

## Supplemental material for

“UNESCO’s Education for Sustainable Development Framework and the Reality of University–Community Cooperation in the Caucasus Mountain Region”, by Tigran Keryan, Tamara Mitrofanenko, Andreas Muhar, and Lela Khartishvili, published in *Mountain Research and Development* 40(4), 2020. (See <https://bioone.org/toc/mred/40/4>)

### APPENDIX S1 Project activities, methods, and outputs and their relevance to ESD priority areas

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#### Abstract

*The Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region (CaucaSusT) project has been initiated by partner universities in Armenia (Armenian State Pedagogical University/ASPU), Georgia (Tbilisi State University/TSU), and Austria (BOKU Vienna, IMC Krems) within the framework of the Austrian Partnership Programme in Higher Education and Research for Development APPEAR. The aim of the project is to integrate Transdisciplinary (TD) approaches into university practices in Armenia (AM) and Georgia (GE) and to contribute to the long-term sustainable development of the Caucasus mountain region. The CaucaSusT project was designed and implemented during 2015-2020 and includes different preparatory activities, trainings, seminars and transdisciplinary case study research with participating students, teachers, and local stakeholders of Armenia and Georgia. The project was developed before the recent UNESCO Education for Sustainable Development (ESD) framework elaboration; however, its main goals and activities are highly in line with the framework priority areas. APPENDIX S1 describes the CaucaSusT project timeline, activities, data collection methods, resulting outputs, and explains their connection to the priority areas of the UNESCO ESD beyond 2019 framework.*

*Keywords: Transdisciplinarity; case study teaching; sustainability transformation; Post-Soviet academic systems; university-community collaboration; Armenia; Georgia*

Year	Project steps/activities	Purpose and relevance for ESD priority areas (1 policy, 2 education and training, 3 educators, 4 youth, 5 communities)	Methods used	Output (documents in <b>bold letters</b> analysed for this article)
2015-2016	Preparatory project phase	Integration of TD into the Caucasus region to support sustainable development (1); Addressing co-creation of knowledge with communities, curricula, teacher training, youth involvement (2, 3, 4, 5)	Team building exercises, group discussions, desk research	<b>Application document</b>
2016-2017	Kick-off partner meeting	Inventory of options for implementing TD at the partner universities in AM and GE (2)	Group discussions	<b>General scheme for case study course structure</b>
	Summer School Scientific Network for Caucasus Mountain Region (SNC-mt)	Integration of TD into the SNC-mt activities (1); Discussion of participatory methods among all partners (2, 3); Exposing youth to TD and participatory methods (4)	World Café with summer school students, participant observation	First experiences of joint work; feedback from participants
	Workshop at the Caucasus Mountain Forum 2016	Integration of TD into the SNC-mt activities (1); Co-creation of knowledge about the project development (2); Exposing youth and teachers to TD and participatory methods (3, 4)	World Café with conference participants, participant observation	Inputs into the <b>1<sup>st</sup> annual report</b> ; Inputs into the Caucasus Regional Research Agenda 2020-2030
	First visits to rural case study regions	Establishing cooperation with local communities (5); Investigating the local perspective of needs (5); Familiarising academic partners with TD methods (2, 3)	Meetings, interviews and focus groups with community leaders and residents	Draft <b>needs analyses of the selected case study communities</b>
	Selection of participating teachers at ASPU and TSU and PhD scholars	Formation of interdisciplinary teaching teams (2, 3); In-depth involvement of AM and GE PhD colleagues into the project - related research (2, 4)	Group discussions, individual meetings	Teaching teams composed; PhD candidates appointed
	Teachers' workshop 1 and 2	Training and exchange on TD among teachers of different disciplines from AM and GE, identifying existing knowledge and needs and discussing a course format (2, 3); Involving university administration and students (2); Evaluation, feedback from Workshop 1 integrated into Workshop 2 (3)	Group work and discussions, participant observation, qualitative questionnaires	Preliminary teaching materials; Inputs into the <b>1<sup>st</sup> and 2<sup>nd</sup> annual report</b>
2017-2018	Visit to the case study regions as part of the Teachers' Workshop 1 and 2	Discussion with the local community on their needs, and the collaboration on the course (5); Familiarising teachers with TD methods (2,3)	Stakeholder meeting, follow-up interviews, participant observation	Enhanced <b>needs analysis, documentation of stakeholders' involvement and benefits</b>
	TD case study course design, Implementing changes in curricula	Integration of TD approaches into the curriculum (2); Team-building and exchange within interdisciplinary teaching teams (3); Continuous communication with communities (2, 5); Informing and involving students (4)	Group discussions, meetings with university administrations, community visits and stakeholder meetings	Preliminary teaching materials; inputs into <b>2<sup>nd</sup> annual report</b> , draft <b>report on integrating TD into curricula</b>
2018-2019	Case Study Course 1	Implementation of TD case study course;	Participant observation, group work and discussions, stakeholders meetings and interviews	<b>Case study course reports</b> produced by the students, <b>Evaluation analysis</b> , Inputs into the <b>2<sup>nd</sup> and 3<sup>rd</sup> annual report</b>
	Evaluating Course 1 with feedback from all participants, adjusting Course 2	Reflection on the integration of the course into ASPU and TSU and its application in the context of Armenian and Georgian Communities (2, 3, 4, 5)		
2019-2020	Case Study Course 2			
2019-2020	TD Summer School	Integrating TD into Caucasus region by involving young scholars from all Caucasus countries (1, 2); Involving ASPU and TSU teachers as organisers, trainers and as trainees (2, 3)	TD case study methods, participatory group methods	Inputs into the Case Study Course 2 Inputs into <b>3<sup>rd</sup> annual report</b>

