpine forest as C-sinks and on management practices that could increase their storing capacity.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	
	The pathway is primarily directed to adaptation (risk mitigation), however concomitant mitigation functions can also be performed by the same ecosystems targeted as providers of protective functions.			
Implementation timeframe	Position of pathway on the 2050 timeline: 			
	Start of first implementation step			immediately
	End of last implementation step			2050
	Starting point already available?			yes
Link to target system	• Direct link: T_Eco3: Maintained and restored Alpine ecosystem services; T_Fo1: Potential of protective mountain forests fully used; T_Fo2: Mountain forests as carbon sink; T_Fo3: Accelerated forest conversion; T_RD1: The Alps as model region for vulnerability assessments; T_RD2: Open cross-cutting research questions answered • Indirect link: T_Eco1: Preserved ecosystems and biodiversity; T_Agr1: Energy self-sufficiency of Alpine farms			
Sequence of implementation steps				
Starting point and links to stocktaking	• Statement On the Value of Alpine Forests and the Alpine Convention's Protocol on Mountain Forests in the framework of the international forestry policies beyond 2015 (2014; stocktaking No. 13) • MANFRED - Management strategies to adapt Alpine Space forests to climate change risks (Project ASP; stocktaking No. 70) • Several national and regional policies across the Alps			
Step 1: Stocktaking and mapping of carbon sinks in the Alps **2021-2022**	Identification of different types of forests and their age in the Alps GIS-mapping of identified types based on their ability to improve their C-storage capacity and performance			

Step 2: Analysis and collection of available CO_2 accounting tools for forests and consistent planning and management techniques **2021-2025**	Collection of available CO_2 accounting tools for forests Collection of examples of management techniques including management of tree species and age in forest planning, based on their CO_2 storage capacity
Step 3a: Set up of targets and implementation procedure in line with EU Commission objectives of wood **2022-2025**	Definition of specific targets for CO_2-friendly Alpine forest management and wood production in line with EU Directives (2020-2024) (e.g. forest types more suitable to store CO_2, priority interventions, use of accounting tools or other instruments etc.)
Step 3b: Implementation of management tools in different Alpine regions until achievement of the targets **2025-2050**	Adoption of instruments for achieving the specific targets (defined under step 3a) in the Alps until the achievement of the single targets and general goal of the pathway (2024-2050)
Stakeholders needed for implementation	• Forest owners • Forest professionals • Forest services (national and regional) • Policy makers (national, regional, local) • Universities/research institutions etc.
Indicators for monitoring this pathway	• Forest type maps (y/n) • Quantification of tools and management techniques collected • Qualitative description of the specific objectives/targets (y/n) • Quantification of forest managers in the Alps who use the tools as developed in step 2

Link to other pathways	• Direct link: IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests; IP_Fo3: Accelerate forest conversion to more resilient ecosystems; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB/MAMF take care of the liaison between the EC and other EU institutions, especially in aligning Alpine with EU objectives on forests, wood, biodiversity. • ACB can support regional and national initiatives aimed at the implementation of the agreed specific targets, and give them the appropriate institutional visibility (link to communication)
	Governance set-up	• ACB/MAMF can facilitate stakeholder relationships, involvement and participation as well as the needed institutional agreements.
	Twinning/know-how transfer	• PSAC can host on its “climate portal” the outcomes of each step, the resulting datasets, and provide a geolocalization of the tests and their results on SOIA.
	Outreach	• ACB and/or MAMF can raise and promote the visibility of the approach across the whole Alps and ideally also in other mountain regions through international mountain cooperation initiatives (e.g. Carpathian Convention).
	Knowledge hub	• Strong role of ACB/AC/PSAC website etc. in communicating techniques, achievements and metrics, also through the info hub
Integration in the ACB communication strategy	**Content**	Information on all aspects in ACB communication
	Tools	Schemes and other outputs to be linked to ACB info hub

