# Sustainable Caucasus Newsletter

2022 ISSUE NO. 3

## NEWS FROM THE CAUCASUS REGION

### People cooperating across the Caucasus Mountain Region: Everyday activities and achievements

Welcome to the third issue of the Sustainable Caucasus Newsletter. In this edition, we bring to your attention the latest news, key facts, and developments of the Sustainable Caucasus. We hope you enjoy the newsletter and that the information provided in this bulletin will be interesting and useful for you.

We are honoured to be part of the Sustainable Caucasus journey to create networks that facilitate communication, research, and innovation to move us together towards an equitable, inclusive, and sustainable networks of communities.

*Sustainable Caucasus Team*

*Coordination unit of Scientific Network for the Caucasus Mountain Region*

We would like to express our sincere thanks to the hard-working staff of Caucasus Network for Sustainable Development of Mountain Regions (Sustainable Caucasus), our partners and sister organisations, and our donors who work tirelessly, often in extremely challenging circumstances, and have demonstrated great commitment to moving forward our ongoing operations across the Caucasus, all the while finding innovative solutions to the new challenges we face and to reinforcing our organisation's activities.

## BACKGROUND

The Caucasus Network for Sustainable Development of Mountain Regions (Sustainable Caucasus) seeks to promote sustainable mountain development by supporting regional cooperation, bringing together key stakeholders, and implementing innovative solutions on the ground. To achieve its objectives, Sustainable Caucasus looks to utilise a variety of activities targeted at sustainable development in the Caucasus mountain region including capacity building, transforming and disseminating knowledge; developing, analysing, and monitoring relevant policies; supporting training and education; raising awareness; enhancing stakeholder co-operation and sharing experiences; introducing and promoting best practices, and implementing other actions as appropriate.

Sustainable Caucasus is the coordination unit of the Scientific Network for the Caucasus Mountain Region (SNC-mt). Since its foundation, Sustainable Caucasus has defined the following key priorities in its work to enhance cooperation and partnership for the sustainable development of the Caucasus region. This newsletter is organized around these key priorities below:

- Strengthening the science-policy interface
- Knowledge generation
- Research for development
- Best practices and policy advocacy
- Higher education
- Rural development

## STRENGTHENING THE SCIENCE-POLICY INTERFACE

**The REGIONAL INITIATIVE GROUP (RIG)** is made up of national alliances in Armenia, Azerbaijan, and Georgia (National Initiative Groups — NIGs) comprised of scientific, civil, and private organisations working in the fields of Disaster Risk Management (DRM), Sustainable Mountain Development (SMD), and Climate Change Adaptation (CCA). The main goal of the first meeting of RIG was to establish and kick off their work and to decide on priority issues to tackle over the next two years. Members of the RIG focused on policy briefs developed by the NIGs in three countries and discussed how to advocate. National Determined Contributions (NDC) documents that had been recently released in Georgia and Armenia were also discussed. Colleagues from Georgia confirmed that the propositions made by NIG Georgia members were successfully envisaged by the Georgian Government and included in the NDC. Members of the RIG expressed their will to prioritize issues like climate change adaptation, sustainable development of mountains, and disaster risk management and to use the RIG as a tool for reaching and influencing policymakers across the Caucasus, convincing decision-makers of the urgency of the problems and therefore to serve as an impetus for action.

RIG members also discussed the climate change adaptation dialogues platform in the South Caucasus mountains. Several potential formats for the platform were proposed, and participants focused on what areas of cooperation might make dialogue sustainable and how science and RIG, in particular, can support policy integration of the climate change adaptation and mountains in the region.

**NATIONAL INITIATIVE GROUP OF GEORGIA (NIG)** NIG Georgia held its fourth online meeting in November 2021, which was attended by representatives of the scientific, non-governmental, and private sectors.

Participants presented the main work and activities carried out in the field of advocacy and cooperation. They also reviewed the policy brief developed by Sustainable Caucasus on the necessity of introducing sustainable pasture management in Georgia, considering the remarks and recommendations presented by members of the initiative group that were reflected in the document. The Ministry of Environment Protection and Agriculture shared recommendations and opinions outlined in the policy brief sent by NIG Georgia. They also noted an ongoing project funded by the Global Environment Protection Fund and under the initiative of the Ministry of Environment Protection and Agriculture called "Land Degradation Neutrality Balance: Achieving National Goals (LDN)" that restores degraded pastures and sustainable management. The project includes the following components: preparation of a pasture management policy document based on which new pasture management legislation will be developed; 20,000 ha pasture inventory and sustainable pasture management pilot, implementation of projects on 770 ha in Dmanisi, Kazbegi and Gurjaani municipalities; capacity building and awareness raising of stakeholders; current pasture and livestock development in Georgia; and economic analysis of alternative opportunities. The results will be reflected in the National Policy for Sustainable Pasture Management.

