Developing and Implementing a Transdisciplinary Field Case Study Course

Manual for University Lecturers




Prepared in the framework of the project Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region / CaucaSusT

2020

With funding from Austrian Development Cooperation

appear

Developing and Implementing a Transdisciplinary Field Case Study Course

Manual for University Lecturers

Prepared in the framework of the project Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region / CaucaSusT

2020

EDITORS:
Tamara Mitrofanenko, BOKU
Andrea Zitnanova, IMC Krems

AUTHORS:
Chapter 1. The term Sustainability and the concept of Sustainable Development - **Lela Khartishvili, Andrea Zitnanova, Tigran Keryan, Tamara Mitrofanenko**

Chapter 2. Education for Sustainable Development and the Role of Higher Educational Institutions in society - **Tigran Keryan, Tamara Mitrofanenko**

Chapter 3. Public Participation - **Lela Khartishvili, Natia Kekenadze**

Chapter 4. Case Study Teaching, Principles and Methods - **Gvantsa Salukvadze, Temur Gugushvili, Tigran Keryan, Maria Katelieva, Andrea Zitnanova, Tamara Mitrofanenko**

Chapter 5. Integrating the Case Study Course into HEI curriculum - **Tamara Mitrofanenko, Marine Matosyan, Merab Khokhobaia, Ashot Khoetsyan**

Chapter 6. Implementing a Transdisciplinary Case Study Course - **Tamara Mitrofanenko, Marine Matosyan, Merab Khokhobaia, Ashot Khoetsyan, Tigran Keryan**

CONTRIBUTORS:
This publication has been made possible with participation and support of the CaucaSusT project partners, and participants – university staff, students and stakeholders:

CaucaSusT PROJECT COORDINATORS:

Armenian State Pedagogical University (ASPU), Armenia: Ashot Khoetsyan, Marine Matosyan

University of Natural Resources and Life Sciences Vienna (BOKU), Austria: Tamara Mitrofanenko, Andreas Muhar

University of Applied Sciences (IMC) Krems, Austria: Maria Katelieva, Christian Maurer, Andrea Zitnanova

Tbilisi State University (TSU), Georgia: Merab Khokhobaia, Tatia Mzhavanadze, Joseph Salukvadze, Mariana Unapkoshvili

Participants of the TD Case Study Courses:

Austria:
BOKU Staff: Tamara Mitrofanenko, Andreas Muhar
IMC Krems Staff: Maria Katelieva, Christian Maurer

External Experts: Christian Baumgartner

Armenia:
ASPU Staff: Tigran Babayan, Varduhi Hovhannisyan, Tigran Keryan, Ashot Khoetsyan, Susanna Khachatryan 1, Susanna Khachatryan 2, Marine Matosyan, Marietta Muradyan, Sirine Shogheryan, Kristine Tanajyan, Knarik Uzunyan, Mariam Yeghyan.

External Experts: Armen Gevorgyan

TD Case Study in Meghradzor, Armenia, 2018:

ASPU Students *(Biology, Chemistry and Geography):* Shushan Abovyan, Edik Amirkhanyan, Mariam Avetisyan, Ofelya Avetisyan, Liana Balabekyan, Silva Boyakhchyan, Lilit Ghazaryan, Elya Harutyunyan, Varduhi Hovhannisyan, Zvart Manukyan, Angin Margaryan, Lily Margaryan, Olga Margaryan, Qristine Margaryan, Tamara Mnacakanyan, Merine Nikoghosyan, Arpine Petrosyan, Armine Piliposyan, Narek Sahakyan, Amalya Tadevosyan, Narine Tatoyan, Tigran Yengibaryan

Stakeholders: Saro Gharibyan - Tourism-manager, social worker; Anna Hovhannisyan - History lecturer, YSU; Volodya Hovhannisyan – Meghradzor Culture House Chairman; Manukyan Vahe - local highchool student; Vardan Yeghiazaryan - Lawyer, Private Entrepreneur

TD Case Study in Dilijan, Armenia, 2019:

ASPU Students *(Biology, Chemistry and Geography, Educational Psychology and Sociology, History and Law):* Shushanik Abovyan, Nazelyan Abrahamyan, Haroyan Ani, Ophelia Avetisyan, Anna Babloyan, Sirvard Boyakhchyan, Liana Galstyan, Mariam Ghambaryan, Anahit Madoyan, Yeranuhi Manukyan, Zvart Manukyan, Christine Margaryan, Lily Margaryan, Ani Ohanyan, Seda Petrosyan, Laura Rachoyan, Haykuhi Safaryan, Narek Sahakyan, Larisa Sarukhanyan, Irina Tadosyan, Narine Tatine, Narine Vardanyan, Tatev Yenokyan

Stakeholders: Robert Beglaryan - Assistant Director of the Dilijan National Park; Albert Haroyan - Coordinator of «Ecopolice» NGO and «Aarhus» centre of Dilijan; Narek Hovhannisyan - Ecotourism specialist; Astghik Hovsepyan – Geography Teacher, Dilijan High School; Martin Tovmasyan – "Dghyak" Hotel Manager

Georgia:
Tbilisi State University (TSU) Staff: Nodar Elizbarashvili, Temur Gugusvili, Lela Khartishvili, Ioseb Khelashvili, Merab Khokhobaia, Giorgi Meladze, Tatia Mzhavanadze, Nino Pavliashvili, Gvantsa Salukvadze, Joseph Salukvadze, Mariana Unapkoshvili

TD Case Study in Tsagveri, Georgia, 2018:

TSU Students *(Faculty of Economics and Business, Faculty of Social and Political Sciences, Faculty of Exact and Natural Sciences):* Kristine Bazadze, Vladimer Chezhia, Khatia Giorgadze, Jane Giorgobiani, Bakur Jinoria, Levan Khasaia, Mariam Kokilashvili, Anuki Lomidze, Lasha Mzhavia, Elizbar Sadradze, Akaki Shonia, Tatiana Sichinava, Rusudan Tabatadze, Giorgi Tkemaladze, Mariam Tkebuchava, Giorgi Toidze

Stakeholders: 2 local guides - Bacho Arutinian, Jemal Ghonghadze; Ketevan Berozashvili - Municipality of Borjomi; Medea Davlasheridze - Mercy Corps, Borjomi; Natalia Despotashvili – Green Valley; Jambuli Gelashvili – "Tsaghveri Lodge" guest house; Nino Gelashvili – „Green House" guest house; Maka Ghonghadze – head of Local Action Group; Tamar Khoshtaria – Former head of tourism center in Tsaghveri; Mikheil Lomidze - Mercy Corps, Borjomi; Irma Maghradze - Agro farmer; Iza Mikadze – Hotel "Natvris Khe"; Natia Muladze - Borjomi-Kharagauli National Park Administration; Londa Pirishvili - Municipality of Borjomi; Levan Tabunidze – Borjomi Local Action Group; Nikoloz Tvaladze – Bakery "Gvirgvina"

TD Case Study in Stepantsminda, Georgia, 2019:

TSU Students *(Faculty of Economics and Business, Faculty of Social and Political Sciences, Faculty of Exact and Natural Sciences):* Nino Arachemia, Tinatin Archvadze, Mariam Datishvili, Nana Deisadze, Teimuraz Dvalishvili, Khatia Gelashvili, Tamar Gelashvili, Marry Kakhelishvili, Giorgi Kapanadze, Mariam Khizanishvili, Ivane Khrikuli, Archil Khuskivadze, Neli Kveladze, Khatia Meskhia, Gvantsa Melanishvili, Mariam Mkervalishvili, David Nadiradze, Tamar Odilavadze, Mariam Revazishvili, Nino Sikharulidze, Nato Tezelashvili, Ana Tskvitinidze, Mari Tsotskolauri

Stakeholders: Marina Chkareuli - Head of Administration of Kazbegi Protected Areas; Zurab Chkhaidze - Kazbegi Municipality Infrastructure Service; Nino Geladze - Kazbegi Municipality; Elizbar Janukashvili - Owner of Hotel "Stanzia Kazbegi"; Kakhi Janukashvili - Owner of Family Hotel, Kazbegi Municipality Agricultural Service; Tamuna Kobidze - Hotel "Stanzia Kazbegi"; Natia Sabauri - "Barberia" Beauty Salon; Ketevan Sujashvili - Guesthouse owner; Shorena Sujashvili - Kazbegi Local Development Group; Otar Tsamalaidze - Director of Kazbegi National Park; Alexandre Zagashvli - Head of the Stepantsminda Municipality

Layout: Michelle Reischl; "Lemon Studio", Tbilisi, Georgia
Photos: Unless otherwise specified, images provided by Andreas Muhar and Tamara Mitrofanenko

appear
With funding from
Austrian Development Cooperation

The project Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region (CaucaSusT) is supported by the Austrian Partnership Programme in Higher Education and Research for Development (APPEAR). APPEAR is a programme of the Austrian Development Cooperation and is implemented by the OeAD.

BOKU

The printing of this publication has further been supported by the University of Natural Resources and Life Sciences, Vienna, Institute of Landscape Development, Recreation and Conservation Planning.

Developing and Implementing a Transdisciplinary Field Case Study Course. Manual for University Lecturers

Table of Contents

List of Figures and Tables

Figures:

Tables:

Introduction

The CaucaSusT Project

The project Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region (CaucaSusT) has been jointly implemented by Armenian State Pedagogical University (ASPU) in Yerevan, Armenia, Tbilisi State University (TSU) in Georgia, University of Natural Resources and Life Sciences, Vienna (BOKU) and University of Applied Sciences Krems (IMC Krems) in Austria. These partners came together to learn how universities in the Caucasus countries can address real-life challenges of sustainable tourism development in cooperation with the local population and other stakeholders.

The role of science in addressing challenges in the field of sustainable development and the link of academia to policy and practice need to be strengthened in Armenia and Georgia. Progress in this respect partly depends on innovating university practices towards interdisciplinary and participatory work. The CaucaSusT partners decided to focus on introducing transdisciplinary approaches to teaching and research at ASPU and TSU.

On a wider scale, the CaucaSusT partners are cooperating with the Scientific Network for the Caucasus Mountain Region (SNC-mt), via participating in the Caucasus Mountain Forum conferences and in summer schools for young scholars, in order to share the results and experience of the project with other universities in the Caucasus region, and to receive feedback on the applicability of CaucaSusT outcomes to academic practice in other Caucasus countries.

While the focus of the project was on capacity development in the universities themselves, it also aimed at addressing the needs of the local communities by establishing a practice of cooperation among the universities and local population, which should result both in benefits for communities and for improved education and research outcomes.

The core activity of the project was the development of a Transdisciplinary Case Study Course, its integration into curricula of ASPU and TSU, and piloting of the course in different locations in Armenia and Georgia. The courses in both universities brought together lecturers and students from several departments as well as local community actors and administrations, who cooperated in addressing challenges related to sustainable tourism development. Due to the enthusiasm and the positive feedback of most participants and the positive outcomes for learning and (in some cases) even for local governance (as well as the many difficulties our CaucaSusT partners had to overcome in order to successfully integrate the course into their curricula), we would like to share our experience in implementing this course with those who intend to engage in similar activities [1].

The purpose of this Manual and How to use it

The aim of this manual is to enable interested teachers and university staff to implement a transdisciplinary (field) case study course, similar to those developed, tested and integrated into curriculums at ASPU and TSU.

The first part of the manual briefly introduces fundamental concepts, which we found necessary for understanding transdisciplinary approaches, and includes ideas and examples of teaching exercises, as well as references and recommended materials, where concepts mentioned here are described in more detail.

The second part of the manual provides concrete suggestions on how the case study course can be implemented, with advice from ASPU and TSU colleagues, who have experienced it for the first time during the CaucaSusT project.

1 For more information on the CaucaSusT project, see the project website: http://caucasust.boku.ac.at or Keryan et al. 2020

Many examples we offer are related to tourism – this is due to the focus of the CaucaSusT project, but also due to the fact that sustainable tourism development represents a complex real-world challenge, especially relevant for the revitalization of rural mountainous communities and for finding a balance between improving livelihoods of the local population and preserving cultural and natural heritage.

At the same time, the TD Case Study Course format can be used to tackle other societal challenges, both in the context of rural and urban development – subject of the capacities and interest of the lecturers implementing the course, the students taking the course and participating communities.

We use * to highlight information, which we find of particular interest and integrate some additional relevant information as well as sources in small boxes / distinct sections throughout the manual, in order to make it more reader-friendly [2]:

- Useful Links
- For more Information
- Experience from the CaucaSusT Project
- Recommended Materials
- Teaching Exercises

Selected examples of courses, newly established or updated by ASPU and TSU in order to integrate the case study course into their curriculum, as well as the glossary of the main terms used and a list of literature references can be found in the Annex.

2 The information presented in these sections is based on the experience of the project team and reflects our respective expertise. The main tourism experts engaged in the CaucaSusT project came from Georgia and Austria - for this reason, we present more tourism-related examples from Georgia than Armenia - however, we tried to balance the inputs on implementing the case study from both Armenian and Georgian colleagues.

PART I.
MAIN CONCEPTS AND TERMS

1 THE TERM SUSTAINABILITY AND THE CONCEPT OF SUSTAINABLE DEVELOPMENT

Our economy and lifestyles - a rapid increase in population, industrialization and overconsumption in developed countries, along with globalization - led to serious ecological and social damage resulting in worldwide-crises: pollution and climate change, loss of biodiversity and fertile soils, land degradation, which adversely affected the livelihoods of many people around the world. At the same time, social inequality and injustice persist and the gap between developed and poor countries has increased (UN, 2020).

Useful Links:

Check the www.un.org website for an update on publications on environmental crises and social inequality

Eventually, concerns about the negative impact of these developments on the environment and society became more prevalent at the international level, due to many efforts of active citizens, NGOs, researchers, governments and intergovernmental organizations. The concept of Sustainable Development (SD) was created, and efforts to integrate it into all sectors of human activity have been made.