9.3 IP_Fo3: Accelerate forest conversion to more resilient and close-to-nature ecosystems

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">The pathway aims at supporting a more rapid conversion of current forests to more resilient and close-to-nature forest ecosystems through a mix of management innovation and financial schemes. By 2050 a conversion of forest ecosystems to close-to-nature forests should have been achieved.</td></tr>
<tr><td>Final output</td><td colspan="4">• Application of “Alpine guidelines” for conversion of forest ecosystems to more resilient forests</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">The acceleration of forest conversion to more resilient ecosystems is an important issue in times of climate change – not only, but also for Alpine forests.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>X</td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">Notwithstanding the practice refers mainly to adaptation to climate change (CC), some elements can be useful also for developing forest functions in support of mitigation – as a co-benefit.</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td colspan="4">Position of pathway on the 2050 timeline:
2020 ◆ 2035 → 2050</td></tr>
<tr><td colspan="3">Start of first implementation step</td><td>immediately</td></tr>
<tr><td colspan="3">End of last implementation step</td><td>2030</td></tr>
<tr><td colspan="3">Starting point already available?</td><td>yes</td></tr>
<tr><td>Link to target system</td><td colspan="4">• Direct link: T_Eco1: Preserved ecosystems and biodiversity; T_Eco3: Maintained and restored Alpine ecosystem services; T_Fo1: Potential of protective mountain forests fully used; T_Fo2: Mountain forests as carbon sink; T_Fo3: Accelerated forest conversion; T_RD1: The Alps as model region for vulnerability assessments; T_RD2: Open cross-cutting research questions answered
• Indirect link: T_Eco2: Alpine-wide system of protected areas; T_Fo4: Alpine-wide sustainable forest management; T_Agr1: Energy self-sufficiency of Alpine farms</td></tr>
</table>

Sequence of implementation steps	
Starting point and links to stocktaking	• Statement On the Value of Alpine Forests and the Alpine Convention's Protocol on Mountain Forests in the framework of the international forestry policies beyond 2015 (2014; stocktaking No. 13) • MANFRED - Management strategies to adapt Alpine Space forests to climate change risks (Project ASP; stocktaking No. 70)
Step 1: Study of forest development scenarios under climate change in the Alps **2021-2025**	Promotion of studies (and/or their collection and harmonisation) aimed at identifying a few future development scenarios of Alpine forests and their types (species) and ages under CC
Step 2: Elaboration of Guidelines for Alpine forest conversion **2022-2028**	Guidelines on forest planning aimed at increasing forest resilience to CC impacts including concrete examples and management techniques
Step 3: Set up of possible schemes for providing financial support to resilient forestry based on endemic species **2025-2030**	Scheme(s) of payment for supporting the use of endemic species in forest management in the Alps defined and tested in some pilot-regions (payments from suitable sources: the payment should incentivise forest owners and managers to plant or continue to grow endemic species)
Stakeholders needed for implementation	• Policy makers involved in forest management at regional and national level in particular • Research community • Forest owners and forest managers • Managers of protected areas • EU institutions (DG Agri, DG Regio) for defining the payment schemes
Indicators for monitoring this pathway	• Quantification of studies collected/harmonised • Expert assessment of the elaborated guidelines (y/n) • Expected mobilized financial resources from the application of the financial scheme; actual implementation/test of financial schemes

Link to other pathways	• Direct link: IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests; IP_Fo2: Promoting Alpine forests as carbon sinks; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_S3: Supporting measures to preserve and enhance Alpine soil quality; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas	
Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ACB and MAMF can participate in the collection of studies etc. based on the stocktaking they already performed (Step 1) and be involved in the elaboration of both the guidelines and the financial schemes. ACB can support regional and national initiatives aimed at the implementation of guidelines and financial schemes, and give them the appropriate institutional visibility (link to communication).
	Governance set-up	• ACB/MAMF can manage the relationship with the other involved bodies or processes at different levels (e.g. EC, delegations, regions, EUSALP).
	Twinning/know-how transfer	• PSAC can host on the climate portal the outcomes of each step and provide a geolocalization of the tests and their results on SOIA.
	Outreach	• ACB and/or MAMF can raise visibility of the results especially on an international level.
	Knowledge hub	• Strong role in communicating results also through info hub
Integration in the ACB communication strategy	**Content**	Information on all aspects in communication activities of ACB.
	Tools	Schemes, Guidelines and other outputs to be linked to ACB info hub