The Ministry of Environment Protection and Agriculture invited NIG members to become part of the working group to develop the National Policy for Sustainable Pasture Management. On behalf of NIG Georgia, Mrs. Mariam Jorjadze, Director at the Biological Farming Association (Elkana) and Mrs. Nino Chkhobadze, Chair of The Greens Movement of Georgia/Friends of the Earth-Georgia became the members of the working group. NIG members selected topics for the following analytical conference and agreed that it would be cultural heritage and tourism influences. They discussed the strategy for group members to work on the document.

**NATIONAL INITIATIVE GROUP OF ARMENIA** NIG Armenia held a regular working meeting dedicated to ongoing activities, particularly to those activities implemented in the pilot Hovk community, to the introduction of the "Climate revolving civil fund" and its potential implementation approach as well as discussion and planning of upcoming activities.

The meeting was attended by representatives and experts from the Caucasus Network for Sustainable Development (Sustainable Caucasus), UNDP, "GeoRisk" Scientific Research Company, National Platform of Disaster Risk Reduction (ARNAP), Yerevan State University, Armenian State University of Economics, Armenian State Pedagogical University, Crisis Management State Academy of MES, Institute of Botany after Takhtajyan of NAS RA, Educational and Ecological NGO, "Khazer" ecological and cultural NGO, Aarhus Center, and others.

NIG Co-Chair Hayk Igityan presented the results of drone extraction and three-dimensional modelling of the Hovk community-activated landslide. He also substantiated landslide triggers, and their connection with factors driven by climate change, due to exceeding the norm of one-time precipitation. DRM expert Ashot Sargsyan emphasized the direct link between climate change proves and disaster risk management.

The discussion focused on the lack of funds available to communities for the implementation of the National Adaptation Plan (NAP). UNDP expert Armen Chilingaryan supported the proposal to focus efforts on issues that require joint solutions. He noted that a coordinated approach to risk management will save the efforts of individual work in the community.

**NATIONAL INITIATIVE GROUP OF AZERBAIJAN NIG** Azerbaijan held a meeting in June 2021 to discuss cooperation mechanisms and joint systemic actions to strengthen collaboration between academics and practitioners to eliminate existing challenges for sustainable development of the Caucasus mountain region.

Participants expressed their condolences and gratitude to the late chairman of the NIG Azerbaijan, academician Mr. Ramiz Mahmud oglu Mammadov, who passed away at the beginning of June 2021. From the very beginning, he was a valued member and supporter of the Scientific Network for the Caucasus Mountain Region (SNC-mt), respected and admired for his enduring commitment and outstanding contributions.

Representatives from the scientific, non-governmental and international organisations as well the private sector and executive bodies attended the meeting.

NIG members elected a new co-chairman of the National Initiative Group of Azerbaijan, Mr. Islam Mustafaev, Director of the Institute of Radiation Problems of the Azerbaijan National Academy of Sciences.

Members of the group got acquainted with two recently released policy briefs: "Assessment of natural risks for the calculation of insurance tariffs in the Caucasus Mountain region", and "Danger of the loss of the chestnut tree in the Caucasus mountains" and discussed the next steps and methods of advocacy for the positions reflected in the policy briefs.

Expert Aytan Poladova made a presentation on the problems of global climate change and related projects in Azerbaijan. Another presentation was devoted to the issues of energy efficiency of buildings. Presentation of the energy modelling method was made by Fuad Bagirov.

*NIG meetings in each country were held in the framework of the project "Strengthening the Climate Adaptation Capacities in the South Caucasus" (SCAC) funded by the Swiss Agency for Development and Cooperation (SDC).*

## KNOWLEDGE GENERATION

**MAPS AND LAYERS OF THE CAUCASUS REGIONAL RESEARCH AGENDA** Illustrated maps and layers from the Caucasus Regional Research Agenda (C-RRA) are available online on the Caucasus Spatial Data Infrastructure (C-SDI) GeoNode Platform. The GeoNode has been developed in the framework of the "Supporting Sustainable Mountain Development in the Caucasus" (Sustainable Caucasus) project, funded by the Swiss National Science Foundation and the Swiss Agency for Development and Cooperation (SDC) under the SCOPES programme, coordinated by the University of Geneva. GeoNode aims at publishing and sharing relevant geographic data for the project. Some capacity-building materials about GeoNode have been developed and adapted with Caucasus examples.

The Caucasus Spatial Data Infrastructure (C-SDI) GeoNode was established to increase access to open-source spatial data covering the Caucasus region. The number of layers and maps available under the GeoNode has been steadily increasing with help from the Caucasus Spatial Data Infrastructure team, which will continue to develop the platform further with support from the partner GRID-Geneva.

**INTERNATIONAL SCIENCE DAY** Every year since 2002, World Science Day for Peace and Development is observed on 10 November; the year 2021 marked the 20th edition. With climate change becoming a serious threat to the lives of billions of people and the planet as a whole, this year's celebration highlighted the importance of "Building Climate-Ready Communities". The objective was to bring science closer to society by highlighting key scientific aspects and possible solutions provided by science, technology, and innovation to some of the major global challenges society is facing today.

One of the purposes of the day was to promote national and international solidarity for shared science between countries and renew national and international commitment to the use of science for the benefit of societies, therefore, on 10 November, the second workshop on the Caucasus Environmental Outlook took place with the participation of national and international scientists and practitioners from around the world.