Useful Links:

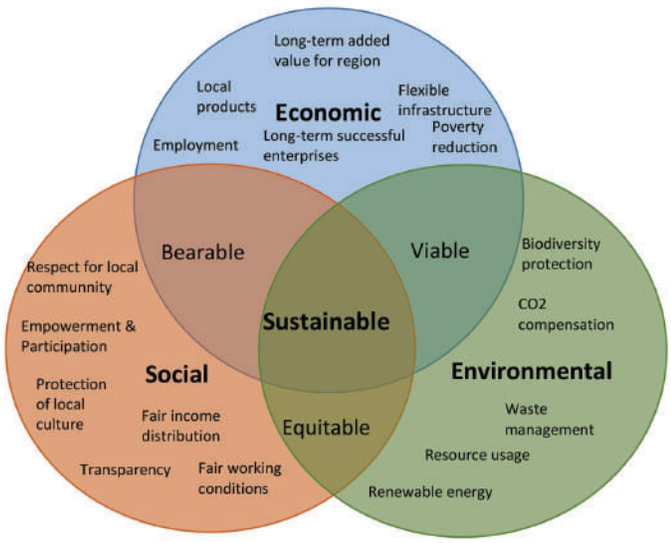
You can read more about sustainable development in the following links:
www.iisd.org/topic/sustainable-development
www.sustainabledevelopment.un.org
The SDG Knowledge Hub of the International Institute for Sustainable Development: http://sdg.iisd.org/

The term "Sustainability" is used today as an important paradigm for global development. It is defined by the Cambridge Dictionary (2020) as "the quality of being able to continue over a period of time". Today it is commonly used to describe a paradigm of a "sustainable" society, in which the needs of the population (i.e. a dignified livelihood) are in balance with the boundaries of the planet Earth - available resources and a healthy environment in the long term.

The concept of sustainability encompasses more than environmental protection, although many people associate the term with the environment. The three main pillars of sustainability constitute *economic, environmental and socio-cultural* aspects (Figure 1.1). They are usually presented as three circles or columns (although the circles representation has been favored recently, because it allows to demonstrate close interconnections among the three aspects).

Sustainability implies balance between environmental, socio-cultural, and economic dimensions, as reflected in the guiding documents and principles adopted by many international organizations, such as the United Nations (UN), The United Nations Educational, Scientific and Cultural Organization (UNESCO), The World Commission on Environment and Development (WCED), The United Nations Environment Programme (UNEP), and the United Nations World Tourism Organization (UNWTO).

Figure 1.1 The three spheres of Sustainability, from the lens of sustainable tourism development



Source: Graphic provided by M.Katelieva and A.Zitnanova based on Purvis et al. (2019)

The paradigm of "sustainable development," used to integrate environmental protection with economic development, is geared toward fighting poverty, protecting natural resources, promoting solidarity and benefit-sharing.

One widely accepted definition of sustainable development is that taken from the report called "Our Common Future", issued by the World Commission on Environment and Development in 1987, and often referred to as "the Brundtland report", after the name of the chairman of the commission, Gro Harlem Brundtland:

"Sustainability and/or Sustainable Development is meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987).

Recommended Materials:

A review and description of the Brundtland report can be found in:

Keeble, B.R., 1988. The Brundtland Report: "Our Common Future". Medicine and War, 4(1), pp. 17-25. https://doi.org/10.1080/07488008808408783

The concept of Sustainable Development can ultimately be seen as a theoretical and philosophical basis for creating harmony in the relationship between society and nature. Reaching it would require nothing less than profound changes in thinking, a paradigmatic shift in economic and social structures, and in patterns of consumption and production everywhere (cf. Honey, 2008). At the same time, transforming our society towards sustainability is necessary if we want to tackle the great challenges of the Anthropocene.

For More Information:

The term Anthropocene is often used to describe the geological period from the beginning of the Industrial Revolution to nowadays, characterized by the irreversible damage caused by human activity on our planet

More recently, the concept of resilience received increasing attention in the discourse on transitions towards a more sustainable future (Olsson et al., 2014). The word resilience comes from the Latin resilire, which means to rebound. It is defined as the ability to absorb change and to anticipate future perturbations through adaptive capacity (Darnhofer et al., 2010). The concept has been increasingly adopted to describe social-ecological systems as complex entities that are continually transforming themselves through cycles of change (Folke et al., 2010; Walker and Salt, 2012). It is often used interchangeably with *sustainability* or understood as a complementary concept (Redman, 2014; Bocchini et al., 2013; Hassler and Kohler, 2014), offering a process-oriented perspective (Ahern, 2011), intending to anticipate failures and enabling local systems to contain and minimize them towards achieving sustainability goals (Tainter and Taylor, 2014; Ahern, 2011; Anderies et al., 2013). Resilience supports system functionality in times of crisis or stress (Pooley and Cohen, 2010), while sustainability, in contrast, focuses on capacities that prevent system degradation and maintain a system equilibrium (López-Ridaura et al., 2005; Opdyke and Javernick-Will, 2014).

For More Information:

Alternative paradigms to sustainable development exist in different parts of the world, which do not emphasize "development" as a goal, and sometimes are even contradictory to it, such as *degrowth* (Sekulova et al., 2013; Martínez-Alier et al., 2010). Other examples include *Buen Vivir* from South America (Stoll-Kleemann and O'Riordan, 2017; Wals and Peters, 2017), as well as *Ubuntu* (Africa) or Swaraj (India).
Stoll-Kleemann and O'Riordan (2017) provide brief descriptions and suggest testing these approaches in UNESCO biosphere reserves (Mitrofanenko, 2018).

Sustainable Development Goals

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for moving towards sustainability, peace, and prosperity for people and the planet. At its heart are the 17 Sustainable Development Goals (SDGs) and 169 associated targets, (Figure 1.2), which are an urgent call for action by all countries - developed and developing – and for a global partnership.

Figure 1.2 Sustainable Development Goals.

As a result of a wide-reaching participatory process (UN, 2015, para 52), the 2030 Agenda symbolizes commitment on behalf of the "global community" to strive towards a balance among economic, social, and environmental spheres (Schneidewind et al. 2016). An important feature of the 2030 Agenda is that it highlights that the SDGs are strongly interlinked among each other: for example, that ending poverty must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve oceans and forests.

Source: UN (2020)

For More Information:

The successful adoption of the 2030 Agenda for Sustainable Development builds on more than five decades of international efforts to integrate environment and development, which gained momentum with the United Nations Conference on the Human Environment in 1972, leading to the establishment of the United Nations Environment Programme and adoption of several critical environmental agreements on the international (e.g. the Convention on Biological Diversity) and regional levels (e.g. the Alpine and Carpathian conventions on the protection and sustainable development of mountain regions). These processes provided the foundation for reconsidering governance of socioecological systems by positioning nature as the basis for social and economic development and bringing a human-nature relationship to the highest political level (Johnson, 2012; Engfeldt, 2009; Wapner, 2003 in Mitrofanenko, 2018).

Previous important international conferences on sustainable development include:

- The United Nations Conference on the Human Environment (UNCHE) in Stockholm, 1972.
- The United Nations Conference on Environment and Development (UNCED; also referred to as Stockholm+20,) in Rio de Janeiro, Brazil 1992
- The World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa 2002

Useful Links:

Teach SDG Resources for teachers:
http://www.teachsdgs.org/resources.html

A publication on learning objectives of SDGs can be downloaded here in several languages: https://unesdoc.unesco.org/ark:/48223/pf0000247444

***Idea: an SDG poster or printouts of individual goals can provide a nice classroom decoration and teaching material:**
https://www.un.org/sustainabledevelopment/news/communications-material/

A calculation has been made estimating the costs required for implementing SDGs, resulting in enormous numbers. As written in an SDG report of the United Nations Conference on Trade and Development (UNCTAD) "the SDG implementation might need an annual investment of 5 to 7 trillion US dollars", and the developing countries could be facing an annual gap of 2.5 trillion US dollars as a result (UNCTAD, 2014). For this reason, the engagement of the private sector has been essential. Fortunately, the involvement of the private sector in the SDGs has been growing over the past years, due to the increasing public attention to environmental issues (Fukuda-Parr, 2016, Pradhan, et al. 2017, Le Blanc, 2015).

For More Information:

Some businesses, whose economic activity left a considerable negative impact on society and environment, faced negative publicity as a result of increased public awareness about the externalized environmental and health costs of their operations, resulting in a decrease of their stock value or profit. Consequently, a clear trend emerged in a short space of time where companies connected their corporate responsibility to the SDGs (KPMG, 2017). To present their environmental efforts and raise their competitive advantage, firms started applying green marketing strategies (Szabo and Webster, 2020).

However, as studies have shown, an increasing number of companies disregard the basic principles of sustainable development by applying them superficially or not at all (Gatti et al., 2019). Cases of "environmental opportunism" and "green-washing" became an issue, and concerns arose about the resulting public distrust and ethical harm (Szabo and Webster, 2020). For example, a relatively recent green-washing scandal happened in the automotive industry, when a car manufacturer Volkswagen admitted to emission-cheating activities despite marketing its products as "clean diesel" cars (Siano and Vollero, 2017). Unfortunately, other big car companies have faced similar allegations in recent years as well. Several non-governmental organisations, such as Greenpeace or TerraChoice, have taken it upon themselves to monitor the market for cases of green-washing (Gatti et al., 2019).

Following the sustainability principles can be very demanding, but on the other hand, they can open up great opportunities. Successful sustainability policies can promote sustainable innovation and investments in promising technologies, companies, and social innovations, thus creating and securing jobs. Moreover, they can help avoid long-term costs associated with pollution, environmental degradation, and resulting societal problems, strengthen social cohesion and ensure that the ecological limits of our planet are not exceeded (Die Bundesregierung, 2018, p. 2).

For More Information:

The Millennium Development Goals (MDGs) preceded the SDGs and comprised a North-South aid agenda focused on developing countries (Fukuda-Parr, 2016). In contrast to the MDGs, the SDGs set targets for all – not just poor – countries and encompass environmental, social, and economic aspects of sustainability, while MDGs focused on poverty alleviation, which represented a narrow conception of development.

Researchers and practitioners came to understand that persistent poverty and hunger could be caused by a complex interaction of factors, including lack of political power, poor access to education or malnutrition, and that they are affected by factors shaping global economic governance and disparities within and between countries, such as producers' responsibility towards environmental protection and inequality.

Another major difference between SDGs and MDGs is how they were elaborated: the 2030 Agenda was shaped by a wide-reaching consultation process including state institutions, civil society groups, academics, business groups, and UN agencies (Norton and Stuart, 2015); in contrast, MDGs were driven by development ministers and heads of development agencies, seeking

a new rationale for aid in the context of post-Cold War geopolitics and neoliberal globalization (Fukuda-Parr and Hulme, 2011); the elaboration process of MDGs lacked consultations with the public and integration of various sources of knowledge. Moreover, it did not take the interaction among economic, social and environmental spheres of sustainability into account (UN Task Team on the Post 2015 Agenda 2012).

Table 1.1 shows SDGs and MDGs that differ not just in the number of goals and targets, but in their very purpose, conception, and the political process that drove their elaboration (Fukuda-Parr, 2016).

Table 1.1 SDG vs MDGs

SDGs		MDGs	
Goal 1	End poverty in all its forms everywhere	Goal 1	Eradicate extreme poverty and hunger
Goal 2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	Goal 2	Achieve universal primary education
Goal 3	Ensure healthy lives and promote well-being for all at all ages	Goal 3	Promote gender equality and empower women
Goal 4	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all	Goal 4	Reduce child mortality
Goal 5	Achieve gender equality and empower all women and girls	Goal 5	Improve maternal health
Goal 6	Ensure availability and sustainable management of water and sanitation for all	Goal 6	Combat HIV/AIDs, malaria, and other diseases
Goal 7	Ensure access to affordable, reliable, sustainable, and modern energy for all	Goal 7	Ensure environmental sustainability
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all	Goal 8	Develop a global partnership for development
Goal 9	Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation		
Goal 10	Reduce inequality within and among countries		
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable		
Goal 12	Ensure sustainable consumption and production patterns		
Goal 13	Take urgent action to combat climate change and its impacts		
Goal 14	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development		
Goal 15	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss		
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable and inclusive institutions at all levels		
Goal 17	Strengthen the means of implementation and revitalize the global partnership for sustainable development		

Source: Sustainable Development Goals Fund (2020)

Suggested Teaching Exercises:

Topic: Sustainability
Exercise name: SDGs vs MDGs
Instructions: Read the SDGs and MDGs and think with your group why, within 15 years, the MDGs changed from 8 goals to 17. Look at the creation process to get a better perspective of why certain topics were chosen. Think about the content of the goals and find differences in the addressed topics. What are the main differences and what would be the overall goal, once the individual goals are fulfilled?

Learning Outcome:
• A deep understanding of the SDGs and MDGs, the background of their creation and the essential steps leading to sustainability.

Topic: Sustainability
Exercise name: Best case and worst-case scenarios in sustainable tourism
Instructions: Students will be divided into groups. Each group will have a specific country to analyse its best and worst cases of sustainable tourism. They should refer to the dimensions of sustainable tourism development from the previous exercise and identify good as well as bad practices at the destinations (can be in form of a SWOT as well). Keeping in mind the knowledge from the sustainable aspects exercise, the groups should come up with recommendations on how to improve the current situation regarding the examples of bad practices and focus on generalizing good ones.

Learning Outcomes:
• realising the importance of maintaining the sustainable dimensions in practical context
• coming up with solutions or tools to enhance sustainability in a destination
• enhancing critical thinking and creativity

Sustainable tourism as a new type of relationship between society, economy, and the environment

Note from the authors:

The following chapter is based on our work preceding the COVID-19 pandemic, which has seriously impacted the tourism industry, among many others. As we were finalizing the Manual, COVID-19 has caused an unprecedented global crisis within the period of only a few months. Governments around the world were forced to implement policies which involved significantly restricting travel, community lockdowns, quarantine and various business-related restrictions, in order to prevent the spread of this highly contagious virus (Gretzel et. al, 2020). Consequently, the tourism and travel industries have suffered a severe blow. Airline, cruise ship and hospitality activities have been reduced to a minimum, resulting in bankruptcy of many tourism-related businesses (Vinod, 2020). The further direction of the tourism industry development still remains uncertain due to the lack of knowledge about COVID-19 and an immediate cure for the virus (Gretzel et. al, 2020).