9.4 IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach

Basic information				
Background and description of the pathway	The pathway intends to promote a fully integrated approach to forest management in the Alps that can contribute to assure both a certain diversity of species and structures (height, age, ground cover etc.) in Alpine forests and a good contribution to climate change mitigation in the region. In doing so, the pathway proposes a composite set of actions covering diverse interconnected domains (from C-storage to wood production and forest natural and recreational value)			
Final output	• Application of the integrated approach to forest management in large shares of Alpine forests			
Alpine-specific character	The pathway aims at exploring methods and solutions being suitable to mountain forests (particularly: Alpine forests) and tested in the Alps. Regional differences are possible concerning the most suitable approaches to be used.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	The integrated approach covers both mitigation and adaptation.			
Implementation timeframe	Position of pathway on the 2050 timeline: 2020 — 2035 — 2050			
	Start of first implementation step	immediately		
	End of last implementation step	2050		
	Starting point already available?	yes		
Link to target system	• Direct link: T_NH1: Alpine risk management; T_Eco1: Preserved ecosystems and biodiversity; T_Eco3: Maintained and restored Alpine ecosystem services; T_Fo1: Potential of protective mountain forests fully used; T_Fo2: Mountain forests as carbon sink; T_Fo3: Accelerated forest conversion; T_Fo4: Alpine-wide sustainable forest management; RD2: Open cross-cutting research questions answered • Indirect link: T_SP2: Planning systems in risk management changed from passive to proactive; T_E2: Renewable decarbonised Alps; T_E3: Decentralized, sustainable energy solutions for the Alps; T_Eco2: Alpine-wide system of protected areas; T_Eco4: Alpine ecological connectivity; T_Agr1: Energy self-sufficiency of Alpine farms; T_Agr2: Alpine value chains for agricultural products; T_W3: Alpine-wide sustainable flood risk management; T_S2: Enhanced Alpine soil quality			

Sequence of implementation steps	
Starting point and links to stocktaking	The pathway aims at setting up a complex management model for Alpine mountain forests that may support a regional transition to a sustainable forest management. This includes three main groups of actions that are supported by specific instruments/tools. Each of the Steps below refers to one of these three groups. • RSA7 (2019) • Statement On the Value of Alpine Forests and the Alpine Convention's Protocol on Mountain Forests in the framework of the international forestry policies beyond 2015 (2014; stocktaking No. 13) • Report on Interactions between mountain forests and flood protection (stocktaking No. 32) • MANFRED - Management strategies to adapt Alpine Space forests to climate change risks (Project ASP; stocktaking No. 70) • RocktheAlps – Harmonized ROCKfall natural risk and protection forest mapping in the ALPine Space (Project ASP; stocktaking No. 73) • Several national and regional policies across the Alps
Step 1: Set integrated targets for sustainable Alpine forest management **2021-2025**	The forest management targets of the Alpine-wide approach should encompass multiple forest functions, particularly climate change associated to other priorities (e.g. biodiversity, productive function, protective function etc.) By means of a wide consultation with stakeholders (see below) and a survey in the domain of forestry and forest management, targets that are beneficial for more than one priority are selected
Step 2: Achieving a better forest planning **2022-2030**	A transition to a more efficient and effective forest planning aimed at achieving the specific objectives mentioned in step 1 requires some operational tools that are set up in this phase, i.e.: • Alpine associations (international and national, also more than one) of agronomy and forestry specialists focusing on Alpine-specific issues with forest management; • An Observatory on forest genetics, health and yield for multiple purposes (CCS, protection, wood production etc.)
Step 3: Promoting regional and local use of wood from Alpine forests **2025-2050**	Identification of market and non-market incentives and schemes for promoting the regional use of wood e.g. as construction material, in craftsmanship and industry, mainly in the same regions where forests are grown

Stakeholders needed for implementation	• Policy makers involved in forest management at regional and national level in particular • Research community, • Association of forestry companies and professionals • Forest owners • Forest managers • Managers of protected areas • Companies in the furniture, construction, design sectors
Indicators for monitoring this pathway	• Quantification of organisations or people involved in the consultation phase • Quantification of meetings of the Alpine associations or quantification of their members • Quantification of pilot-areas and/or surface in hectares that are formally included in the Observatory • Quantity of wood exported from the region where it has been grown, Quantification of companies operating in the forest-related sector, and data on sales/supply chains of wood industry in the region
Link to other pathways	• Direct link: IP_Agr1: Promotion of Alpine products and increase in locally retained value added for a sustainable and climate-friendly agriculture; IP_Fo2: Promoting Alpine forests as carbon sinks; IP_Fo3: Accelerate forest conversion to more resilient ecosystems; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• AC can support the consultation with stakeholders (step1), the creation of Alpine associations (step 2), participate in providing data for the observatory (step 2) • ACB can help identifying useful databases and experiences and involve national and regional actors, especially through its members. • ACB will also corporate with MAMF for the same purposes.
	Governance set-up	• ACB/MAMF can manage the relationship with the other involved bodies or processes at different levels (e.g. EC, delegations, regions, EUSALP).
	Twinning/know-how transfer	• PSAC can host on the climate portal (or in a section on forests and CC) the outcomes of this pathway.
	Outreach	• ACB and/or MAMF can raise visibility of the results also by involving regional and local institutions as well as the EUSALP.
	Knowledge hub	• Strong role in communicating results also through info hub
Integration in the ACB communication strategy	**Content**	Information on all aspects in communication activities of ACB
	Tools	Schemes and other outputs to be linked to ACB info hub