The Caucasus Environmental Outlook, to be published in 2022, will be a state-of-the-art report on the environmental status and trends of the Caucasus mountain region, which encompasses parts of Armenia, Azerbaijan, Georgia, Iran, Russia, and Turkey. The report will outline existing and emerging environmental and climate change-related issues and highlight important socio-economic drivers of environmental change in the region. Workshop participants reviewed and assessed the progress so far, their challenges, and information gaps that authors are facing by working on each chapter. The Caucasus Environmental Outlook includes contributions from SC, GRID-A, UNEP/GRID-GENEVA. Participants discussed its status, new deadlines, and the way forward.

GRID-Arendal is developing the report together with project partners such as UNEP/GRID-Geneva, UN Environment Program, University of Geneva, and national experts with their specific roles in the process, using new data and advances in the field of spatial mapping.

The Caucasus Environmental Outlook will enable policymakers, international organizations, academia, and the broader public to better understand environmental challenges and opportunities as the region works to build a sustainable future. The project will also identify opportunities for transboundary and regional environmental cooperation and aim to foster regional dialogue in a challenging geopolitical climate by mobilizing scientific knowledge in support of sustainable mountain development.

**PROCEEDINGS - SECOND CAUCASUS MOUNTAIN FORUM 2019, AVAILABLE ONLINE!** The Second Caucasus Mountain Forum titled "The Caucasus Regional Research Agenda: Key to Sustainable Regional Development" brought together around 200 scientists, governmental experts, and practitioners to explore opportunities and challenges, and contribute toward the improved coordination of sustainable development in the Caucasus region.

Building on the First Caucasus Mountain Forum (CMF) in 2016, the Second CMF 2019 was hosted by the Department of Geography at Ankara University and held from 30 October to 1 November 2019. The event brought together participants from the six countries of the Caucasus Ecoregion, as well as representatives from Austria, Estonia, Italy, Norway, Slovakia, Slovenia, Switzerland, Ukraine and the United Kingdom.

One of the main goals of the CMF 2019 was to formally approve the Caucasus Regional Research Agenda (C-RRA), whose purpose is to establish a collaborative process for identifying the current state of knowledge in core issue areas related to sustainable mountain development, key challenges and opportunities, and priority gaps for further scientific research and development in the Caucasus region.

CMF 2019 formally approved the C-RRA at the closing session and discussed its future application both for strengthening the science-policy interface and for research for development.

Proceedings of the Second Caucasus Mountain Forum

**INTERNATIONAL MOUNTAIN DAY** Every year the world celebrates international mountain day on 11 December. People celebrate within their communities and prepare events or join the conversations to exchange opinions on wider collaboration for sustainable development of mountain regions.

To create awareness about the importance of mountains to life, to highlight the opportunities and constraints in mountain development, and to build alliances that will bring positive change to mountain peoples and environments around the world, Sustainable Caucasus contributed to the series of dialogues and meetings such as: GCRF COMPASS Cambridge Conference - Connectivity in Central Asia and the Caucasus held on 6-9 December 2021 at the University of Cambridge, and International Mountain Platforms: Fostering Spaces for Multi-actor Collaboration on 9 December 2021.

**ADAPTATION AT ALTITUDE (A@A): TAKING ACTION TOGETHER FOR RESILIENT MOUNTAIN COMMUNITIES IN THE SOUTH CAUCASUS** On 14 December 2021, Sustainable Caucasus together with its partners, presented the Adaptation at Altitude (A@A) programme and its milestones, relevant adaptation policies, and adaptation solutions for mountain communities in the region.

In partnership with UNEP, Sustainable Caucasus is implementing the SDC-financed programme A@A in the South Caucasus region. The programme's overall objective is to increase knowledge on climate change and appropriate adaptation solutions in the mountains and feed it into science-policy platforms for informed decision-making in national, regional, and global policy processes that will increase mountain communities' and ecosystems' resilience to climate change

Many interesting issues regarding the adaptation policies and solutions were presented by various stakeholders, particularly representatives from GIZ, CENN, Women in Business, UNDP, MoE Armenia, Red Cross Armenia. EWMI and International Organization for Migration presented testimonies about solutions. MRI and Sustainable Caucasus contributed data, information, and monitoring for climate change adaptation in the South Caucasus.

Representatives from the Ministries of Environment (MoE) of Armenia, Azerbaijan, and Georgia updated attendees on relevant national adaptation plans and policies (e.g., NAP, NDCs).

Discussions and consultations on a possible vision of regional cooperation, including the next steps for developing a Road Map aimed at enhancement of dialogue for mountain climate change adaptation were facilitated by UNEP and Sustainable Caucasus.

**MOUNTAIN ADAPTATION SOLUTIONS: TURNING CHALLENGES INTO OPPORTUNITIES** To mark the official launch of the International Year of Sustainable Mountain Development the United Nations Environment Programme (UNEP), two new booklets were published, titled Mountains ADAPT. They feature 27 concrete solutions in mountainous areas to adapt to the climate crisis – 18 in East Africa and nine in the South Caucasus. The material was produced under the Adaptation at Altitude programme, which is financed by the Swiss Agency for Development and Cooperation and implemented by UNEP and its partners.