However, challenges in international travel caused by the Pandemic might end up strengthening domestic tourism in the CaucaSusT project countries (Armenia, Austria and Georgia). In fact, challenges brought on by COVID-19 and their impacts on the Case Study communities as well as the potential to support domestic tourism development will be the main foci of the Case Study course carried out by our partners from the Armenian State Pedagogical University in the Fall of 2020 (albeit, due to the Pandemic, the course format will be adapted to necessary health and safety measures).

Tourism can play an important role in the implementation of the 2030 Agenda for Sustainable Development - the livelihoods of many people depend on it, especially in vulnerable and less developed countries. Moreover, in many countries, protection of biodiversity heavily relies on the tourism sector, which helps generate revenue linked to nature conservation. Tourism is recognized as a platform which brings people from different cultures together, facilitating

mutual understanding, solidarity and trust as well as promoting global cooperation. New development approaches, including those promoted by UNWTO, are encouraging all stakeholders involved in tourism to explore ways to reduce its negative impacts on the environment and climate change, promoting sustainability and building resilience.

The "new" paradigms for the tourism sector consider principles of sustainable development to ensure long-term sustainability of tourism initiatives and better harmony between society and nature. These paradigms address not only economic growth (e.g. strengthening the regional economy, long-term investment planning), but also environmental aspects (e.g. energy efficiency and renewable energy use, minimizing negative impacts on natural resources, such as landscape, air, water, soil), and social solidarity (e.g. health, quality of life, education, participation, human rights, cultural values). Furthermore, they aim at reaching a balance between these three dimensions.

According to the World Travel & Tourism Council (WTTC), every tenth job is part of the tourism industry, and four percent of all investments as well as five percent of all exports are directly related to tourism (WTTC, 2018). UNWTO predicts that growth trends in world tourism will continue, with total arrivals reaching 1.8 billion by 2030 (UNWTO, 2017).

The far-reaching influence of the tourism industry is rooted in the fact that many local people are influenced by it and profit from it. However, this does not necessarily make tourism sustainable.

Considering aspects such as carrying capacity, reducing the prevalence of and providing alternatives to mass and conventional tourism, visitor management and monitoring is highly important. The key to the sustainable development concept is limits. In terms of tourism, limits would be typically expressed by the number of visitors. A destination can only withstand certain amount of development and number of tourists, before their impact takes on a less desirable form (Butler, 1999, p. 16). To this day, researchers haven´t found the optimal number of tourists to be accommodated in a certain area without causing a negative effect. In most cases, identifying a clear threshold is challenging and depends on a wide range of variables, such as specific characteristics of the location, tourism infrastructure and activities, etc., as well as on their cumulative and long-term effects on the environment and local society, which might be uncertain or unknown at the time.

Compared with conventional tourism, sustainable tourism is a relatively new branch. It's disassociation from mass tourism led to the creation of a various new / alternative interpretations, which in turn contributed to seemingly more environmentally friendly forms of tourism. Due to the topic's complexity, a comprehensive and universally accepted terminology of the said alternative forms of tourism is still missing. Sustainable tourism is accepted as an umbrella term for many kinds of tourism, such as rural, eco and agritourism, nature-based, urban, or even mass tourism itself, as long as operators and stakeholders follow sustainability principles.

Concepts such as "gentle" or "green" tourism were first introduced in 1977 by the German entrepreneur Fred Baumgartner. "Sustainable tourism", which was first coined as a term in the late 1980s, became seriously regarded in the mid-1990s and was eventually adopted by international and intergovernmental organizations such as UNEP and UNWTO.

To understand and communicate the concept of sustainable tourism more clearly, several definitions were put together; one of the most well-known definitions is the one from the UNEP and UNWTO (2005):

"Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities."

In other words, sustainable tourism favors the long-term management of available resources in a manner that enables meeting the social and economic needs of the host communities, maintains cultural integrity, biodiversity, and essential ecological processes (Barlet and Collombon, 2004). A product of this sort should function in harmony with the local culture, the environment, and the community.

Alternative forms of tourism are associated with the development of many new activities and business models that aim to alleviate the overexploitation of resources, diversify the local (rural) economy and improve the welfare of local communities in the destination. Various research shows that community-driven initiatives can contribute to long-term development, and that the success of rural tourism projects depends on local capacity, awareness, and skills, enabling the community to participate in decision-making and management processes (Sidali et al., 2015; Idziak et al., 2015). Community-based activities in tourism are a core aspect of sustainable development; community participation in the implementation and decision-making processes can lead to social

learning and empowerment of the community (Giampiccoli and Mtapuri, 2017).

Despite the widespread acceptance and growing popularity of alternative forms of tourism in the developing world, they have emerged relatively recently in the South Caucasus countries, which still face challenges of decentralization and seek sustainable initiatives for rural development, regional partnerships, and empowerment. The Association Agreement (AA) between the EU and Georgia (AA, 2014), and the EU – Armenia Comprehensive and Enhanced Partnership Agreement (CEPA, 2017) advocate for the "development and promotion of, inter alia, community-based tourism" (AA, 2014, p.116). They emphasize the engagement of local communities in the process of planning and implementing tourism, including equality in decision-making (Khartishvili et al., 2019). However, there is a knowledge gap concerning what rural, eco-, agro-, nature- and community-based tourism concepts mean in the context of the South Caucasus countries. The next section describes a few forms of alternative tourism.

Forms of alternative and sustainable tourism

Ecological tourism (ecotourism, also often referred to as ***green, responsible*** as well as ***nature-based*** tourism).

Ecotourism gained popularity in the 1990s in North America as a result of rising interests in wildlife and responsible travel, which consequentially improved the local population's living conditions and contributed to environmental preservation. In some countries, like Madagascar, Costa Rica, and Kenya, this form of tourism is the main generator of foreign currency (Juganaru et al., 2008, p. 799).

Ecotourism is a type of green tourism that aids conservation of fragile regions, environments, and communities (The International Ecotourism Society, 2018). It is intended as a low-impact and often small-scale alternative to standard commercial mass tourism (Balmford et al., 2009). Ecotourism is defined as:

"responsible travel to the natural environment, which contributes to the protection of the environment and the well-being of the local people. Its main components are environmental awareness by interpreting, maintaining the ecosystem, protecting the interests of local residents" (The International Ecotourism Society, 2018).

Ecotourism, with its community-oriented and resource-based characteristics, is linked to agri- and community-based tourism, and it is a key solution to sustainable development.

For More Information:

The definition of ecotourism and a vision for Georgia have been elaborated by a group of experts, who developed an Ecotourism Market Potential Analysis of Georgia (Khartishvili and Baumgartner, 2020)*. This document will be used as the basis for the preparation of an ecotourism development strategy and action plan 2020-2030 in line with the Georgian National tourism Strategy 2030, as well as the vision and strategies of Ecotourism development for Protected Areas and National Forestry Agencies.

Ecotourism definition for Georgia

Ecotourism is a bundle of well-managed, socially and ecologically responsible travel, non-motorized activities and services with low environmental impact, offering experience and interpretation of local nature and cultures. It promotes an understanding of nature among travellers, but also generates appreciation among the local people for their own natural and cultural values. It thus contributes to the preservation of nature as well as the sustainable use of ecosystem services and supports a high quality of life for the local population.

Ecotourism vision for Georgia

Georgia, with its rich living culture and nature as well as high-quality services, will become a leading year-round Ecotourism destination in the Caucasus region by 2030.

Ecotourism in Georgia provides authentic experiences for tourists, significantly contributing to the tourism revenues of the country and benefitting local communities; at the same time, it sustains resources and enhances environmental awareness amongst tourists and residents.

* Ecotourism Market Potential Analysis of Georgia was developed within the framework of the Private Sector Development and Technical Vocational Education and Training South Caucasus programme, with the support of GIZ (German Corporation for International Cooperation GmbH).

Rural Tourism

There are a plethora of definitions for Rural Tourism. In the majority of definitions, Rural Tourism is seen as a rather broad umbrella concept, considering many different types of tourism based on rural accommodation or farm stays, but also in villages and small towns, where agriculture does not necessarily need to be a significant player. Rural Tourism is based on local resources, such as traditional environment and cultural heritage (both material and non-material).

The OECD (1994) describes Rural Tourism as „tourism which takes place in the countryside", and further elaborates: „Rural tourism is a complex multi-faceted activity: it is not just farm-based tourism. It includes farm-based holidays but also comprises special interest nature holidays and ecotourism, walking, climbing and riding holidays, adventure, sport and health tourism, hunting and angling, educational travel, arts, and heritage tourism, and, in some areas, ethnic tourism" (OECD, 1994, p. 9).

Agritourism

Agritourism is a form of rural tourism. It can be described as a commercial enterprise at a working farm, which offers opportunities for holidaymaking, such as "...familiarizing oneself with agricultural production, recreation in the agricultural environment, [and/or providing] help with farming tasks during the visit" (Sznajder et al., 2009, p.3). In most cases, it is strongly related to farms and agricultural events. It may also include agricultural museums, exhibitions of regional products and (farmers') markets.

For More Information:

At present, there is a wide range of regional, national, and international associations of rural and agritourism, mostly operating as non-profit organizations and assisting their members in marketing, lobbying, networking as well as training (Embacher, 2014, Khartishvili et al., 2019). The first national network of host homestays in Europe, while not focusing exclusively on rural tourism, was founded in 1955 in France (Fédération Nationale des Gîtes de France) (Chiran et al., 2016). In Austria, where there is a long tradition of farm stay holidays, individual initiatives at provincial level formed a powerful national association in 1991 - Urlaub am Bauernhof (Farmholidays Austria). This association currently unites 9,900 farm-stay hosts (8% of all farms in Austria); it represents 20% of the tourism enterprises and about 13% of all tourism bed places in Austria (Novelli et al., 2006).

Gites de france

Urlaub AM Bauernhof in Austria

Red Rooster in South tyrol, Italy

A successful example of a Rural Tourism association on regional level can be found in South Tyrol, Italy, where the brand and quality seal "Roter Hahn" (Red Rooster) has been established to create a lobby for farm holidays in South Tirol and to offer farmers sustainable financial concepts for their farms. Nowadays the association represents 1,665 farms (about 60% of all farms in South Tyrol) and accounts for 8.3% of all overnight stays in South Tyrol (Idziak et al., 2015).

European Federation of Farm and Village Tourism

European Centre of Eco and Agro Tourism

Gospodarstwa Gościnne Polish Federation of Rural Tourism

The European Federation of Rural Tourism (EuroGites), founded in 1990, represents 31 professional organizations from 28 European countries. The aim of establishing the organization was to advocate for Rural Tourism at the EU level. The European Center for Ecological and Agricultural Tourism (ECEAT), founded in 1992, focuses on holidays on organic farms.

Solidarity and responsible tourism

As defined by the International Forum for solidarity tourism in Marseille, France in 2003, solidarity tourism is a social movement to keep tourism under control in tourism destinations for the benefit of local communities. While all stakeholders are meant to act responsibly, solidarity tourism establishes a dialogue and a relationship of mutual help between the tourists and the hosts. From a consumer's perspective,

solidarity tourists have a bigger purpose than simply visiting a destination. Responsible tourists' behaviour is complex, dynamic and multi-faceted (Stanford, 2008). They look for holiday destinations offering more interaction with local communities and are committed to interacting with them as well as with the local environment responsibly and sustainably; moreover, they often adopt less consumptive lifestyles (Miller, 2003). The purchase decisions of these consumers have some ethical bases and are grounded in altruistic motivations.

Community-based tourism (CBT) - a development approach rather than a form of tourism

A community-based approach to tourism, which has widely spread since the 1970s (Novelli et al., 2017), became an integral part of rural and tourism development strategies in the Global South (Lane and Kastenholz, 2015) . Compared to other alternative forms of tourism such as rural, eco-, agri-, or nature-based tourism, community-based tourism is not a tourism type, but a practice aimed at nature conservation and the improvement of livelihoods in communities through a decision-making process. It is seen as a tool for developing strong communities that contribute to social cohesion and participatory governance at the local level.

CBT, with its approach to tourism development, is a response to top-down planning (Novelli et al., 2017). CBT is considered a process that encourages empowerment of local communities - inclusion, self-reliance, and social learning (Goodwin and Santilli, 2009). CBT is described by Saarin as "managed and owned by the community, for the community, to enable visitors to increase their awareness and learn about the community and local ways of life (Suansri, 2003).

Community-driven tourism planning is particularly in tune with the rural and mountain contexts in both developed and developing countries, where community participation is a way of integrating tourism with other activities, producing more individual products (Murphy, 1985). CBT is context based. South Caucasus CBT can be described as a community development practice for non-urban and remote mountain villages. It is a joint effort of a group of people living in a certain geographical area, where local culture, environment, and hospitality are the main advantages. It focuses on the benefits for the local people, capacity building as well as empowerment and should constitute a core component of tourism activities in rural mountain regions.

For More Information:

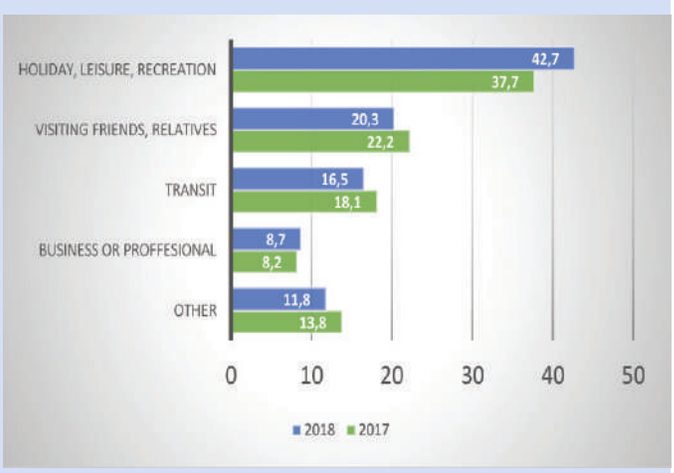
Tourism in Georgia – prevalence of nature tourism

Over the last decades, tourism has become one of the leading industries in Georgia in terms of generating income and compensating the country's trade deficit. It has become an integral part of a wide range of government organizations and their strategic documents for its potential to revitalize and diversify rural and particularly mountain areas, where unemployment, lack of economic infrastructure and high migration remain major challenges.