A10. ECOSYSTEMS & BIODIVERSITY

10.1 IP_Eco1: Protection and management of vulnerable and Alpine-specific landscapes and ecosystems

Basic information				
Background and description of the pathway	Peatlands, raised bogs, wetlands, dry meadows, glaciers, rivers, high mountain regions, forests, traditional cultural landscapes such as orchard meadows etc. – the Alpine area offers a wide range of specific natural and cultural landscapes with a great importance for (endangered) species of the flora and fauna. They are subject to different impacts, climate change, abandonment of agricultural use or intensification, urbanisation, infrastructure, which make them vulnerable and demands specific actions including restoration of specific natural and cultural elements, biotopes, ecosystems etc. At the same time Alpine-specific landscape and ecosystems – like pasture areas – and their sustainable management ensure the maintenance, resilience and promotion of biodiversity and thus the provision and restoration of important ecosystems and services. The protection and wise management of vulnerable and Alpine-specific landscape and ecosystems are crucial tasks. This implementation pathway is framed by existing regulations of the European Union as well as by the UNESCO Man and Biosphere programme and the Bern Convention. At the same time it takes into account the SDGs of the agenda 2030 (especially 2 – Zero Hunger and 15 – Life on Land), the AC Protocol on nature conservation and the European Landscape Convention (ratified by Contracting Parties of the Alpine Convention (CH, FR, IT, SI).			
Final output	• Typology, collection of data and a comprehensive stocktaking for vulnerable landscapes, Alpine-specific landscapes and ecosystems as well as wilderness areas and distribution and occurrence of invasive alien species • Recommendations for planning, protection, restoration and management of vulnerable and Alpine-specific landscapes, applying ecosystem based approaches • Recommendations/concepts for the handling of invasive species (neobiota)			
Alpine-specific character	The Alpine landscapes are a global hot-spot of biodiversity. Scientists estimate that more than 30,000 animal and 13,000 plant species are native to the Alps. The diversity of habitats and species is the result of the most varied, often very small-scale climatic and geological conditions, the different altitudinal levels as well as the different use as a basis for high quality food production. The outcome are various different landscape types with a high biodiversity level, but also with a high range of sensitivity.			
Link to mitigation and/or adaptation	**Mitigation**	X	**Adaptation**	X
	-			

Implementation timeframe	Position of pathway on the 2050 timeline:  	
	Start of first implementation step	immediately
	End of last implementation step	2027
	Starting point already available?	yes
Link to target system	• Direct link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes T_NH2: Permafrost and erosion monitoring T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco3: Maintained and restored Alpine ecosystem services; T_S1: Minimised land-take and sealing; T_S2: Enhanced Alpine soil quality; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_W1: Alpine-wide optimized water management • Indirect link: T_E5: Climate proofed Alpine hydropower; T_NH1: Alpine risk management; T_Tou1: Car-free, attractive tourism traffic; T_Tou2: Sustainable diversification of Alpine tourism; T_Tou3: Minimized carbon footprint of Alpine hotels and gastronomy; T_Eco4: Alpine ecological connectivity; T_Fo1: Potential of protective mountain forests fully used; T_Fo2: Mountain forests as carbon sink; T_Fo4: Alpine-wide sustainable forest management; T_MA1: Municipalities as transition engines; T_RD1: The Alps as model region for vulnerability assessments; T_RD4: Research on climate-driven extreme events and climate impacts on glaciers;	
Sequence of implementation steps		
Starting point and links to stocktaking	• Work done by the Platform Ecological network of the AC (Econet) • Landscape typology implemented by the Contracting Parties • Landscape policies in Contracting Parties (adopted formally, in preparation or as a system of legally defined and connected steps/tasks in spatial planning, nature conservation, agriculture land management, rural development etc.) • Work done by the Alpine Biodiversity Board (ABB) of the Alpine Convention: Analysis of strategies, guidelines and political recommendations on biodiversity and landscape (new in preparation) • Work of ALPARC (map of all protected areas >100ha for the Alpine area) • Data of projects like Impuls4Action, AlpES, AlpBioNet and currently running projects such as Impuls4Action, LUIGI, ALPTREES, OpenSpaceAlps • Work of EUSALP AG7 concerning important habitats/ecosystems to be considered for green infrastructure implementation	