Sustainable Caucasus team members visited South Caucasus mountain sites within the A@A Programme to collect the best climate adaptation solutions and to speak with local beneficiaries and take testimonials that are shared in the booklet as the best climate adaptation solutions from Georgia, Armenia, and Azerbaijan.

Authors of the document are: Sabine McCallum (UNEP), Ansgar Fellendorf (GRID-Arendal), Torjus Solheim (Eckho), Laurent Fouinat (Sustainable Caucasus), Sophiko Lomineishvili together with Ashot Sargsyan (consultants in Armenia) and Aytan Poladova (consultant in Azerbaijan).

The booklet showcases adaptation solutions proven to be successful in response to specific issues caused, People living in the South Caucasus mountains — from villages at the foot of the Great Caucasus range to further downhill — have always lived with extreme climatic conditions. Yet today's climate crisis means we need to find a new relationship with nature and to tap into old wisdom to keep benefitting from nature's gifts, like freshwater and stable healthy soils.

## RESEARCH FOR DEVELOPMENT

**SCAC RESEARCH TOP-UP GRANT 2021** Two talented researchers, Mariam Tsitsagi and Emil Jabrayil, received the SCAC Small Research Top-up Grant in September 2021. The grant contract has been officially signed by both sides.

Sustainable Caucasus announced the Strengthening the Climate Adaptation Capacities in the South Caucasus (SCAC) Small Research Top-up Grant 2021 from the on-going project of the same name. This support to young Georgian and Azerbaijani researchers encourages the publication of applied, sound research outcomes in peer-reviewed international journals and supports evidence-based decision-making for sustainable development of the Caucasus region.

Together with German colleagues from RWTH Aachen University, Mariam and Emil selected Kolkheti National Park in Georgia and Shahdag National Park in Azerbaijan as research areas.

The study aims to use Landsat, Sentinel 2, and SPOT images and different machine-learning algorithms to classify tree species and types and to assess the methodology with the best accuracy for each satellite data with asset inventory maps of the study areas. Furthermore, any differences will be evaluated for the classification algorithms of tree types and tree species mapping and environmental variables (elevation, slope, aspect, etc.) in the case of different satellite data in the plains and/or highlands.

Longstanding cooperation between these talented researchers dates back several years, even to the participation in the 2016 Caucasus Summer School which is one of the main activities of Sustainable Caucasus, focusing on strengthening case-study-oriented inter-transdisciplinary competencies and serving regional networking of early career researchers. This summer school was the basis for the collaboration of these two researchers.

## BEST PRACTICES AND POLICY ADVOCACY

**PROTECT CULTURAL HERITAGE FROM CLIMATE IMPACTS** ICOMOS (Georgia) and Sustainable Caucasus joined hands to start discussions to better protect cultural heritage from climate impacts.

The 20th ICOMOS General Assembly called on all national committees to adopt climate change-related programmes in their countries, actions to better protect heritage from climate impacts. ICOMOS encourages enhanced participation in climate change networks (i.e. the Climate Heritage Network); and engagement of governments and other relevant external parties on applicable climate policy and planning processes, for example, to secure the inclusion of cultural heritage in national climate adaptation frameworks.

ICOMOS Georgia, together with Sustainable Caucasus, initiated the first webinar on the topic: "Climate Change and Cultural Heritage in Georgia" on 21 September 2021. National experts, representatives of the Ministry of Environmental Protection and Agriculture of Georgia, as well local NGOs with broad experience in this area attended the webinar.

Sustainable Caucasus Executive Director, Nina Shatberashvili, as the main speaker of the webinar, overviewed the main climate change factors already affecting cultural heritage sites in Georgia, such as gradual changes in temperature, precipitation, atmospheric moisture, and wind intensity, as well as sea-level rise and changes in the occurrence of extreme events.

The Ministry of Environmental Protection and Agriculture of Georgia representative Mrs. Maia Tskhvaradze noted that cultural heritage is often absent from climate change discussions, but preserving heritage is vital, and the Ministry is ready to consider concrete actions.

Director-General Ms. Nato Tsintsabadze underlined the imperative of seeing cultural heritage as much more than just standalone architectural monuments. They are cultural landscapes and represent intangible heritage. Therefore, it is important to build resilience and maintain community identities and traditions.

Discussions around this topic will be continued to develop recommendations and clear practices for conserving culturally significant places that incorporate climate mitigation and adaptation and use heritage sites as opportunities for climate education, encouraging research of historical sites to understand past responses to changing climatic changes and conditions

**THE BEST CLIMATE ADAPTATION SOLUTIONS** Sustainable Caucasus searched for climate adaptation solutions in the South Caucasus mountain region. As a result, 39 solutions were identified in total, and three best cases were selected from each South Caucasian country based on pre-established criteria. For the case study, experts conducted field trips to collect detailed information with testimonials from the beneficiaries and stakeholders to develop a booklet on climate adaptation best solutions from the South Caucasus region.