The country with a 3,7 million population, received up to 5 million international travellers in 2018 and 2019 (GNTA, 2019), and the growth of international tourism is high. In the last 10 years, the number of international traveller trips increased by almost 3 times (Municipal Development Fund of Georgia and GNTA, 2018).

In terms of more nature-oriented pursuits, according to the 2018 Georgian National Tourism Administration (GNTA) survey, out of all tourism stays, 42.7% were nature-based trips (Figure 1.3). This figure also includes a segment of outdoor adventurers that come to Georgia for holidays, to the Black Sea or winter ski resorts (Ministry of Economy and Sustainable Development and GNTA, 2015). This trend is aligned with the growing worldwide tourist interest in visiting pristine environments and national parks.

Figure 1.3 Main purpose of travel to Georgia in 2017 and 2018



Source: GNTA, (2018, 2019)

The rural-, eco- and agritourism potentials are extremely important for the socio-political development of Georgia and are among the most

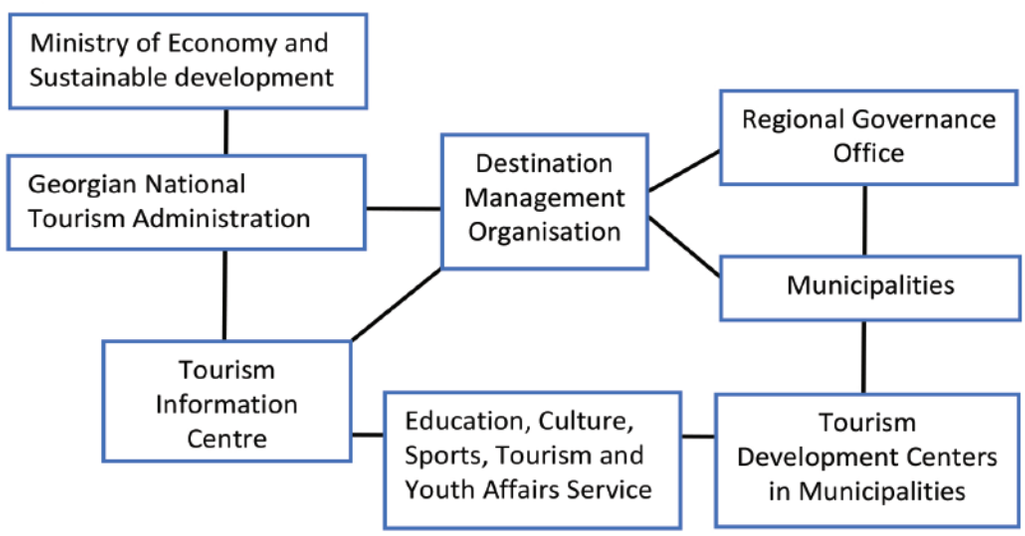
important prerequisites for improving the economic situation of the country's population (including the population of urban areas). However, tourism also poses a threat to local villages and Protected Areas due to several possible negative effects. Thus, it requires comprehensive systems thinking and a systemic development approach, which equally focus on different sub-systems under the three main pillars of sustainable development - environmental, socio-cultural and economic.

Tourism management structures on central, regional and local levels - example from Georgia*

The Georgian National Tourism Administration (GNTA) manages the tourism sector at the national level, while there are five Destination Management Organizations (DMOs) and 17 Tourism Information Centres (TIC) at the regional and local levels. DMOs are a new model of regional management of tourism in Georgia, which was established recently (in 2019) in cooperation with international aid projects, regional governments and the GNTA. DMOs' funding members are local municipalities (except for the new DMO entity in Mestia, which consists of representatives from both public and private sectors), but the advisory boards consist of representatives from both public and private businesses and non-governmental organizations (NGOs).

Figure 1.4 shows a model of tourism management in Georgia, where DMOs have a central role in the decentralization of tourism management systems and in the marketing of tourism destinations. The DMO serves to facilitate multifaceted dialogues in which tourism industry, local government representatives and community leaders plan future tourism development together to effectively manage destinations, attract fresh investments and foster job creation.

Figure 1.4 Tourism management model.



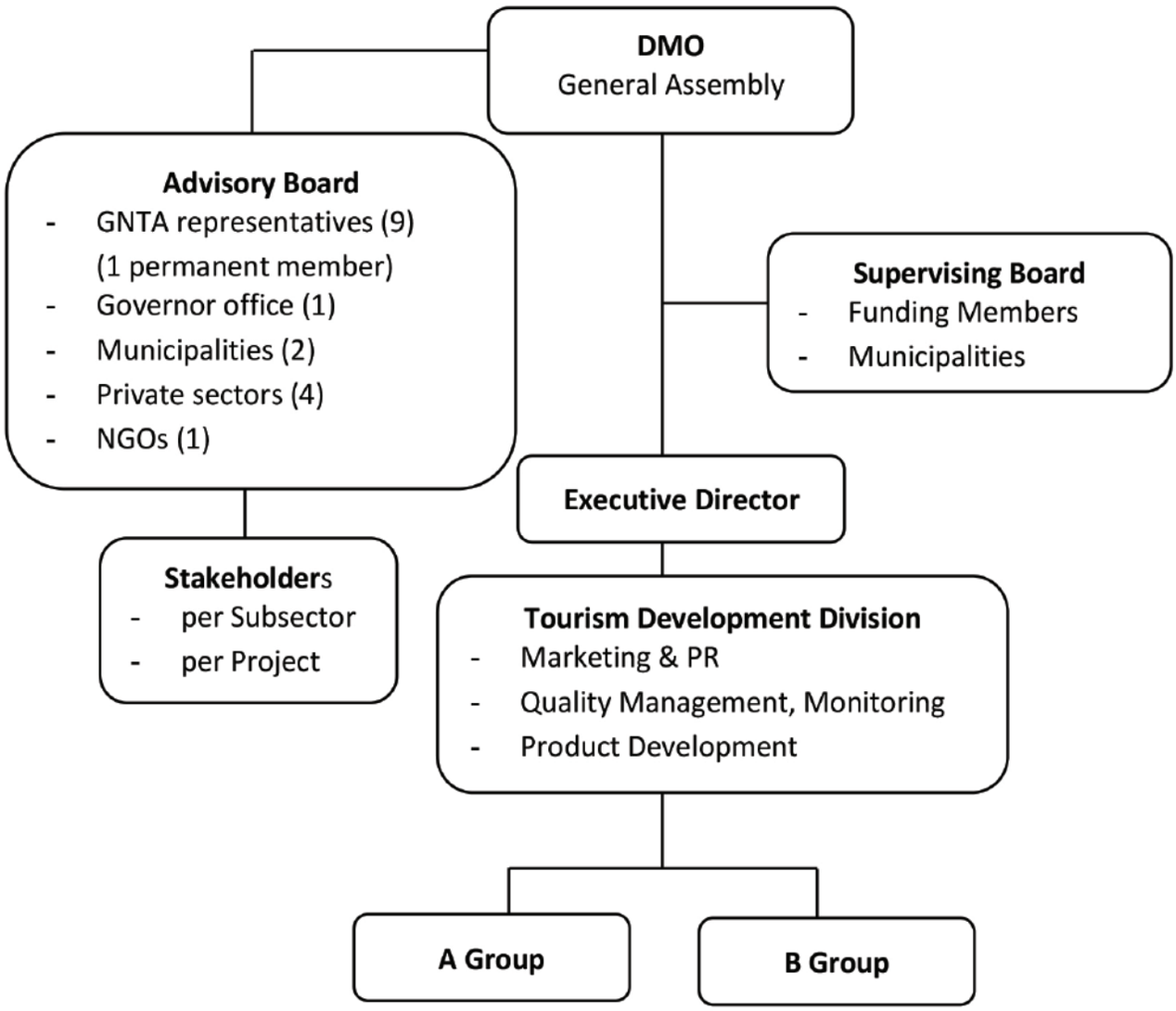
Source: L.Khartishvili

Currently, there are four DMOs established in Georgia, such as in the Imereti and Samegrelo Upper Svaneti regions. Their goals and objectives according to the bylaws are:

1. To develop unique tourism products and services in the regions, based on the sustainable development principles
2. To promote the tourism in the regions by organizing and supporting different activities with close cooperation and involvement of public and private sectors
3. To support the regions' promotion both in Georgia and abroad
4. To develop and implement the tourism strategy in accordance with the sustainable development principles and the National Tourism Development Strategy
5. Contribute to the development process of improving the service quality of the businesses in the regions
6. Ensure to increase the length of visits and visitor expenditures in the regions

** information in this section is based on Khartishvili and Baumgartner (2020).*

Figure 1.5 Destination Management Organizations (DMO) Structure



Source: Georgian Ecotourism Association's tourism market baseline study for the project GRETA (Green Economy: Sustainable Mountain Tourism and Organic Agriculture), funded by the Austrian Development Agency and Swedish International Development Cooperation Agency. The project supports the creation of new opportunities and the increase in beneficiaries' income in the mountain tourism and organic agriculture sectors, with actions to support the Government of Georgia's legal and policy frameworks and to help Georgian SMEs professionalise and scale up.

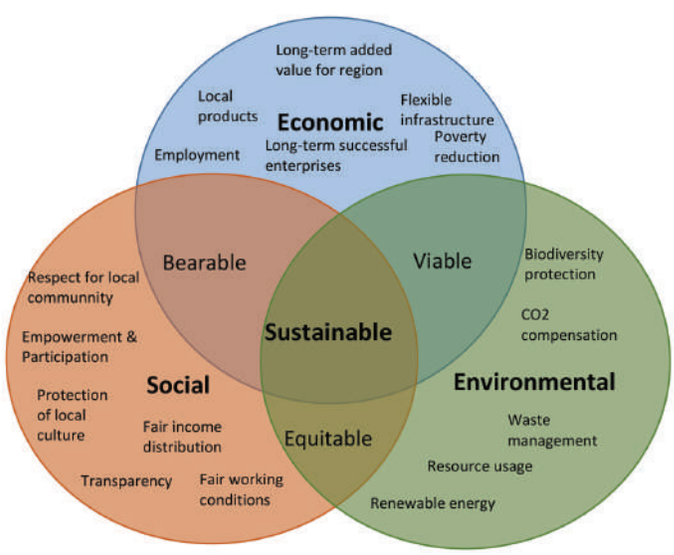
Suggested Teaching Exercises:

Topic: **Sustainability**

Exercise name: Dimensions of sustainable tourism development*

***The exercise is based on materials provided by Christian Baumgartner**

Instructions: Divide students into smaller groups and let them think of examples for the different sustainable tourism development dimensions. Groups can compare answers and add to the ones mentioned before. They should keep in mind the three aspects of sustainability during this exercise. Here are some answer examples:



Environmental dimension: Unspoiled natural areas and landscapes, as well as environmental management in companies.

- Energy supply (renewables) and energy efficiency
- Water and waste
- Room cleaning
- Environmental-management-systems
- Ecolabels, ISO 9001, 14001
- Mobility – travel to and within the destination
- Activities (e.g. no off-road)

Economic Dimension: Tourism should be embedded in a sustainable, regionally-specific, networking economy.

- Regional products
- Regional services – handicrafts, furniture, ...
- Regional staff members

Cultural dimension: Holiday regions are characterized by a self-determined cultural dynamic

- Sound architecture
- Access to authentic culture
- Avoidance of fake or staged cultural attractions
- Respect for local culture and traditions
- Avoidance of "disneyfication", trivializing and dumbing-down of culture

Social dimension: Quality in tourism is created by informed participation, satisfactory working conditions, accessibility and the satisfaction of persons with special needs

- Participation of all stakeholders / inhabitants in decision making processes
- Contacts and exchange between tourists and inhabitants within social carrying capacities
- Accessibility for persons with special needs (guests)
- Inclusion of persons with special needs (staff)
- Good working conditions
- Gender equality

Political dimension: Policies on all levels and tourism source areas have shared responsibility for the destinations

- Sustainable Tourism Strategies and Laws
- Subsidies and Taxes
- Sound policy mix: agriculture, spatial planning, transport, education, finances, ...
- International cooperation

Learning Outcomes:

- understanding the different parts constituting sustainable development
- coming up with solutions or tools to enhance sustainable tourism
- creating a solid knowledge base to build on
- see the importance of every dimension for sustainable development

Topic: Tourism Development

Exercise name: Challenges and opvfor tourism development in your country

Instructions: Divide students into 4-5 smaller groups based on their interests in the specific topic. Groups should be equipped with a laptop/computer (with access to the internet), flipchart, markers and other didactic material which could be useful for presentation of the results.

Task: using the example of Georgia try to present/analyse the current situation with tourism and development prospects in your country's case.
Some conditional topics and guiding questions are presented below. They could be improvised based on the country's specificities and the format of teaching (seminar, class-work, field studies etc.).

Methodology/skills: Students should be familiar with at least 2 of the following methods: resource analysis and mapping; stakeholder mapping; SWOT and Factor analysis. (The exercise could also be aimed at teaching the mentioned methods).

Examples of the main topics of the working groups and guiding questions:

1. The main tourist groups
   - What is the main attractiveness of your country?
   - What is the purpose of visiting your country?
   - Which parts of the world do the tourists visiting your country come from?
   - How long do they stay and what are the main activities they pursue?

2. Positive and negative impacts of tourism
   - What is the positive influence/impact of tourism (e.g. economic, social, etc.)?
   - What is the negative influence/impact of tourism (e.g. environmental, cultural etc.)?
   - Try to make a comparative analysis

3. Organization/model of the tourism industry
   - Who are the main actors?
   - What are the existing systems of management (or how does the tourism management system function/operate)?
   - What is the level of citizen participation in tourism planning and management (at national and local levels)?
   - What are the main gaps in the integrative management process?

4. What could you do/change to make it better?
   - Which kind of changes are needed on the national level?
   - Which kind of changes are needed on the local level?
   - Can the participatory approach be efficiently linked to tourism governance and management? If so, how?