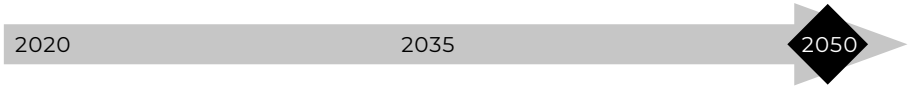
Step 1a: Typology, data collection and analysis on vulnerable landscapes in the Alpine area **2021-2022**	As a first step (and built upon Work of EUSALP AG7 and projects mentioned as starting points), a typology, data collection and analysis on vulnerable ecosystems in the Alpine area (peatlands/raised bogs/wetlands/dry meadows/glaciers/rivers/high mountain regions/forests/traditional cultural landscapes as e.g. orchard meadows etc.) including upland-lowland interlinkages will be undertaken. This collection should be done in a cooperative way, including experts of all member states of the Alpine area and especially the Alpine Biodiversity Board. For instance the Natura2000 definitions of habitat types and species to be protected and promoted can serve as impulse for this typology, collection and analysis.
Step 1b: Stocktaking of Alpine-specific landscape, ecosystems and ecosystem services **2021-2022**	A stocktaking of Alpine-specific landscape, ecosystems and ecosystem services (more information provided within the project AlpES https://www.alpine-space.eu/projects/alpes/en/wikialps) will give an overview and is linked to the data collection of vulnerable landscapes (step 1a). Alpine-specific landscape and ecosystem management, including the maintenance and restoration of pasture areas and the limitation of scrub encroachment, safeguards high-quality landscapes and ensures the maintenance and resilience of ecosystems and the provision of services.
Step 1c: Overview and analysis of nature reserves and wilderness areas (IUCN categories Ia and Ib) and potential areas **2021-2022**	Nature reserves and wilderness areas, areas with a specific size and clear rules for (non-)management, have a great importance and potential for nature conservation and process protection within the Alpine region. An overview (see as a starting point the results of Econet and AlpBioNet https://www.jecami.eu/viewer/saca and the analysis) of those existing areas in the Alpine states shall be input for an assessment of their role in preserving the vulnerable landscapes. The analysis of the potential new areas will be provided and should raise awareness towards the spatial dimension.
Step 1d: Data collection of invasive alien species in the Alpine area **2021-2022**	A list of invasive alien species in the Alpine area will be provided. These data will be compiled at national level and will be communicated and shared across borders. The distribution of neobiota species in the Alpine countries will be provided in a map. Also information about landscapes that are more exposed to invasive species could be included in this map. For this purpose, existing online maps should be used for the further development of the Alpine-wide overview of invasive species.

Step 2: Collection of management and preservation recommendations for Alpine-specific landscapes **2022-2023**	The results of steps 1a, 1b, 1c and 1d are collected and analysed. They will be the basis of a collection of planning, management, restoration and preservation recommendations for Alpine-specific landscapes. The recommendations aim to address the four mentioned topics: • The catalogue of landscape in the Alpine area is supplemented by (non-) planning, management (process protection) and preservation recommendations, also with a view to strengthen resilience of ecosystems. • The crucial benefits provided by Alpine ecosystems for an improved adaptive capacity to climate change are taken into account when describing recommendations for management, restoration and preservation. They will be integrated in plans about climate change at various scales. • The overview and analysis of nature reserves and wilderness areas (IUCN categories Ia and Ib) and potential areas lead to specific recommendation for the (non-)management of those areas. • The prevention of the new introduction of invasive alien species, early detection and an effective management and control of existing invasive alien species are the core parts of recommendations for the management of these species.
Step 3: Monitoring of the implementation of existing regulations in the Alpine area **2023-2027**	The implementation of EU Regulation II43/2014 on the prevention and management of the introduction and spread of invasive alien species as well as a rigorous and concrete implementation of the UNESCO Man and Biosphere Programme, the Bern Convention on the Conservation of European Wildlife and Natural Habitats, the EU Habitat and Birds Directive, strategies and reports under the CBD will be monitored for the Alpine area.
Stakeholders needed for implementation	• Biologists and landscape planners • NGOs dealing with nature protection, landscape planning and protection • Stakeholders with specific knowledge of Alpine landscape management
Indicators for monitoring this pathway	• Publication of data and information resulting from steps 1a-1d (y/n) • Specific common typology of Alpine landscapes are integrated in spatial planning instruments (y/n) • List of recommendations for all topics mentioned in steps 1a-1d (y/n) • Upgraded protection status of critical habitats • Monitoring system to screen the implementation of existing regulations has been installed (y/n)