The solutions can be accessed here: https://www.weadapt.org

The case studies were part of the A@A programme that aims to increase knowledge on climate change and appropriate adaptation solutions in the mountains and feed it into science-policy platforms for informed decision-making in national, regional, and global policy processes that will increase the resilience to climate change of mountain communities and ecosystems.

**POLICY BRIEF:** Sustainable Caucasus together with Georgian National Initiative Group members developed policy brief on the necessity of introducing sustainable pasture management in Georgia. The need for the introduction of sustainable pastures management in Georgia

## HIGHER EDUCATION PROMOTION

**FIRST REGIONAL WORKSHOP ON TEACHING-LEARNING PRACTICE IMPROVEMENT** Colleagues from the University of Geneva together with Sustainable Caucasus united to respond to the growing demand for qualified teaching in Disaster Risk Management (DRM) and hazard mapping (DRM-HM) and to contribute to capacity building for instructors in higher education institutions in Armenia, Azerbaijan, and Georgia within the project "Strengthening the Climate Adaptation Capacities in the South Caucasus: Enhancing regional cooperative action for the benefit of the Caucasus mountain region (SCAC)", financially supported by the Swiss Agency for Development and Cooperation (SDC).

The cross-country survey results revealed the need to strengthen existing knowledge and research capacities by suggesting specific topics to be focused on throughout learning units. The need for significant improvement in teaching methods within some countries was also highlighted, with the preference for a practice-oriented approach. Economic support for increased cooperation and exchange opportunities with other countries was indicated as another common denominator.

The workshop was built on an in-depth analysis of contemporary international and South Caucasus teaching and learning practices in DRM and DRM-HM as well as a collaborative needs assessment carried out with project partners. As a result, regional and national disaster risk management (DRM) and hazard mapping, teacher training, and coaching programme have been launched in the form of a workshop series to be organized from September 2021 to June 2022.

**TEACHER COACHING PROGRAMME WORKSHOPS** *Colleagues from the University of Geneva and Sustainable Caucasus held several webinars with higher education institutions representatives from the countries of the Caucasus Mountain Region.*

**CASES IN DISASTER RISK MANAGEMENT AND DECISION MAKING** Anna Scolobig, from the University of Geneva introduced a learning unit focused on "Cases in Disaster Risk Management and Decision Making".

The objectives of this unit were to expose students to real cases of disaster risk management; to train them to make difficult risk management choices by developing their abilities to apply formal analytic methods for disaster risk management; to separate good risk management choices from bad ones; to develop strong arguments in favour of the choice one has selected; to question one's own arguments and listen to countervailing views; to ground one's choices in scientific/analytical methods, approaches, frameworks or theories; and to question the applicability of the scientific theory to the choice at hand.

With the proposed methods, the students repeated the practice of appraising a risk management problem, coming up with ideas about how to solve that problem, and reflecting on the process in terms of what worked and did not work. In class, students either discussed the cases that they have read before or presented their assignments and reflected on lessons learned. Different tools, methods, and indications for student group work were also provided.

**ADVANCED GIS HAZARD MAPPING** This webinar was led by Simon Allen from the University of Geneva and covered theoretical background and concepts, including a historical evolution of the subject (lecture component) and provided an overview of selected practical exercises and other supporting resources.

The proposed webinar introduced a learning unit focused on advanced GIS skills for hazard modeling and mapping. The learning objective of this unit was to expand students' capabilities to use GIS as an analytical tool, gaining transferable skills and experiences that can be applied to a larger range of environmental challenges. Specifically, students will be able to: use multi-temporal imagery to monitor changing land cover over time; integrate freely available global datasets to undertake hazard susceptibility analyses over large areas; perform suitability and network analysis to guide the planning of evacuation routes; and customise project output and share online.

At the end of the webinar, national experts made contributions and inputs to the learning unit and shared regional experiences with GIS hazard mapping

**LEARNING - CENTERED TEACHING** Professor Jörg Balsiger outlined the importance of encouraging students to reflect on what they are learning and how they are learning and introduced participants to the central tools of this approach: "Bloom's Taxonomy" and "SOLO Taxonomy", hierarchical frameworks for cognition and learning objectives that can be used for various purposes, including designing assessments, evaluating the complexity of assignments, simplifying a task to help personalize learning, or planning project-based learning.

This teaching method focuses on the learners and their development rather than on the transmission of content; it addresses the balance of power in teaching and learning, moves toward learners actively constructing their own knowledge, and puts the responsibility for learning on the learners.

Participants were given the possibility to recognize and assess the different types of learning, to become familiar with the two taxonomies' approaches to define learning outcomes and evaluated a learning unit from the perspective of learning-centred teaching.

**SOCIAL ASPECTS OF DISASTER RISK MANAGEMENT** Anna Scolobig, from the University of Geneva, introduced a learning unit focused on the social aspects of DRM including risk awareness, preparedness, and communication.

The objective of the unit was to train students to develop their skills and abilities to analyse how people/different groups live with risk and integrate this information into disaster risk management strategies; to analyse and design strategies to increase preparedness and adaptive capacity and to understand and navigate political, economic and social dilemmas, barriers and enablers linked to disaster risk communication.