	Meetings with policy makers, Scientific papers, presentations at conferences	Linking ASPU and TSU with policy-makers on the national and local levels (1); Raising awareness of the international TD community about TD in the Caucasus region, enhancing networks of the Caucasus partners (2, 3)	Individual and group discussions	Conference proceedings, Scientific papers, Inputs into <b>3<sup>rd</sup> annual report</b>
	Workshop at the Caucasus Mountain Forum 2019	Integration of TD into the SNC-mt (1); Raising awareness of other Caucasus universities about TD (1, 2)	Fish Bowl discussion with experts from all Caucasus countries	Feedback from participants; Workshop report
2020-2021	Developing project follow-up and strengthening integration of results at the institutional level	Ensuring continuation of the TD approaches at ASPU and TSU (2, 3); Enhancing national and international networks of the Caucasus partners (2)	Group discussions, meetings with university administrations, development organisations in AM and GE	Draft teaching manual

TD, transdisciplinary; AM, Armenia; GE, Georgia; ESD, Education for Sustainable Development; SNC-mt, Scientific Network for Caucasus Mountain Region; ASPU, Armenian State Pedagogical University; TSU, Tbilisi State University.

## APPENDIX S2 Contribution of the project outcomes to the priority areas of the UNESCO ESD framework

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*Keywords: Transdisciplinarity; case study teaching; sustainability transformation; Post-Soviet academic systems; university-community collaboration; Armenia; Georgia*

Priority areas (UNESCO 2019)	Approaches	Successes	Challenges
Policy integration of ESD into international and national policies related to education and sustainable development (Annex II, pg. 8)	Presenting project outcomes to the ministries of Education and sciences (AM and GE) in order to integrate TD approaches on the national policy level	Integration of TD concept into the discourse and initiation of dialogues with representatives of the Ministry of Education and Science (AM, GE); Established contacts between Armenian and Georgian partners and policy-makers	Initiated projects and processes are often discontinued after changes in leadership; Political instability in the countries leads to uncertainty with respect to uptake of evidence-based policy recommendations; Little involvement of universities in national (educational) policy; Reluctance on behalf of the partners (GE) to continue discussions with the policy-makers
	Sharing the project experience on the national, regional and international levels via policy-relevant meetings and events	Project results and experience reflected in the documents of the Scientific Network for the Caucasus Mountain Region; Interest in TD approaches expressed by universities from Azerbaijan	Lack of funds and administrative support for integration of TD approaches in other universities in the region