Learning Outcomes:

- Identifying the place/role of your country in the world tourism map: who visits your country and why
- Finding out the positive and negative impacts of tourism on your country
- Exploring challenges and opportunities of tourism governance
- Coming up with possible solutions for sustainable tourism development
- Learning or improving methods such as: resource analysis and mapping, stakeholder mapping, SWOT and Factor analysis

2 EDUCATION FOR SUSTAINABLE DEVELOPMENT AND THE ROLE OF HIGHER EDUCATIONAL INSTITUTIONS IN SOCIETY

Gearing societal transformations towards sustainable development requires a far-reaching change of consciousness in individuals. Education is one of the key factors in facilitating this change (Rieckmann, 2012) – a notion recognized on the global level as part of Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) in 1992 (UN, 1992);

The Education for Sustainable Development (ESD) paradigm aims to transform education, equipping people today and in the future with ways to meet their needs via harmonizing economic, social, cultural, and environmental dimensions of sustainable development (UNESCO, 2019a). ESD addresses transformation both on the individual and societal levels, in order to facilitate a holistic societal transition towards sustainable livelihoods. At the same time, it aims to link the global sustainable development agenda and its informational resources to improving educational practice, both with respect to formal and informal education (Kioupi and Voulvoulis, 2019, Barth, 2016).

The essential characteristics of ESD include:

- A holistic approach - seeking integrative thinking and practice,
- Envisioning change - exploring alternative futures, learning from the past and inspiring engagement in the present,
- Achieving transformation - changing the ways people learn and systems that support learning (UNECE, 2012, p.13).

UNESCO is the lead UN agency tasked with the elaboration and implementation of ESD and offers multiple resources to support its integration at the national and international levels. In 2019, a new global framework 'Education for Sustainable Development: Towards achieving the SDGs' or 'ESD for 2030' has been adopted at the 40th session of UNESCO General Conference, as a follow up on the Global Action Programme (GAP) on ESD, which lasted from 2015 to 2019 and aimed to generate and scale-up ESD, accelerating progress towards sustainable development (UNESCO, 2019b).

The United Nations Economic Commission for Europe (UNECE) launched an ESD initiative in 2003 and developed a regional Strategy on ESD, in order to support and encourage member countries to integrate ESD into their education systems.

Suggestions:

- Contact your national or regional UNESCO office to see which ESD-related resources they may have available
- Find out who are your country's representatives in the United Nations Economic Commission for Europe (UNECE) and contact them to ask about the latest developments
- Check out the SDGs' Target 4.7 on education, which addresses ESD and related approaches such as Global Citizenship Education.

Useful Links:

York University, UNESCO Chair in Reorienting Education towards Sustainability, provides an overview of ESD-related history:
https://unescochair.info.yorku.ca/history-of-esd/
UNESCO pages on ESD and the Global Citizenship Education:

https://en.unesco.org/themes/education-sustainable-development
https://en.unesco.org/themes/gced
The ESD for 2030 framework in the official UN Languages can be found here:
https://unesdoc.unesco.org/ark:/48223/pf0000370215.locale=en

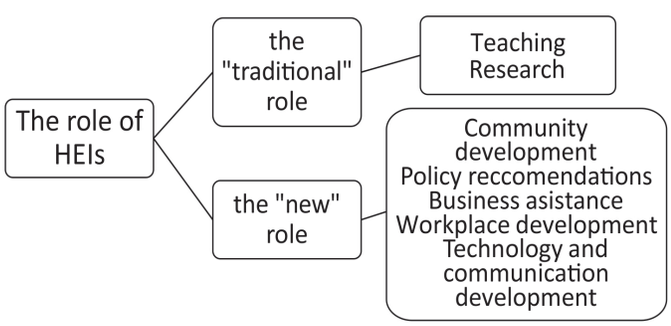
The Role of Higher Educational Institutions* in society

"What the railroads did for the second half of the last century and the automobile for the first half of this century may be done for the second half of this century by the knowledge industry"
Kerr (2001)

**** We refer to Higher Educational Institutions as an umbrella term, encompassing many types of academic institutions, including universities, colleges, etc. (although in some countries, as in Armenia, a college is classified as a vocational educational institution, and HEIs include only universities and the institutes of the academy of sciences). We use the word University interchangeably with HEI, aiming to refer to a broad spectrum of HEIs and not to restrict it to a single type.***

The traditional role of HEIs is to create and provide scientific knowledge to support societal development processes. However, within the past years, many HEIs have been rethinking and transforming their roles. Along with their "traditional" functions, such as teaching and research, universities are becoming more involved in social, economic, cultural and community development activities. Today, universities have an impact on economic growth, government funding and the job market. In some regions HEI are the largest employers of the area (Breznitz and Feldman, 2012). Figure 2.1 shows the old and new roles of HEIs.

Figure 2.1 The role of Univerisities: old and new
Source: Adapted from Breznitz and Feldman (2012),



Etzkowitz and Leydesdorff (2000), Peer and Stoeglehner (2013).

Many definitions and different terms regarding the role of university can be found in scientific literature: Triple Helix University (Etzkowitz and Leydesdorff, 2000), Entrepreneurial university (Clark, 2001), Engaged university (Breznitz and Feldman, 2012), etc.

University Social Responsibility (USR) is an umbrella term to describe the way that universities contribute to societal development via teaching and research activities (Larrán Jorge and Andrades Peña, 2017). The concept of USR originated in Latin America and became an important paradigm for many universities around the world; it has been integrated into the university policies and practices in different ways.

For More Information:

Manchester University is a good example with respect to integrating University Social Responsibility. Social responsibility, along with high quality research and education, is one of the three main strategic goals of the university (The University of Manchester's strategic plan, 2020). The strategy includes:

1. Research with impact: addressing the challenges of the 21st century,
2. Socially responsible graduates: students and graduates are able to understand problems relating to equality and diversity, sustainability, ethics and social justice,
3. Engaging our communities: to organize activities for the benefit of our communities,
4. Responsible processes: balancing efficiency with opportunities to create social and environmental benefit,
5. Environmental sustainability: guiding research and teaching activities towards environmental sustainability

Science for Transformation

In response to sustainability challenges, as well as to questions about how power relations influence knowledge production, many HEIs are also reconsidering their roles as centers for innovation and knowledge creation. A new field of Sustainability Sciences has emerged (Mochizuki and Yarime, 2015; Abson et al., 2017), employing transdisciplinary methods of research and teaching (the transdisciplinary approach is introduced later in this chapter) aimed not only at crossing disciplinary boundaries, but also at looking beyond academic expertise and cooperating with practical experts, policy makers and lay public (Lang et al., 2012; Pohl et al., 2017).

The scientific community is envisioned as an active facilitator of and contributor to transformation processes (Schneidewind et al., 2016). Stronger collaboration between science, the general public, non-academic experts and policy-makers does not only serve to produce more socially robust knowledge, but can also facilitate integration of this knowledge into practical application and decision-making, as well as support their implementation, enhancing transformative potential of research and teaching (Pohl et al., 2010; Enengel et al., 2012; Lang et al., 2012; Peer and Stoeglehner, 2013).

Universities are positioned as key actors in leading towards societal transformation in the context of sustainable development (Larrán and Andrades, 2017). Moreover, via stronger engagement in addressing real-life challenges, applying complex systems approaches, as well as participatory research and teaching (described later in the manual), they can contribute to the empowerment of "individuals and local communities through their direct involvement in the research process" (Buffel et al., 2017, Rieckmann, 2012).

One way to foster societal role of universities is including societal issues in higher education curricula, teaching and research activities (Larrán and Andrades, 2017; Tassone et al., 2018). This process is unique for every university depending on the environment and social-economic processes of the country where they are located. As highlighted by Stephens et al. (2008), in order to assess the potential for and limitations of higher education as a "change agent", the following topics should be considered:

- sustainability challenges of the region;
- financing structure and independence;
- institutional organization;
- extent of democratic processes;
- communication and interaction with society

Key competencies for sustainable development

In order to enable the contribution of their teachers, students and graduates in addressing sustainable development challenges, HEIs should consider which specific competencies are critically important for this purpose.

The term "Competency" is associated with skills, abilities, qualifications, etc. We suggest the following comprehensive definition, compiled by Brundiers et al. (2020):

A cluster of specific and interrelated individual dispositions comprising knowledge, skills, motives, and attitudes, i.e., combining cognitive, effective, volitional and motivational elements. Competency facilitates self-organized action, a pre-condition to achieve successful performance and a positive outcome in various complex situations, responding to the specific situation and context. While competencies might be context-dependent, key competencies ought to be applicable across different contexts (Brundiers et al., 2020, p.5).

Sustainability competencies can be defined as "complexes of knowledge, skills, and attitudes that enable successful task performance and problem solving with respect to real-world sustainability problems, challenges, and opportunities" (Wiek et al. 2016).

While scholarly literature provides different criteria for sustainability competencies, a framework of key competencies in sustainability has been proposed by Wiek et al. (2011) and was recently updated based on a study involving international experts in the field (Brundiers et al., 2020). These competences are considered to be a necessary addition to the basic academic competencies (such as critical thinking, communication, research, data management, problem-solving and self-regulated learning) in educational programs focused on sustainable development (Wiek et al., 2011, Brundiers et al., 2020).

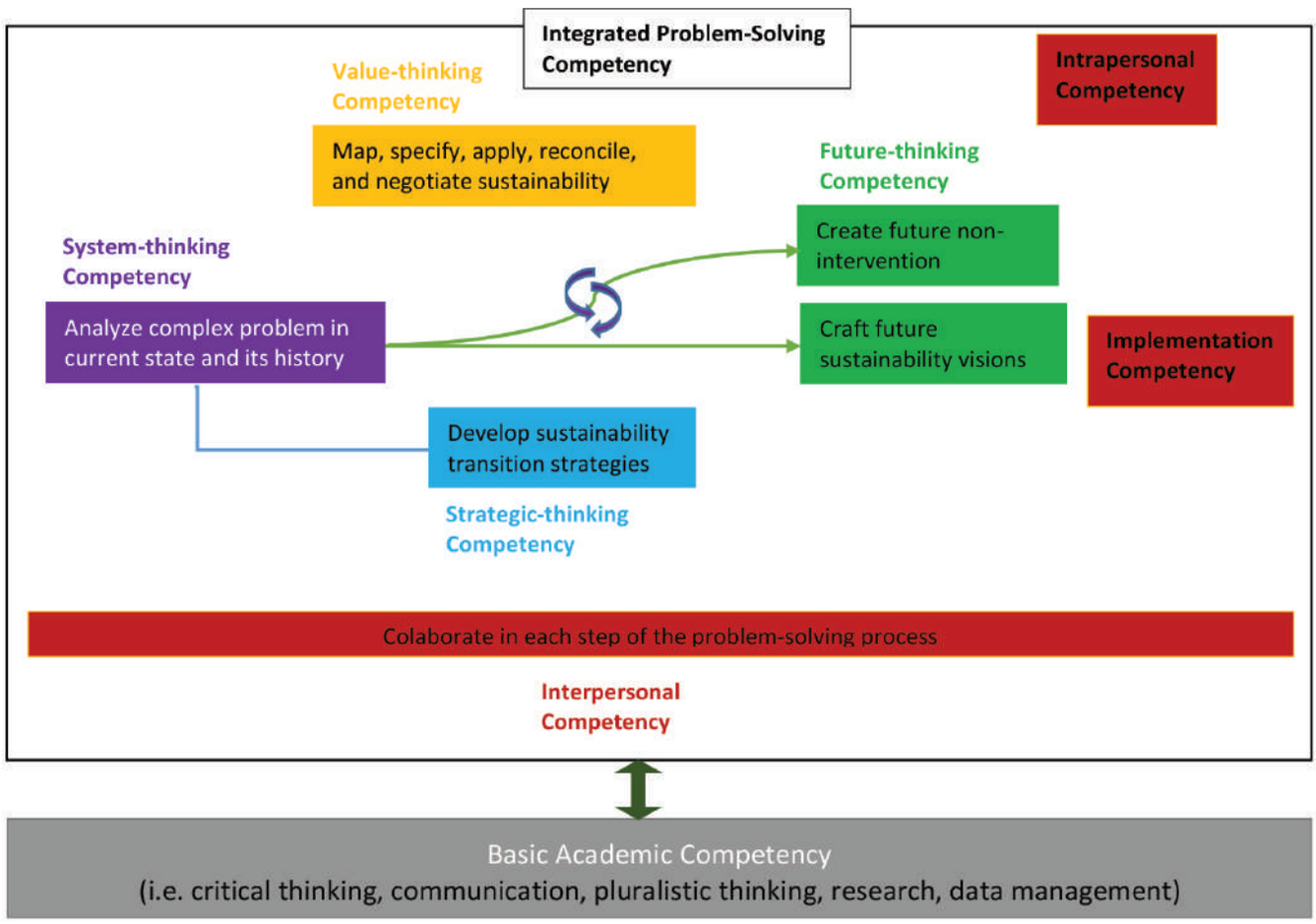
Table 2.1 contains a description of each competency provided by Brundiers et al. (2020). Figure 2.2. illustrates their relationship with each other and links them with the basic academic competencies.

Table 2.1 Descriptions of key sustainability competencies.

Competency	Description
Systems thinking competency	"ability to collectively analyze complex systems across different domains (society, environment, economy) and different scales (from local to global), while considering cascading effects, inertia, feedback loops, and other systemic features…" (Wiek et al., 2011, p. 207)
Futures thinking (or anticipatory) competency	"ability to collectively analyze, evaluate and craft rich "pictures" [or scenarios] of the future related to sustainability issues and sustainability problem-solving frameworks" (Wiek et al., 2011, p. 208-209)
Values thinking (or normative) competency	"ability to collectively map, specify, apply, reconcile, and negotiate sustainability values, principles, goals, and targets" (Wiek et al., 2011, p. 209)
Strategic thinking (or action-oriented) competency	"ability to collectively design and implement interventions, transitions, and transformative governance strategies towards sustainability" (Wiek et al., 2011, p. 210)
Collaborative (or interpersonal) competency	"ability to motivate, enable, and facilitate collaborative and participatory sustainability research and problem-solving" (Wiek et al., 2011, p. 211)
Integrated problem-solving competency	ability to: • "select and apply different problem-solving frameworks to complex sustainability problems and develop viable solution options" (Wiek et al., 2016, p. 251), • "differentiate among and connect with different disciplines and professional communities" (Brundiers et al., 2020); • meaningfully use and integrate the other sustainability competencies "for solving sustainability problems and fostering sustainable development" (Wiek et al., 2016, p. 243).
Implementation (or action) competency	"The collective ability to realize a planned solution toward a sustainability-informed vision, to monitor and evaluate the realization process, and to address emerging challenges, recognizing that sustainability problem-solving is a long-term, iterative process between planning, realization, and evaluation" (Brundiers et al., 2020, p.9).
Intrapersonal (or self-awareness) competency	"The ability to reflect on one's own role in the local community and (global) society; to continually evaluate and further motivate one's actions, and to deal with one's feelings and desires" (UNESCO, 2017, in Brundiers et al., 2020)

Source: Adapted from Brundiers et al. (2020, p.4).