During the webinar, different tools, methods, and indications for student group work were also provided.

*As a result of the webinars, negotiations with relevant departments in the Tbilisi State University, Kutaisi State University, and Batumi State University were initiated, and a joint meeting to discuss opportunities to deploy the course there is planned for Quarter 1 2022.*

**SECOND CAUCASUS SUMMER SCHOOL (CSS)** The Second Caucasus Summer School (CSS) united young researchers (masters, graduate, or doctoral students) from the countries of the Caucasus and worldwide. CSS encouraged global, regional, and national knowledge exchanges, the identification of suitable models, and the improvement of higher education teaching and learning practices in the Caucasus.

This year's topic was "Natural Hazards in the Mountains: Mapping and Risk Assessment".

The second CSS was organized by the Scientific Network of the Caucasus Mountain Region (SNC-mt) and its coordination unit, Sustainable Caucasus, with scientific advice and input for the event provided by the Institute of Geography of the Russian Academy of Science (IGRAS) and Ilia State University and with support from the Swiss Agency for Development and Cooperation (SDC).

The five-day CSS introduced students to the principles and tools for identifying mountain hazards and their causes; provided them with basic skills for disaster risk mapping, and integrated their data into the wider scope of the SMD study. They also became familiar with the basics of DRR and DRM.

Young researchers (22 in total) attended an ambitious week-long programme promoting global, regional, and national knowledge exchanges, the identification of suitable models, and the improvement of higher education teaching and learning practices in the Caucasus.

The strengths of the event included the diversity of lecturers and the selection of the content on natural hazards in the mountains, mapping and risk assessments, introduction of all global processes, examples, and case studies.

At the end of the five days, groups of students made presentations of their results and created maps of natural hazards under the lecturer's guidance. It wasn't an easy job for the selection committee to choose the best ones out of 16, as all the quality and scope of the work done by the in their presentations were impressive.

According to the decision of the selection committee, all 16 participants who fully completed the course were awarded a scholarship to participate in the Caucasus Mountain Forum, taking place in Kutaisi, Georgia.

We were unfortunate to hold the second CSS online due to the pandemic situation in the world, preventing us from planning social activities and meeting each other in person, but we do hope that the second CSS will lay the groundwork for collaboration between young researchers in the future, and encourage them to share with each other different views on the topics that will broaden the researchers' horizons and their knowledge as well as create the opportunity to work together on many important projects in future.

## NETWORKING AND MEMBERSHIP

**MOUNTAIN PLATFORMS** Mountain Platforms from around the world gathered to share the lessons learned on how to foster spaces for the active involvement of civil society and academia in the framework of Puentes en los Andes dialogues.

Meeting of international mountain platforms: fostering spaces for multi-actor collaboration took place with the participation of the representatives of the Carpathian Convention, Scientific Network for Caucasus Mountain Region (SNC-mt), UNEP, the Alpine Convention, and Peru's National Institute for Glacier and Mountain Ecosystem research (INAIGEM). They presented their work and recommendations on how to foster spaces for multi-actor collaboration. The presentation was followed by a moderated discussion and Q/A sessions. The event served as a space for exchange, learning, and networking that will provide opportunities for synergies in the future.

Actors from different mountain ranges across the globe continue collaboration via several platforms, to share and co-create solutions for addressing socio-ecological challenges affecting mountain communities, such as the Adaptations at Altitude portal or the International Mountain Conference.

**ROLE OF REGIONAL SCIENTIFIC NETWORKS IN THE CARPATHIANS AND CAUCASUS** Colleagues from Caucasus and Carpathians started a series of webinars about the role of regional scientific networks in the Carpathians and Caucasus! The Caucasus and Carpathian scientific networks signed an agreement in June 2021 to collaborate on the sustainable development of these unique and threatened mountain regions.

In both Carpathian and Caucasus regions, scientific networks have been created with contributions to regional sustainable development among their objectives:

- The Science for the Carpathians (S4C) network was established in 2008, connecting international researchers and those from the Carpathian countries (Czech Republic, Hungary, Romania, Poland, Slovakia, Serbia, Ukraine)
- In 2014, representatives of the six Caucasus countries (Armenia, Azerbaijan, Georgia, Iran, the Russian Federation, and Turkey) formally created the Scientific Network for the Caucasus Mountain Region (SNC-mt).

The event was moderated by Tamara Mitrofanenko, University of Natural Resources and Life Sciences Vienna (BOKU); United Nations Environment Programme, Vienna Programme Officer; Secretariat of the Carpathian Convention.

Joanna Zawiejska, Chair of the Science for the Carpathians (S4C) network, Institute of Geography, Pedagogical University, Kraków, Poland, and Nina Shatberashvili, Executive Director, Sustainable Caucasus, Coordination Unit of the Scientific Network for the Caucasus Mountain region (SNC-mt) made inputs about Carpathian and Caucasus scientific networks and regional and historical contexts with respect to the Caucasus and Carpathian universities collaborating with non-academic actors and universities contributing to policy and practice. Inputs on the integration of Transdisciplinary Approaches in the Caucasus region were provided by Tigran Keryan, a postdoc researcher in the Centre for Transdisciplinary Development Studies at the University of Trás-os-Montes e Alto Douro, Portugal.