	Preparing integration of inputs into the UNECE Steering Committee on ESD meeting and the UNESCO World Conference on ESD		Events have been postponed because of the Corona-situation
<b>Education and training</b>  whole institutional approach strengthened, with an emphasis on the necessity for educational institutions and communities to work together  (Annex II, pg. 8)	Involving university administrations, heads of several departments and teachers in the process of integration of TD approaches into the university curricula	TD approaches integrated into the curricula of several faculties of ASPU (Geography, History) and TSU (Geography, Tourism, Economy); Support from university leadership (AM); Successful implementation of TD case study courses, continuous cooperation between different faculties, improved teaching capacities, and integrating TD methods in their scientific work	Some university leaders find qualitative research and transdisciplinary approaches “non-scientific”; Low salaries and the lack of funds for field studies affect the motivation of many teachers to engage in TD research and teaching; Continuous facilitation needed by the Austrian partners in order to ensure follow-up after the project is finished
	Creating opportunities for international and intercultural exchange in the field of TD, involving international exchange offices	Case study course in Georgia integrated with the BOKU excursion course; TD Summer School brought together teachers and scientists from BOKU and the Caucasus region; Erasmus+ funds used to increase staff and student exchange	More time required for linking additional complimentary activities
	Communication with case study communities	Cooperation established between the university teachers and community members continues to date	Lack of time and funds available for the field work
	Using dissemination to: - raise awareness on the national level about integration of TD approaches; - bring local community issues to the attention of academic institutions	Raised profile of ASPU as an innovative University, increased number of applicants; University communication departments involved (AM); Current societal problems in mountainous regions are integrated into study materials, theses (GE, AM)	Lack of individual motivation and mobility of key persons
<b>Educators</b>  increase their capacities as facilitators of learning that leads to transformation  (Annex II, pg. 9)	Facilitating formation of interdisciplinary teachers’ teams	Established Inter and transdisciplinary cooperation as a new practice in AM and GE universities leads teachers to mutual learning and team teaching, joint research and study material development; Teachers gained practical knowledge and skills for implementation of TD teaching and research	Uneven power relationships between the teachers and project coordinators; Subjective prioritization of disciplinary inputs based on individual preferences rather than research questions / community needs; Knowledge co-creation process was challenging by the lack of previous inter- and transdisciplinary cooperation experience
	Supporting teachers in adapting to TD case study course implementation	Practical implementation of TD case study courses led teachers to critically reflect on their teaching practices, curricula and rendered it community-oriented	The traditional hierarchical relationship with students challenges teachers’ role as facilitators; Difficulties in adapting newly learned TD approaches to the community context
	Facilitating access to publications in the field of TD, sustainability and initiating exchange on these topics	Improved acquaintance of the teachers with literature on TD and sustainability; Selected materials adapted and translated to Armenian and Georgian languages	Experience with a different style and structure of scientific publications and challenges in understanding of the content of the international peer-reviewed publications
<b>Youth</b>  ensure young people engagement in addressing sustainability challenges	Students work in interdisciplinary groups, facilitated by teachers (not common during courses)	Increased motivation of students to engage in TD approaches due to flattened hierarchy with the teachers and interdisciplinary collaboration	Teachers’ traditional hierarchical attitudes prevented students from expressing their opinions
	Integrating students into practical research with local community members, activists and authorities;	Students got new competences in: - a complex understanding of sustainable development challenges of the rural communities and potential solutions, the difference between “university lectures and real-life”;	Lack of students’ knowledge about sustainable tourism hindered cooperation with the stakeholders (locals perceive students as not competent); Previous unfamiliarity with sustainability competences and related methods (i.e. systems analysis and scenario development),

(Annex II, pg. 9)	Providing freedom for students to make decisions independently	<ul style="list-style-type: none"> <li>- communication with peers from other disciplines and outside of academia (with the local actors and authorities);</li> <li>- interactive presentations, group works (soft skills), which are not usually provided at ASPU and TSU;</li> <li>- project planning and management</li> </ul>	rendered understanding and use of these methods challenging for some students; The uncertain situations and unclear tasks during the field work (students used to receive predefined tasks)
	Increasing students research, publications and conference presentation capacities	Students' participation in national and international conferences (e.g. ISCONTOUR, Second Caucasus Mountain Forum) and publications in scientific journals	Funds for supporting student research activity and conference participation often limited to the project funds; Lack of research experience among some teachers limits the ability to support students in preparing scientific papers
	Potential for a multiplier effect through the students who are / will become teachers in rural communities	15 ASPU students, who took part in the case study courses, currently work as teachers and share their competencies and knowledge in the field of sustainable development in rural schools of AM; Project coordinators render students (ASPU) as key actors in implementing ESD in rural communities: integrating sustainability in teaching curricula of local schools and enhancing the role of teachers in community governance	Working as teachers in rural communities is not attractive for the young people
<b>Communities</b>  community is the locust of actions on sustainable development  (Annex II, pg. 9)	Initiating university – community collaboration, and focusing teaching and research on the community needs	Experience of knowledge co-production with community members enhanced trust of locals towards academics; Community members, especially young generation, willingly cooperated and openly shared with the students and teachers; Teachers and students recognized the practical case-specific knowledge of the local population; Communication between the community and the administration (GE) successfully facilitated as a result of the TD case study course; Small enterprises received financial support from another university project following the TD case study course (AM); Topics of master's theses became societally oriented, focusing on local communities' challenges	Collaboration with local residents without financial compensation for their time or financial contribution from the project, is a difficult task; Poor living conditions make it difficult to prioritize sustainability principles; Lack of time of local residents due to their occupation in agriculture and tourism activities; Community members generally considered case studies more beneficial for the development of students' professional skills rather than making contribution in communities
	Considering the specialty of the mountain regions and complexity of community sustainability issues	Future scenarios recommended by the students were useful and fit well into the social, cultural and environmental context of the communities; Practical recommendations (e.g. water governance in Tsaghveri, GE, improvements to a hiking trail in Dilijan, AM) appropriately addressed community problems and needs	The complexity of the local situation needed to be examined more carefully by the teachers, in order to better formulate research questions and better understand locals' needs; Reluctance among community members to accept innovative ideas

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