Figure 2.2 Key competences in sustainable development and basic academic competency



Source: Illustration based on the figures provided by Brundiers et al. (2020).

Recommended Materials:

We recommend the following papers for more information about the frameworks of key sustainability competencies and learning outcomes:

Wiek, A., Withycombe, L., Redman, C.L., 2011. Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science* 6 (2), pp. 203–218. https://doi.org/10.1007/s11625-011-0132-6
- Provide the original reference framework of key competences in sustainability.

Wiek, A., Barth, M., Michelsen, G., Rieckmann, M., Thomas, et al., 2016. Operationalising competencies in higher education for sustainable development. Handbook of Higher *Education for Sustainable Development;* I., Eds, pp. 241-260
- Propose learning objectives for each of the key competences in the original reference framework, for three different levels: Novice, Intermediate and Advanced levels.

Brundiers, K. et al., 2020. Key competencies in sustainability in higher education—toward an agreed-upon reference framework. *Sustainability Science.* https://doi.org/10.1007/s11625-020-00838-2
- Present the updated framework of key sustainability competences, provide definitions of key terms in the literature on sustainability competences, and suggest respective learning objectives

While the above competences are considered key for sustainability and are focused on what students should learn in order to understand and contribute to sustainability transformations, efforts to identify key competences for Education for Sustainable Development have also been made - targeting educators and suggesting what knowledge and skills they should have in order to practice ESD.

The United Nations Economic Commission for Europe (UNECE) proposed ESD competences based on both the UNESCO ESD competences and European Union recommended competences for lifelong learning. The

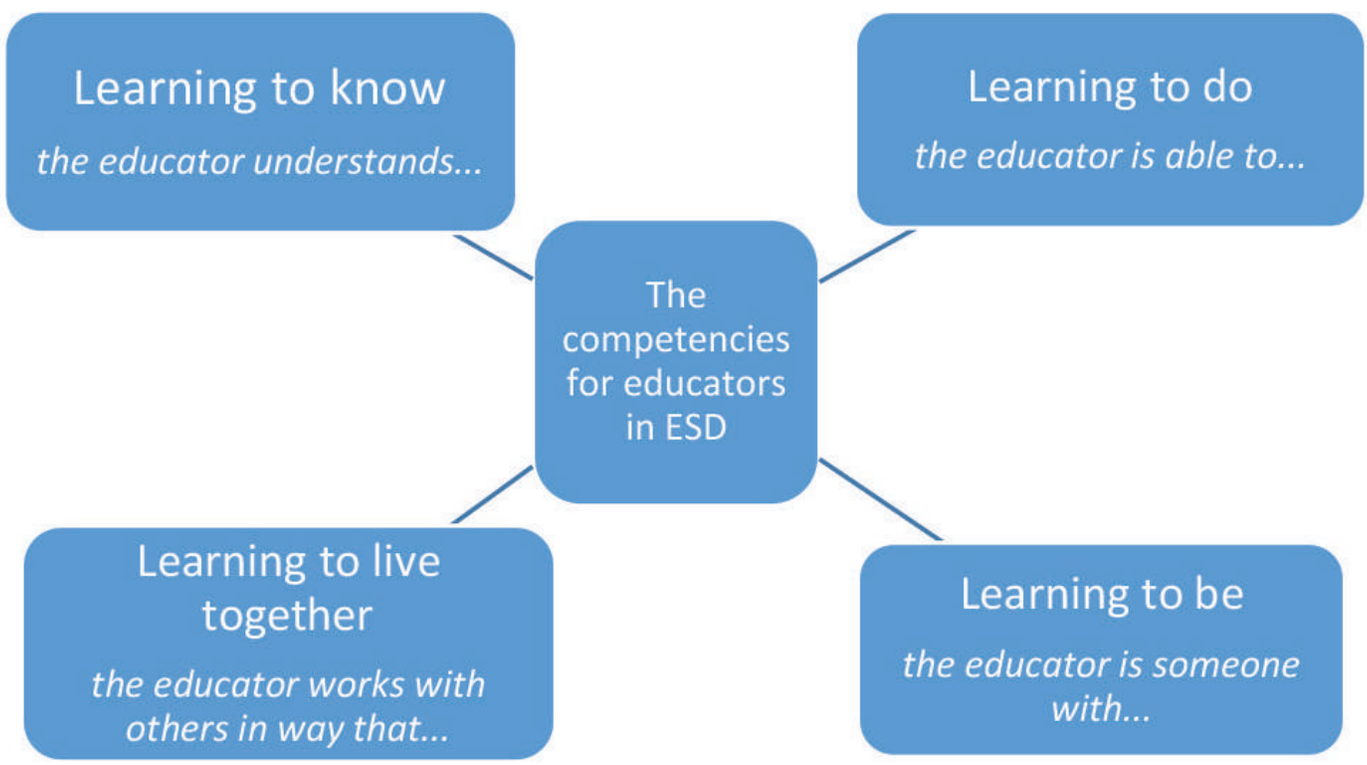
framework is based on the four categories, explained below and visualized in Figure 2.3:

- Learning to know refers to understanding the challenges faced by society both locally and globally as well as the potential role of educators and learners (The educator understands....); Learning to do refers to developing practical skills and action competences in relation to education for sustainable development (The educator is able to....);
- Learning to live together contributes to the development of partnerships and an appreciation of interdependence, pluralism, mutual understanding and peace (The educator works with others in ways that....);
- Learning to be addresses the development of one's personal attributes and ability to act with greater autonomy, judgement and personal responsibility in relation to sustainable development (The educator is someone who....).

In each category, competences are proposed with respect to essential characteristics of ESD (as described in the beginning of this chapter), which are strongly linked to sustainability competences listed above:

- A holistic approach... (i.e. systems thinking),
- Envisioning change, which explores alternative futures... (i.e. futures thinking)
- Achieving transformation... (strategic thinking/ action – oriented).

Figure 2.3 Four Categories of ESD Competences for educators.



Source: Own graphic based on UNECE (2012, p. 14-15).

An international group of ESD experts worked to support integration of these ESD competences into teaching practice and policy; they have come up with a more condensed list of competences (Table 2.2), elaborating learning outcomes for the students as well as educator competences with respect to each one of them (Vare et al., 2018, RSP, 2019). The full table can be found in Annex 2.

Table 2.2 Educator competences in Education for Sustainable Development

Thinking Holistically	***Envisioning Change***	***Achieving Transformation***
Integration:		
Systems *The educator helps learners develop an understanding of the world as an interconnected whole and look for connections across our social and natural environments, considering the consequences of actions.*	***Futures*** *The educator helps learners explore alternative possibilities for the future and use them to consider how behaviours might need to change.*	***Participation*** *The educator helps learners contribute to changes that will support sustainable development.*
Involvement:		
Attentiveness *The educator helps learners understand fundamentally unsustainable aspects of our society and the way it is developing, increasing their awareness of the urgent need for change.*	***Empathy*** *The educator helps learners develop their self-awareness as well as their awareness of others.*	***Values*** *The educator develops an awareness among learners of how beliefs and values underpin actions and how values need to be negotiated and reconciled.*
Practice:		
Transdisciplinarity *The educator helps learners act collaboratively both within and outside of their disciplines, roles, perspectives and values.*	***Creativity*** *The educator encourages creative thinking and flexibility within their learners.*	***Action*** *The educator helps learners take action in a proactive and considered manner.*
Reflection:		
Criticality *The educator helps learners to critically evaluate the relevance and reliability of assertions, sources, models and theories.*	***Responsibility*** *The educator helps learners act transparently and accept personal responsibility for their work.*	***Decisiveness*** *The educator helps learners act in a cautious and timely manner, even in situations of uncertainty.*

Source: The project: A Rounder Sense of Purpose: Educational Competences for Sustainable Development. RSP 2019. Reproduced with the authors' permissions.

Useful Links:

Download the UNECE 2012 publication, containing the graphic with all ESD competences, here: https://www.unece.org/fileadmin/DAM/env/esd/ESD_Publications/Competences_Publication.pdf

More information and resources on the ESD competencies for educators are available on the website of the project A Rounder Sense of Purpose: https://aroundersenseofpurpose.eu/framework/themodel/

Transdisciplinarity – an approach enabling universities to assume a stronger role in societal transformations

As already demonstrated in the chapters above, addressing complex sustainability challenges requires a set of competences that reaches far beyond any single discipline and requires contribution from types of knowledge beyond academic fields. Transdisciplinary (TD) research and teaching offer educational institutions tools for developing key competences, integrating and co-creating societally-relevant knowledge with non-academic experts and actors.

The concept of transdisciplinarity emerged in the 20th century in order to strengthen the societal role of academia (Hirsch et al., 2008) and enable researchers to tackle societal problems in a more systemic way in cooperation with people outside of academia (Klein et al., 2001, Max-Neef, 2005). Today TD is considered an important pathway for the implementation of the UN Sustainability Goals (Gratzer et al., 2019). The theoretical and conceptual backgrounds of TD have been integrated into various activities of educational and research institutions, especially in sustainability, social and environmental sciences (Lang et al., 2012; Enengel et al., 2012; Steelman et al., 2015; Merck and Beermann, 2015; Gibbs, 2017).

The main features of transdisciplinarity include:

- grasping the complexity of problems
- taking into account the diversity of life-world and scientific perceptions of problems
- linking abstract and case specific knowledge
- constituting knowledge and practices that promote what is perceived to be the common good (Pohl and Hirsch, 2007).

Its conceptualization of knowledge, focus on systems thinking and addressing societally relevant challenges via integration of scientific and experiential knowledge throughout the research process, starting from joint identification of the problem to be addressed, distinguish it from multi-and interdisciplinary approaches (Figure 2.6 demonstrates the main differences in research mode and characterization). The TD research process in this case entails the following phases:

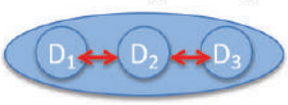
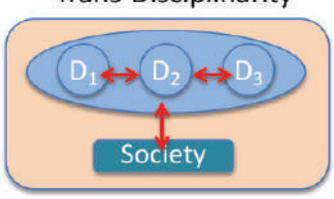
1. Problem identification and structuring;
2. Problem analysis;
3. Bringing results to fruition (Pohl and Hirsch, 2007).

Transdisciplinary research and teaching imply application of special dialogue-based methods, which are still evolving, as well as testing of the developed solutions to find out if they are functional in practice. Moreover, they imply flexibility with respect to reconsidering problem identification based on the results of the analysis or bringing results to fruition.

Useful Links:

http://www.transdisciplinarity.ch

Figure 2.4 Mono-, Multi-, Inter- and TransDisciplinarity in Sustainability Science

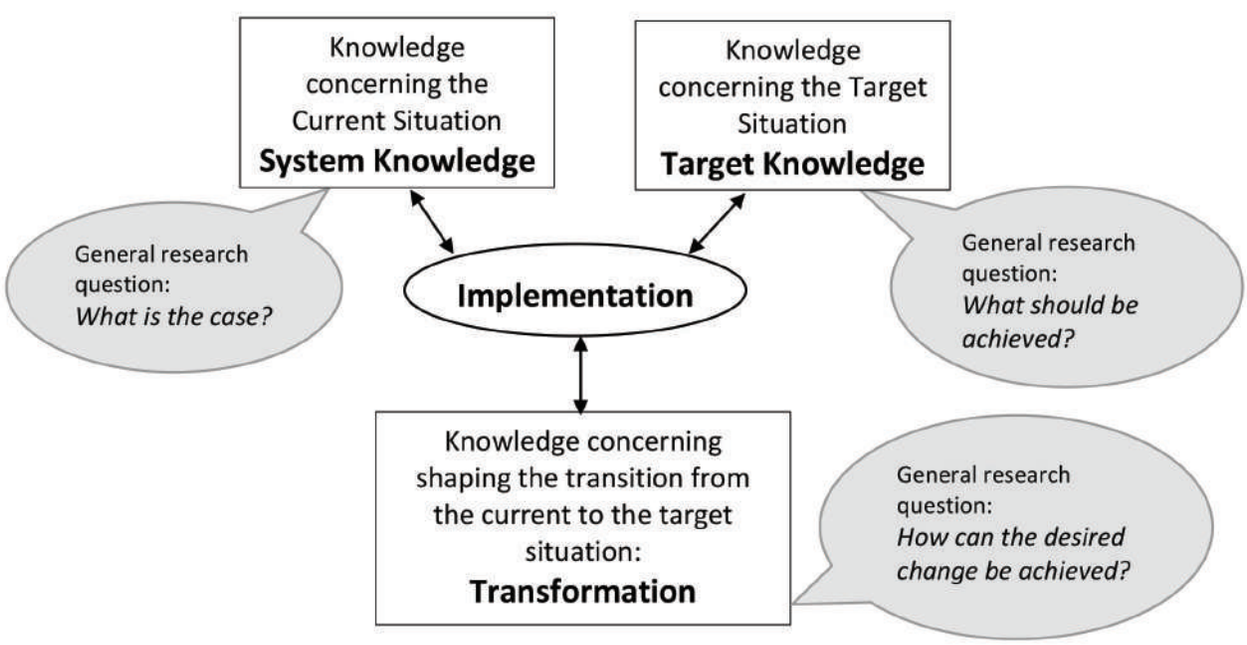
Concept	Research mode	Characterisation/Challenges
Mono-Disciplinarity 	One single discipline working on a topic	Limited set of methods, exclusion of aspects outside own perspective
Multi-Disciplinarity 	Many disciplines working next to each other on the same topic	Each discipline using own methods, exchange of results, limited final synthesis
Interdisciplinarity 	Many disciplines working together; joint problem definition and project design; „Science for Society"	Expansion of disciplinary methods, Development of new joint methods, joint synthesis
Trans-Disciplinarity 	Cooperation beyond academic boundaries; integration of scientific and experiential knowledge „Science with society"	Integration of Stakeholders, non-academic actors; development of dialogue-based methods; joint synthesis