Link to other pathways	• Direct link: IP_SP1: Alpine-wide concept „Spatial planning for climate action"; IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_S3: Supporting measures to preserve and enhance Alpine soil quality; IP_Eco2: Enhance transboundary cooperation on ecological connectivity of protected areas • Indirect link: IP_NH2: Implementation of an Alpine-wide monitoring of permafrost and geomorphological processes related to permafrost warming; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_W2: Tools and methods for drought management in the Alps; IP_W3: Implementing of an Alpine-wide flood risk management, based on nature-based solutions; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_Agr2: Moving to organic and climate-friendly methods in Alpine farming; IP_Fo1: Promoting the full use of the potential of Alpine protective mountain forests; IP_Fo2: Promoting Alpine forests as carbon sinks; IP_Fo3: Accelerate forest conversion to more resilient ecosystems; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• Alpine Biodiversity Board (ABB) and the WISO could be involved in the steps 1a-1d and provide their information for these steps • Recommendation which are developed should be taken into account by the respective Working Bodies of the AC.
	Governance set-up	• AC National Focal Points call on national and regional authorities to provide information to gain a complete picture within the steps 1a-1d; typologies and data should be further used by national and regional authorities. • AC National Focal Points also call on national and regional authorities to get deeply involved in the recommendation-process.
	Twinning/know-how transfer	• Alpine Biodiversity Board (ABB) uses its network to share results. • AC networks and former groups dealing with Ecosystems and Biodiversity should be integrated in the discussion and working process from the very beginning.
	Outreach	• ACB supports awareness raising and communication work. • ACB and other Thematic Working Bodies of the AC spread the outcome.
	Knowledge hub	• The Knowledge Hub of the ACB should be updated on a regular basis and can serve as a pool of information gained within this implementation pathway.
Integration in the ACB communication strategy	**Content**	Share the knowledge about Protection and management of vulnerable and Alpine-specific landscapes.
	Tools	NGO networks; newsletters etc.

10.2 IP_Eco2: Enhance transboundary cooperation on ecological connectivity

<table>
<tr><th colspan="5">Basic information</th></tr>
<tr><td>Background and description of the pathway</td><td colspan="4">Nature areas do not know any borders. But planning does. Enhancing transboundary cooperation on ecological connectivity of protected areas and other conservation areas within the Alpine perimeter is already an ongoing topic and a lot of work has been done to improve the cross-border cooperation within the Alpine area until today. In the sense of climate change the need for a proper management of existing areas and the establishment of new areas to cover species, habitats and ecological processes that would no longer be included due to the shifts caused by climate change is even greater. The pathway draws possible steps to be done – also by integrating the spatial planning sector. This implementation path takes SDG 15 and 17 from the Agenda 2030 implemented by all UN member states into account in particular.</td></tr>
<tr><td>Final output</td><td colspan="4">• Definition and stocktaking of protected areas and other conservation areas in the Alps built upon existing work of e.g. ALPARC
• Stakeholder network (protected areas and other conservation areas) and regular meetings
• Connectivity between protected areas and beyond is maintained and further developed, in order to increase ecosystems resilience and to enable favourable conditions for Alpine species, habitats, ecological processes and process protection
• Management plans that contain mitigation and adaptation aspects
• Recommendations for spatial planning instruments</td></tr>
<tr><td>Alpine-specific character</td><td colspan="4">The Alpine territory should remain permeable and liveable for all species – therefore cross-border cooperation for ecological connectivity within the Alpine arc and beyond is a main topic of the Alpine Convention.</td></tr>
<tr><td rowspan="2">Link to mitigation and/or adaptation</td><td>Mitigation</td><td>X</td><td>Adaptation</td><td>X</td></tr>
<tr><td colspan="4">-</td></tr>
<tr><td rowspan="4">Implementation timeframe</td><td colspan="4">Position of pathway on the 2050 timeline:
  </td></tr>
<tr><td colspan="3">Start of first implementation step</td><td>immediately</td></tr>
<tr><td colspan="3">End of last implementation step</td><td>2050</td></tr>
<tr><td colspan="3">Starting point already available?</td><td>yes</td></tr>
</table>