Representatives of both networks provided the background and facilitated the discussions on the following questions: To what extent do universities located in these regions and the members of these networks play a role in sustainable development processes? What are the challenges and opportunities in this respect in the Carpathians and the Caucasus societies? How can regional scientific networks support a stronger role of scientists and enhance the co-creation of knowledge among science, non-academic actors, and policymakers in these regions?

**S4C AND SNC-mt MEMORANDUM** The Science for the Carpathians Network (S4C) and the Scientific Network for the Caucasus Mountain Region (SNC-mt) joined hands to link scientists working in the Carpathians and Caucasus, empower academic and scientific institutions and establish prerequisites to level the playing field for research and development in these countries.

The Scientific Network for Caucasus Mountain Region represented by the Scientific Steering Group (SSG) and Science for the Carpathians represented by the Scientific Steering Committee (SSC) signed a memorandum of understanding for the coming years. The memorandum of understanding was signed at the International Scientific Conference 6th Forum Carpaticum.

Cooperation between these networks will ensure the coordination of research and collaboration across disciplines and national boundaries; advocate a pan-Carpathian research area; facilitate the development of research capacities fostering dialogue between research, policy, and practice; and improve research capacity for and within the Caucasus region (Armenia, Azerbaijan, Georgia, Islamic Republic of Iran, Russian Federation, Turkey) to make the Caucasus more prominent in European and global contexts; strengthen the nexus between scientists, practitioners, and decision-makers and link research to the needs of sustainable development and environmental protection.

Both S4C and SCN-mt are coordinating their activities and cooperating with the Mountain Research Initiative (MRI), the International Scientific Committee on Research in the Alps (ISCAR), and other relevant scientific networks, but at the same time, are committed to developing scientific and transdisciplinary approaches appropriate to the respective context of the Carpathian and the Caucasus regions. These networks are supported by and cooperate with the UNEP Office in Vienna and the Secretariat of the Carpathian Convention, which works on international mountain ecosystems. The aforementioned organisations are partners and have invested time and resources in the promotion of both networks.

🔎 See Press Release for more details.

**INTER AND TRANSDISCIPLINARY MOUNTAIN DATA IN THE CAUCASUS: IDENTIFYING USER REQUIREMENTS AND ACCESS PREFERENCES** A virtual workshop aimed to identify the needs of diverse users of data and information pertaining to the Caucasus region. It is hoped that through time, it will be possible to meet these needs by making relevant data freely discoverable, accessible, and usable — the discoverability, accessibility, and usability of a wide range of environmental and socio-economic data being a crucial prerequisite to both the advancement of science and a range of more practical applications related to sustainable development in the world's mountains (including higher quality tourism, climate change adaptation and natural hazard mitigation).

The workshop welcomed a wide range of stakeholders, including researchers, practitioners, local government representatives, and NGOs from the region. Drawing upon the insights of regional experts and fully acknowledging the previous and ongoing efforts, this workshop, which was jointly convened by the Mountain Research Initiative (MRI), GEO Mountains, the University of Geneva, UNEP/GRID-Geneva, Sustainable Caucasus, and the Scientific Network for the Caucasus Mountain Region, sought to better understand the current interdisciplinary "data landscape" across the Caucasian region. In line with the scope of the Adaptation at Altitude programme, specific emphasis was placed on data related to climate change drivers, processes, impacts, and adaptation.

Participants discussed the major gaps in terms of data discoverability, accessibility, and usability currently experienced by data users according to discipline and sub-region. They outlined which disciplines/sub-regions currently benefit from good coverage and availability of data; which institutions are major providers of relevant data in the region; and what specific requirements data users have of inventories or portals through which mountain data is made searchable and downloadable.

To expand data and resource inventories and to identify the opportunities for collaborations and exchanges, participants and others were invited to contribute to an online survey. Specifically, the survey sought to encourage experts from the region to provide their inputs in a systematic fashion.

To date, the survey has been completed by approximately 20 individuals and some key highlights show that: 35% of respondents experience significant difficulties in discovering, accessing, or using relevant data; a reasonable proportion of respondents experience moderate technical or computation challenges that limit their ability to exploit existing data; 45% of respondents suggested that closing the most critical data gaps would have major positive impacts on their work; a large proportion of respondents identified "making the actual measurements" as the most problematic or challenging step in the data delivery pipeline; institutional competition and limited/time and funding were identified as the most important barriers to enhanced data sharing; and the potential for data to be misused was also highlighted as a concern of data providers. There is strong support for the concepts of Open Science and Open Data, including dedicated "data" publications; users seek a variety of functionality in online data access portals, in particular geospatial visualisation capabilities; and users feel that the sheer number of existing data portals complicates data discovery. There is support for dedicated regional data portals.