Source: A. Muhar

Transdisciplinary approaches are based on a classification of knowledge into three interlinked knowledge types (Figure 2.5):

- Systems knowledge (questions concerning the genesis, further development and interpretation of a problem in the life-world)
- Target knowledge (questions related to determining and explaining the need for change, desired goals and better practices)
- Transformation knowledge (questions about technical, social, legal, cultural and other possible means of action aiming to transform existing practices)

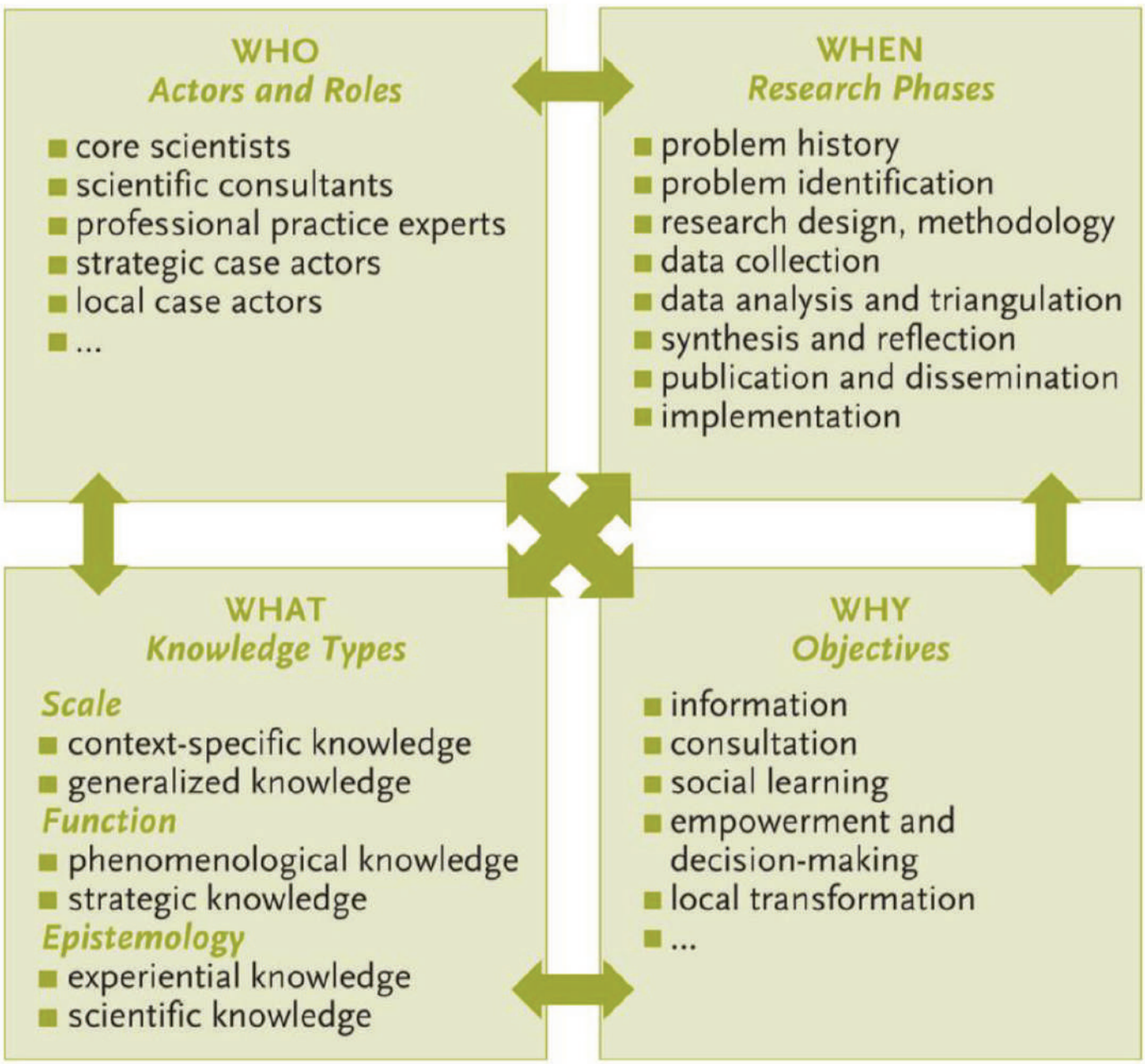
Figure 2.5 The three types of knowledge.



Source: Own illustration based on ProClim/CASS, (1997)

Figure 2.6 illustrates an analytical framework for a TR research process. It consists of the following elements: (1) typology of actors, (2) differentiation of research phases, (3) objectives and forms of actor's integration, and (4) types of knowledge (Enengel et al., 2012).

Figure 2.6 Analytical framework for describing and analysing TR research projects.



Source: Muhar and Penker (2018).

Using a transdisciplinary approach in teaching should involve the following key aspects:

1. bringing together academics (students and teachers) from different disciplines to provide expertise on different features of the problem;
2. establishing cooperation with various non-academic stakeholders, practice and case-specific experts, such as the local community, decision-makers and practitioners; For a successful outcome, it is important to engage non-academic actors at an early stage of the project design (Muhar et al., 2006).
3. developing and using a proper methodology to integrate knowledge from the above-mentioned actors for the identification of the challenges and their possible solutions (Bergmann et al. 2012, p. 23).

3 PUBLIC PARTICIPATION

Understanding public participation

A paradigm shift under the umbrella of sustainability and resilience integrates principles that support and encourage social partnership and cooperation of regional stakeholders, which creates opportunities for the growing role of regional and bottom-up involvement (participation) in socio-economic development policy. This impact is important for the developing world, where centralized decision making, lack of cross-level and cross-sectoral coordination, as well as the weakness of civil society are entrenched in political and administrative traditions; there is no capacity for community self-reliance, empowerment and the ability „to influence their lives and future" (UN, 2012). Many countries have reflected a new paradigm shift and designed policy documents, including tourism-related policy, encouraging public participation and collaboration in seeking sustainable solutions and a better balance between society and nature (Honey, 2008);

Participation is defined as "the deliberative process by which interested or affected citizens, civil society organizations, and government actors are involved in policy-making before a political decision is taken" (EIPP, 2009; Popescu, 2013). In the local development context, it is recognized as an important practice for the elaboration of bottom-up and locally applicable solutions (UN, 1992) and for ensuring integration of diverse local actors (wide participation) as well as consensus-building. Scholars stress public participation as one of the fundamental means for moving governments towards sustainable development (Saladin and van Dyke, 1998).

For More Information:

Public participation in local decision-making practices is described interchangeably with citizen involvement, community inclusion or resident involvement etc.; Community participation is described as a working process with people in the community for the benefit of the community; Community refers to a collection of people in a geographical area, which may have a social structure and a sense of community spirit or belonging.

Participation of and collaboration among a variety of actors have several goals, such as sharing power between the government and the citizens, increasing the substantive quality and legitimacy of solutions, mitigating conflicts among competing interests, co-creating knowledge, social learning (Stauffacher et al., 2008; Beierle and Cayford, 2002) and seeking multiple perspectives on a problem by involving different actors at different levels (local, regional, national and international). These are among the basic principles of a democratic society. Participation of the local stakeholders in development initiatives is recognized as an important practice for the elaboration of bottom-up and locally applicable solutions (UN, 1992). It is reflected in policy documents (e.g. UN, 2015), research publications (e.g. Berkes, 2009) and practical guidelines (e.g. Geilfus, 2008), and it has become one of the main tasks of local governments seeking reliable and future oriented partnerships at the local and regional levels. Further use of participatory approaches is contributing to the development of more interactive practices. (Moulaert, 2013; Schauppenlehner-Kloyber, 2017).

Useful Links:

Various participatory methods are described here: https://www.participatorymethods.org/page/about-participatory-methods

For More Information:

History of integrating participatory methods into rural development practices

Participatory methods constitute a well-established feature of development practice, which emerged as an alternative to mainstream (top-down and linear) approaches to development in the 1970s. One of the driving forces behind the integration of Participatory Methods into the field of international development practices was a British academic and development practitioner Robert Chambers, who argued that the poor should be taken into account when the development problem is identified, when a policy addressing the problem is formulated and when projects aimed at improving the situation are implemented. He developed the techniques of Participatory Rural Appraisal (PRA) with a strong focus on facilitation, empowerment, behaviour change, local knowledge and sustainable action (Chambers, 1994).

Until the 1980s, rural development projects implemented in developing countries involved external experts (often foreigners) temporarily working in rural areas, and followed the notion of the experts possessing the relevant knowledge while viewing the local population as incompetent. This practice is known as the Rural Rapid Assessment/Appraisal (RRA), and it has been applied during agricultural development initiatives as well as in the case of community-based activities, such as community-based nature management, community-based tourism, etc. In these projects local citizens did not participate in identification of problems or decision-making, and the planning/implementation of specific activities was undertaken 'outside' the communities (Chambers, 2004). Outsiders (experts) quickly learned from the local people about their realities and challenges and assumed a role of 'teachers', telling the locals how to approach development. This tendency can partially be observed even today, and in many cases it is the reason for inefficiency of certain community development practices.

From the 1980's, the approaches were gradually changed, and the old paradigm was replaced with a new one: the notion that the local population holds comprehensive knowledge about its community and the surroundings. Based on this local and case specific knowledge, they plan, decide, choose priorities and request support from the "outside" (Chambers, 1994). This practice has been named Participatory Rural Appraisal. It embraces reflection, learning and an understanding of power relations. Moreover, it is taken to have the same meaning as participatory learning and action (PLA). In research using PRA, practice experts have a role of catalysts and facilitators; they support the stakeholders in conducting their own appraisals and analyses, developing action plans, feeling ownership of the outcomes and sharing their local knowledge, etc. (Chambers, 2004, 2011; Cornwall, 2002). Table 3.1 compares the participatory methods described above, RRA, PRA and PLA, and presents the challenges and opportunities they pose.

Table 3.1 Comparison of Participatory Methods: RRA, PRA and PLA

	Rapid Rural Appraisal (RRA) **since 1970s, extractive**	**Participatory Rural Appraisal (PRA)** **since 1990s, participatory reflection and action (Cornwall, 2002).**	**Participatory Learning and Action (PLA)** **since mid-1990s, more than just learning**
Experts' role and function	teachers, transferors data collection and analysis; experts gain information from locals about local conditions	catalysts and facilitators encouraging citizens to do their own appraisals, analyses, action planning and own the outcome involving citizens in processes (rural or urban dwellers, women, men, children, or the elderly, members of any organization or group…), those who are marginalized, vulnerable, voiceless.	catalysts and facilitators teaching researchers, sharing their knowledge (Chambers, 1994) encouraging others to investigate, analyse, learn, plan, act, monitor and evaluate (Chambers, 2004)

Advantages	a one-off event cost-effective and rapid process of collecting data direct contact, face to face, sometimes in the field	a process, not a one-off event flexible, interactive and innovative approach nonhierarchical and collaborative practice comparing against measuring focusing on quality of engagement (Terry and Khatri, 2009); learning from and with the locals observing human and social behaviors, identifying the fundamental problems	enabling underprivileged communities to gain self-confidence and abilities and to take political action discussing individual components of a complex problem, analysing and predicting the situation based on interpretations. context-specific research which forefronts local knowledge
Disadvantages, Risks	can be biased in identifying research priorities locals are not involved in the analysing and planning processes (Cornwall and Guijt, 2004) hierarchical, often involving senior figures and mostly men	collected data is huge and needs precise digestion and analysis much depends on experts´ behavior as process facilitators, on their personal orientation and choices requires capacity and awareness at the local level	time-consuming much depends on experts´ facilitation skills, how they lead the process. The questions which are asked should be neutral. requires capacity and awareness at the local level
Methods used	methods are verbal with the outsiders being more active using: secondary sources, semi-structured interviews and observation methods - transects, walks etc.	written, oral, visual forms of data collection with local people being more active: group interactions, collective research using: local analyses of secondary sources, participatory mapping, diagramming, grounding, transect walks, matrix scoring and ranking, Venn Diagramming as well as aerial photography for the analysis of satellite imagery and GIS.	methods are interactive, educative and contribute to raising awareness and social learning using: linkage diagrams, shared presentations and analyses, contrast comparison, role plays, theatre and participatory videos, listing and card scoring

Source: compiled by L.Khartishvili

Forms and degrees of actors' participation

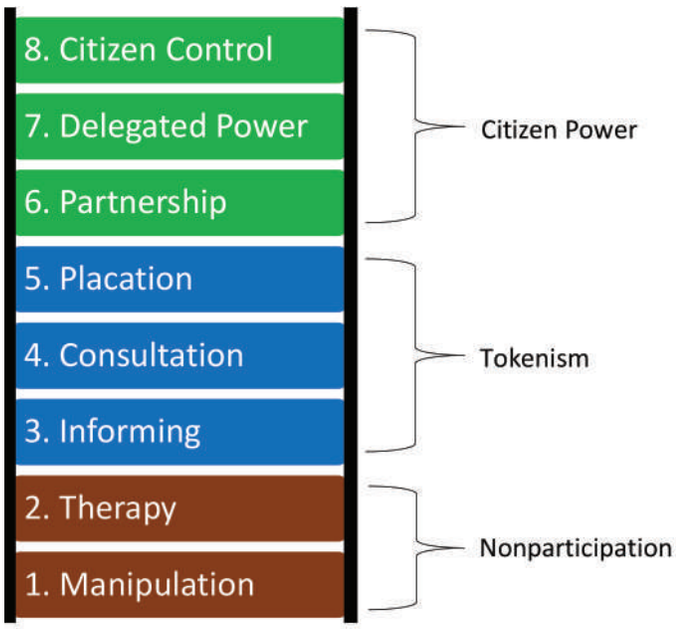
A critical part of public participation theory is the redistribution of power among different stakeholders, e.g., government, institutions, communities, and citizens. However, not all participation implies empowerment. Various degrees of participation can be distinguished, from manipulative participation to citizen power (Schauppenlehner-Kloyber, 2017).