Link to target system	• Direct link: T_SP1: Priority for climate change mitigation and adaptation in spatial planning processes; T_Eco1: Preserved ecosystems and biodiversity; T_Eco2: Alpine-wide system of protected areas; T_Eco4: Alpine ecological connectivity; T_S1: Minimised land-take and sealing; T_RD1: The Alps as model region for vulnerability assessments • Indirect link: T_E3: Decentralized, sustainable energy solutions for the Alps; T_E5: Climate proofed Alpine hydropower; T_NH1: Alpine risk management; T_NH2: Permafrost and erosion monitoring; T_Tou2: Sustainable diversification of Alpine tourism; T_Eco3: Maintained and restored Alpine ecosystem services; T_Agr3: The Alps as model region for organic farming; T_Agr4: Resilient and climate-friendly mountain agriculture; T_W1: Alpine-wide optimized water management; T_W2: Drinking water security; T_W3: Alpine-wide sustainable flood risk management; T_S2: Enhanced Alpine soil quality; T_RD4: Research on climate-driven extreme events and climate impacts on glaciers
Sequence of implementation steps	
Starting point and links to stocktaking	• Work done by the Platform Ecological network of the AC: e.g. Statement on the "Role of Ecological Connectivity for Adaptation to Climate Change Impacts in the Alps" (stocktaking No. 4[13]); stocktaking report about spatial planning in the Alpine states • Alpine ecological connectivity for the next generations – Alpine Nature 2030 and AlpBioNet project by ALPARC (stocktaking No. 60) • GreenRisk4ALPs - Development of ecosystem-based risk governance concepts with respect to natural hazards and climate impacts - from ecosystem-based solutions to integrated risk assessment (stocktaking No. 83) • Current ALPARC projects (PLACE study; final version in summer 2020)
Step 1: Definition and stocktaking in the Alpine area (focus on transboundary areas) **2021-2022**	A comprehensive stocktaking of protected areas and other conservation areas as well as definitions of those areas are the first step on the way to enhancing transboundary cooperation on ecological connectivity of protected areas. For instance the following questions could guide this step: Which types of protected area and other conservation areas exist within the Alpine area? How much do they differ within the Alpine states? What does "protected" and "conservation" mean in the different areas? What about transboundary protected areas? What is the state of ecological connectivity?

[13] References to Stocktaking: https://www.alpconv.org/fileadmin/user_upload/Organization/TWB/ACB/ACB_Stock-taking_report_2019.pdf

Step 2a: Establishment of a stakeholder network and regular meetings **2021-2050**	Regular meetings of managers of protected areas should be enlarged by stakeholders for protected areas without an existing management in the Alpine regions. The meetings are already organized by important stakeholders of the Alpine area (ALPARC, former ECONET group of the Alpine Convention) and aim at facilitating the exchange and cooperation between managers and also provide a stage for presenting good practices and lessons learned in the context of transboundary cooperation. Those regular meetings should also draw their attention to adaptation and mitigation aspects of protected areas, which should be mainstreamed in all management plans of existing and new protected areas in the Alps (see step 2b).
Step 2b: Mitigation and adaptation aspects in management plans (existing and new) **2022-2050**	Existing protected areas should be further strengthened, including by establishing management plans that apply nature-based solutions, and new ones, for example UNESCO biosphere reserves, are designated to cover species, habitats and ecological processes that would no longer be included due to the shifts caused by climate change. For this, work done within step 2a is a precondition.
Step 3: Recommendations for Spatial planning instruments **2023**	Spatial planning is a discipline, which can better integrate the issue of connectivity in the planning processes. At this stage findings of the stocktaking report about spatial planning in the Alpine states by Econet shall be taken into account (starting point). Spatial planners shall be integrated in a process for defining recommendations for spatial planning instruments at a very early stage.
Stakeholders needed for implementation	• Managers of protected areas and stakeholder • Stakeholders of new potential protected areas (without and with management plans or management organisations) and other conservation areas • Spatial planners • Landscape planners • Stakeholders from different administrative levels (from municipality to state)
Indicators for monitoring this pathway	• Stocktaking report on protected areas in the Alpine area (y/n) • At least two regular meetings of managers of protected areas and involved stakeholders of 'new' protected areas per year (y/n) • Participation of spatial planners from every Alpine state at the regular meetings • Catalogue of recommendations for transboundary cooperation on ecological connectivity is available in every Alpine state (y/n)