These discussions and associated activities will lay the groundwork for future possibilities to strengthen crucial data-dependent applications and identify priorities upon which GEO Mountains, in collaboration with global and local partner organizations, can focus to help improve the situation. Similar consultations have been conducted by GEO Mountains across the world's mountain regions (Andes, Central Asia, Hindu Kish Himalaya, East Africa, European Alps, and North America), providing the opportunity to compare and contrast the situation in each.

**SNC-mt ONLINE PLATFORM** Scientific Network for the Caucasus Mountain Region (SNC-mt) is an open network of researchers and other stakeholders interested in disciplinary, interdisciplinary, and transdisciplinary research on the Caucasus region and academic collaboration. SNC-mt seeks to improve research capacity for and within the Caucasus region (Armenia, Azerbaijan, Georgia, Iran, the Russian Federation, and Turkey) and to link research to the needs of sustainable development and environmental protection.

Since January 2021, the number of authors registered on the Platform increased by 212, self-registered by 122, and now counts up to 1,900 registered and 348 self-registered users. Currently, the number of organisations registered is 630, with 144 projects, 80 policies and laws, and 57 academic programmes. The number of publications currently is 4,521.

The SNC-mt online platform plays a key role in the process of collecting, providing, sharing, and disseminating knowledge and information concerning the sustainable development of the Caucasus region. It serves as a tool for the communication of results, success stories, established tools, and messages to scientists and practitioners working in the Caucasus region and the wider public.

## PUBLICATIONS

The online SNC-mt platform is constantly updated with scientific publications, articles, chapters, and books relevant to the Caucasus region. Check it out!

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|---|---|
| **MAY 2021** | https://www.caucasus-mt.net/news/new-publications-may.html |
| **JUNE 2021** | https://www.caucasus-mt.net/news/new-publications-june.html |
| **JULY 2021** | https://www.caucasus-mt.net/news/new-publication-july.html<br>https://www.caucasus-mt.net/news/new-publications-july.html |
| **AUGUST 2021** | https://www.caucasus-mt.net/news/new-publications-august.html<br>https://www.caucasus-mt.net/news/new-publications-august.html-1 |
| **SEPTEMBER 2021** | https://www.caucasus-mt.net/news/new-publications-september.html<br>https://www.caucasus-mt.net/news/new-publications-september.html-1 |
| **OCTOBER 2021** | https://www.caucasus-mt.net/news/new-publications-october.html<br>https://www.caucasus-mt.net/news/new-publications-october.html |
| **NOVEMBER 2021** | https://www.caucasus-mt.net/news/new-publications-november.html<br>https://www.caucasus-mt.net/news/new-publications-november.html-1 |
| **DECEMBER 2021** | https://www.caucasus-mt.net/news/new-publications-december.html<br>https://www.caucasus-mt.net/news/new-publications.html |
| **JANUARY 2022** | https://www.caucasus-mt.net/news/new-publication-january.html |
| **FEBRUARY 2022** | https://www.caucasus-mt.net/news/new-publications-february.html<br>https://www.caucasus-mt.net/news/new-publications-february.html-1 |
| **MARCH 2022** | https://www.caucasus-mt.net/news/new-publications.html-1<br>https://www.caucasus-mt.net/news/new-publications-march.html |

## UPCOMING KEY EVENTS

- **ADAPTATION AT ALTITUDE (A@A)** Interregional Exchange Workshop, Mountains Connect, on regional governance in mountain areas under the auspices of the Adaptation at Altitude (A@A) programme is planned by the United Nations Environment Programme (UNEP) and the Swiss Agency for Development and Cooperation (SDC), in collaboration with the Caucasus Network for Sustainable Development of Mountain Regions (Sustainable Caucasus), in Vienna, Austria. The international workshop aims to foster effective interregional exchange and action learning on the manifold approaches and mechanisms for regional governance, especially with a view toward enhancing climate resilience in the mountains.
- **CAUCASUS MOUNTAIN FORUM (CMF)** 2023 The Caucasus Mountain Forum is a key initiative of the Scientific Network for the Caucasus Mountain Region, and a tradition since 2016. The CMF is held every two years and in 2023 will be held in Georgia. The CMF serves as an important opportunity for scientists and practitioners to meet and exchange views on opportunities and challenges, and thereby seek to enhance (sub)-regional dialogue and contribute to the better coordination of the sustainable development of the Caucasus region. The third Caucasus Mountain Forum under the title "Transdisciplinarity for Sustainable Tourism Development: Role of Caucasus Scientists" will be devoted to tourism development perspectives and challenges in the region, identified as one of the hottest issues by the Caucasus Regional Research Agenda (C-RRA) adopted by the second CMF in Ankara. CMF3 will be held in Kutaisi, Georgia at Akaki Tsereteli State University.
- **CAUCASUS SUMMER SCHOOL** The Caucasus Summer School (CSS) aims to encourage global, regional, and national knowledge exchanges, the identification of suitable models, and the improvement of higher education teaching and learning practices in the Caucasus. The CSS is a statutory event of the Scientific Network for the Caucasus Mountain Region (SNC-mt) established in 2016.

*Author of the photos Amiran Kinkladze*

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