Link to other pathways	• Direct link: IP_SP1: Alpine-wide concept „Spatial planning for climate action; IP_S1: Preservation and sequestration of carbon in soil with a focus on peatlands, moorlands and wetlands; IP_S2: Defining Alpine-wide guidelines for minimised land-take and sealing; IP_Fo4: Promote an Alpine-wide integrated sustainable forest management approach; IP_Eco1: Protection and management of vulnerable and Alpine-specific landscape • Indirect link: IP_Tou1: Development of a coordinated vision for climate-neutral and climate-resilient Alpine tourism (incl. alignment of financing streams); IP_Tou3: Exploring the use of tourism packages for climate-neutral tourism; IP_NH1: Implementation of an Alpine-wide risk management plan, focusing on cross-border risks; IP_W1: Implementation of an Alpine-wide approach for mainstreaming climate change into transboundary water management; IP_SP2: Spatial planning measures for reducing the need of individual car traffic; IP_S3: Supporting measures to preserve and enhance Alpine soil quality; IP_Fo3: Accelerate forest conversion to more resilient ecosystems

Relevance of measure for the Alpine Convention		
Role of the Alpine Convention to implement the pathway	**Implementation**	• ABB is involved in defining process and stocktaking. • ABB could support establishing the stakeholder network and organizing the first regular meetings together with ALPARC.
	Governance set-up	• AC National Focal Points call on national and regional authorities to harmonize definitions and contribute to stocktaking process • AC National Focal Points also call on national and regional authorities to get deeply involved in the spatial planning recommendations.
	Twinning/know-how transfer	• ABB uses its broad network to share results – especially with connected disciplines like spatial planning). • AC networks and former groups dealing with Ecosystems and Biodiversity should be integrated in the discussion and working process from the very beginning.
	Outreach	• ACB supports awareness raising and communication work. • ACB and other Thematic Working Bodies of the AC spread the outcome.
	Knowledge hub	• The Knowledge Hub of the ACB should be updated on a regular basis and can serve as a pool of information gained within this implementation pathway.
Integration in the ACB communication strategy	**Content**	Share the knowledge about transboundary cooperation for ecological connectivity; communicate outcomes of meetings
	Tools	NGO networks; newsletters etc.

La Convention alpine est une pionnière dans son genre, en tant que premier traité international à considérer une zone de montagne transnationale dans son intégralité. La Convention vise à la protection et au développement durable des Alpes. Elle a été signée par les huit pays alpins (l'Allemagne, l'Autriche, la France, l'Italie, le Liechtenstein, Monaco, la Slovénie et la Suisse) et par l'Union européenne, et est entrée en vigueur en 1995.

Les fondements de la Convention alpine sont la Convention-cadre et les protocoles d'application et déclarations, qui établissent des principes directeurs et un cadre pour la coopération transnationale dans des domaines clés des environnements, des sociétés et des économies alpines. Sur la base de ces fondements, la Convention s'efforce de créer des partenariats et d'établir des approches intersectorielles pour relever les défis les plus urgents dans les Alpes.

Les travaux sont réalisés sous des formes variées par les différents organes de la Convention alpine : la Conférence alpine biennale, les travaux des Parties contractantes, le Comité permanent, le Comité de vérification, de nombreux Organismes de travail thématiques et le Secrétariat permanent. Plusieurs organisations observatrices contribuent également à la mise en œuvre de la Convention.

La Convention alpine ouvre la voie pour une vie durable dans les Alpes, en s'efforçant de sauvegarder leurs héritages naturels et culturels uniques pour les générations actuelles et futures.

Le plan d'action climat 2.0 rend opérationnels les objectifs du Système alpin d'objectifs climat 2050, une stratégie qui met l'accent sur la valeur ajoutée de la coopération alpine en matière d'atténuation du changement climatique et d'adaptation.

Le plan d'action climat 2.0 a été adopté par la XVIe Conférence alpine en décembre 2020. Il recherche des synergies transfrontalières et intersectorielles entre différentes activités, en comblant les lacunes entre les actions et activités afin de lutter contre le changement climatique - l'un des défis les plus urgents dans les Alpes.

Les parcours de mise en œuvre qui sont au cœur de ce document contribuent à l'objectif d'atteindre des Alpes neutres pour le climat et résilientes au changement climatique à l'horizon 2050.

Secrétariat permanent de la Convention alpine
Herzog-Friedrich-Straße 15
A-6020 Innsbruck
+43 512 588 589 0

Bureau annexe Bolzano / Bozen
Viale Druso / Drususallee 1
I-39100 Bolzano / Bozen
+39 0471 055 357

www.alpconv.org
info@alpconv.org

@AlpineConvention
@alpconv