The Ladder of Citizen Participation, as proposed by Sherry Arnstein (1969), still forms the basis for conceptualising participation and its implementation in practice to date (Schauppenlehner-Kloyber, 2017; Collins and Ison, 2009; López-Ridaura et al., 2005). Arnstein discusses the extent to which different forms of participation bring citizens to power. She describes eight levels of participation - often referred to as the 'Arnstein's Ladder', which are grouped into three categories: manipulative participation, citizen tokenism, and citizen power (Arnstein, 1969). She concludes that participation is a categorical term for citizen power, because the redistribution of power enables presently excluded citizens from the economic and political process to be included in the future — from the lowest ‚no participation level' (manipulation and therapy) to the middle 'tokenism participation level' (informing, consultation, and placation), and finally reaching the 'citizen power level' (partnership, delegated power, and citizen control).

Like any conceptual model, *Arnstein's Ladder* is a simplification illustrating the significant differences among the different degrees of citizen participation and suggesting that higher levels are preferable (Aarts and Leeuwis, 2010; Wilcox, 1994).

Figure 3.1 below illustrates the eight types of participation in a ladder pattern with each rung corresponding to the extent of citizens' power in determining the end product.

Figure 3.1 The ladder of participation



Source: reproduced from Arnstein 1969.

1. Manipulation - for instance, placing people on committees or advisory boards for the purpose of engineering their support;
2. Therapy - the assumption is that powerlessness is synonymous with mental illness. Both manipulation and therapy describe levels of non-participation that have been contrived by some substitute for genuine participation;
3. Informing citizens about their rights is important, but can place too much emphasis on one-way information flows;
4. Consultation - similarly, inviting citizens' opinions can be a legitimate step towards participation, but offers no assurances that citizens' concerns will be taken into account;
5. Placation - for instance, placing the poor on boards of public bodies;
6. Partnership - at this rung of the ladder, power is redistributed through negotiation between citizens and power holders;
7. Delegated power - when citizens achieve dominant decision-making authority over a particular plan or programme;
8. Citizens control a situation in which people demand a degree of power guaranteeing that participants can govern a programme.

For More Information:

Other ladder-like models of citizen participation, partly based on the Arnstein's Ladder, have been proposed to-date. An example below describes three degrees of formally involving actors in a research project.

Degrees of citizen participation in a research project (Breuer, 2009)

1. Information. Actors are being informed about the research project, e.g. at a public meeting or through a written report. The aim of informatively involving actors is to make plans or research decisions and results that are known and comprehensible to a wider public – which in turn has little or no opportunity of influencing the research decision in question, the research aim or output.
2. Consultation. Actors comment on proposals and contribute ideas and suggestions. The aim of consultative actor integration is to obtain actors' knowledge for and reactions to proposals, plans, decisions or research questions, so that these can be taken into account in the research process.
3. Knowledge co-production and empowerment. Actors have a say in developing, implementing and running the research project. This often means deliberate and responsible participation, where actors are empowered to be partners in the project, according to the principles of participatory social research or action research. Discourse, open debates and common decision-making processes between different actors characterize these interactions.

A limitation of such ladder-like, one-dimensional models for assessing participants' power in decision-making is that they do not take into account the diversity of participation processes and their goals (Tritter and McCallum, 2006) and exclude transformation and dynamic relationship between citizens and decision-makers (Kotus and Sowada, 2017). Such a hierarchical concept is unable to capture the complexity of the shift (transition) from the traditional government perspective (hierarchical and central steering, ‚top-down') to governance (interactive policy-making, community involvement on a common basis) toward sustainable development (Felt et al., 2015) and collaborative partnerships.

In fact, participation cannot be a linear process, as much depends on circumstances including the willingness of the participants to adjust their perceptions

and openness to a learning process (Collins and Ison, 2009). Moreover, focusing on the allocation of power typical to one-dimensional models may exclude opportunities for fruitful collaboration, meaningful learning processes as well as the exchange of experience and knowledge (Newig, 2007) — an interactive practice with an emphasis on two-way processes for finding solutions to complex problems (Stuart, 2020). The International Association of Public Participation developed the Spectrum of Public Participation or community engagement, which helps clarify the roles of the public (or community) in planning and decision making. The organization emphasizes that levels of participation such as to inform, consult, involve, collaborate, and empower can't be recognized as steps, because each level has its goals, and their appropriateness is context dependent.

Participation as an educative tool: awareness raising and social learning processes

"We cannot solve our problems with the same thinking we used when we created them"
Albert Einstein

Good participation is related to the concept of empowerment, which has recently become more common in planning, including tourism planning. However, citizens' power is not always desirable (Fung, 2003), for example, when the decision at stake affects a much broader community, or when participation is aimed at social learning rather than citizen power (e.g. climate change) (Collins and Ison, 2009).

*Social learning is recognized as a key process for sustainable development, as it contributes to the rethinking and changing of mental models and behaviours (*Senge, 2010), helping to deal with new circumstances (Lozano and Arenas, 2007; Peer and Stoeglehner, 2013). Moreover, social learning has been proposed as the highest level of participation (Collins and Ison, 2009).

Social learning takes places through social interactions in groups of actors; it occurs through collective engagement and exchange of ideas (Albert et al., 2002). The willingness of the participants to adjust their perceptions and openness to a learning process is a fundamental condition for reaching these goals.

Participation as a part of a research process: collaboration of different actors, co-creation of knowledge

Participatory approaches in research enable approaching complex societal problems collaboratively by bringing together different academic and non-academic actors, co-producing knowledge and jointly elaborating actions to address the respective challenges (Enengel et al., 2012). They are aimed at the involvement of different actors, including those who are affected by the issues addressed by the research and/or can contribute relevant knowledge to the research process. This enables researchers to understand the problem better, perceive its complex nature and co-create societally relevant solutions. Actors with diverse practical and scientific experiences and backgrounds have different interests, knowledge and take on different roles in the research process. A wide range of actors provide opportunities and learning outcomes going far beyond a traditional research project, due to social competences gained and knowledge accumulated through interacting with different groups inside and outside academia.

Stakeholders (actors) in a project can be distinguished into different types:
1) Academics and those focused on case-specific aspects of a topic;
2) Actors carrying out specific roles, proposed by Ritter et al. (2010):

1. Core scientists – the main scientist actors throughout the research project (doctoral/master students and supervisors)
2. Scientific consultants – supporting the core group in particular project phases (i.e. external academic personnel, providing specific expertise).
3. Professional practice experts – practitioners working in NGOs and public services. They are often very familiar with the practical and political aspects of the issues investigated, but not necessarily with the specific local case context.
4. Strategic case actors – practitioners involved at

the case level with a specific formal or informal responsibility (e.g. local politicians, leaders of stakeholder groups) or professional competence (e.g. regional managers); some of them might also be involved in organizing, developing, and financing a research project.

5. Local case actors – all other actors involved in the processes at the case level. They can be actors without specific thematic knowledge of the case, such as residents affected by a sustainability issue or actors with comprehensive case-specific knowledge, such as farmers or members of local conservation groups.

Contribution of knowledge by different actors in different research phases

When analysing the contribution of individual actors, the following dimensions and types of knowledge could be helpful (Table 3.2)

Table 3.2 Three dimensions and types of knowledge.

Scale dimensions:	*Context-specific knowledge* refers to the concrete setting of the individual case. When it comes to landscape development projects, this usually means spatially localised knowledge. This knowledge can be very detailed, both in terms of spatial and temporal resolutions and is usually masked by "data noise": i.e. context specific conditions, local phenomena which are seen as unique and non-generalisable. *Generalized knowledge* – universally valid, expressed in a systematic way, free from context specific conditions and constraints. However, its application to a local context often requires translation and adaptation. Sometimes it might even be in contradiction to local or context-specific knowledge.
Functioning dimensions:	*Phenomenological knowledge* - addresses local social and environmental phenomena and their descriptions. It often focuses on the description and explanation of particular elements of the analysed system. *Strategic knowledge* – focusing on connections and interrelation of system elements. It often addresses organizational, functional and network issues of system change, and is essential for structuring the research process (knowledge of regional managers about key players).
Epistemic (cognitive) dimensions:	*Experimental knowledge* – derived from one's own life experience or adopted traditional knowledge; it is often tacit or implicit and therefore usually not formalized or systemized. *Scientific knowledge* – based on empirical evidence or scientifically acknowledged theories; it is systematic, formalized and explicit.

Source: Enengel et al. (2012)

Actors' integration into the research phases depends on their role and competences (Enengel et al., 2012). For example, professional practice experts have a key role in structuring the problem and the selection of case study areas in early project phases. Strategic case actors are 'gatekeepers' to the local case actors, whereas local case actors contribute mostly context-specific, phenomenological and experiential knowledge.

Involvement of relevant actors at the early stages of the research forms the foundation for cooperation among the different participants. In some cases, researchers start the process with a preparatory phase, which enables them to learn the history of the problem and understand the behaviour of and relationships between certain actors (Enengel et al., 2012).

Using innovative approaches to facilitate participatory planning

Participatory research and planning are explicitly designed to collaboratively approach persistent problems with the active participation of those concerned about these problems. It goes beyond researching actors and implies that actors can help shape the research and planning processes (Hubert and Bonnemaire 2000). It is a major component of transdisciplinarity, which copes with problems in a process that integrates a variety of disciplines and actors, enabling the development of knowledge and practices perceived to be the common good (Pohl and Hadorn, 2007). The participatory planning approach needs a supportive environment as well as favourable political, economic, cultural and social conditions. First and foremost, it is important to have the "political will" to promote participatory planning, not only through law, but also in practice. In this case, monitoring and evaluating the participatory planning process are key elements. On the other hand, financial resources also have a vital role in the creation of successful participatory planning and the implementation of projects. Contexts matter, especially when we argue about cultural or social conditions which are different in every community. Thus, it is significant to use different and relevant methods and tools, not only when it comes to levels of participation, but also in regard to information and communication levels.

In order to achieve a good, active and wide participation, the design of a participatory process is important. New tools, designs, city board games and computer-based applications aim to improve public participation and citizens´ involvement in participatory activities. Board and map games are very widespread tools of participatory planning; they give communities the possibility to develop a shared vision for their city or district and shape the development of their local area. They are able to choose the main problematic issues on a map or play games and discuss important topics.

The city game "Rustavi" - "Let's play the city"

This section introduces an innovative approach to participatory planning in Rustavi, which is one of the largest cities in Georgia. The city game "Rustavi" was created to involve the youth in the process of solving municipal problems. The Rustavi city board game was held in 2019 by the Rustavi City Hall, the municipal innovation hub, the Polish organization „Pracownia Miejska"and the UNDP . A map of the city, virtual/paper money, dice and puzzles - those tools constituted the main part of the participatory planning of Rustavi city. The Rustavi city game is an interesting tool for identifying problems in the city and involving different groups of people, especially the youth.

There are many different city games, but they all have one mission - to identify problems and come up with effective and innovative solutions. Pupils and students were the main game participants. The game was played by four opposing teams; they sat at their own tables, competing with each other, collecting points at each stage of the game and making virtual money. They marked problematic areas and topics on the city map. The young participants took part in all levels of participation planning and communication with authorities. In one of the game rounds, participants were asked to list their solutions to identified problems in specific city areas. Their available budget consisted of virtual money they earned in previous rounds. After that, their presented solutions were to be researched and summarised by experts and researchers.

During the game, participants identified three main problems of the city: waste management, air and water pollution. According to them, the Rustavi City Hall should start sorting waste; the importance of waste processing machines and plants was mentioned as well. They presented recommendations about innovative practices of waste management, which related to the encouragement of residents to recycle waste. Moreover, according to participants' ideas, the high rate of water pollution must be solved by installing filters and operating mechanisms. Finally, the main issue identified by the participants was the lack of awareness about environmental problems (Król, 2019).

Photo source: UNDP Georgia, Urban workshop in Rustavi.

The Rustavi innovation hub's mission is testing and implementing the most effective solutions in

urban development, spatial planning and community engagement. Their 'Rustavi' city game initiative established a list of priorities and provided scenarios for further public discussions about city issues. The board game format allowed the municipality to encourage public participation regarding almost any necessary topic. Besides young participants, other stakeholders, such as NGOs, experts, scholars and private sector representatives, were involved.

Besides city games, there are other innovative methods facilitating participatory planning: online discussions, virtual workshops, online map-based discussions, etc. Learning how to use new technological tools is a new challenge for authorities. Games have the power of involving citizens in the participatory planning; they pair playing and enjoyment with learning about new technologies and participation (Krek, 2008). There are many different games, giving the authorities the option to choose which game type is particularly relevant for the local community. However, digital literacy, level of internalization as well as social and economic conditions should be taken into account. Participatory planning can also support learning of new skills and technological tools among citizens.

Adaptive approaches are sometimes needed to account for the local area and residents. Authorities or organisations should take into account residents' or participants' social-economic conditions, their traditions, the history of the local area as well as its problems, and based on that, decide what existing participatory method is suitable for the population, or whether emerging new ideas for innovative approaches are called for.

The Making Sense approach – experience of Sounds of Placa del Sol (Barcelona)

Placa del Sol (Barcelona) was seriously affected by noise pollution. The local community agreed that Placa was mainly seen as a nightlife destination for young people from all around the city. In May 2017, collected data indicated extremely high noise averages in the square (70 dB) before midnight.

The Making Sense approach was used to collectively find a solution to this problem. This approach is a result of co-creative transdisciplinary process aimed at "connecting networks and creating methods to foster collective awareness on environmental issues" (Coulson et al., 2018). The key participants included: (i) community organizers, who are project initiators, (ii) the project team leading the process and having a facilitator role, (iii) community members, who are residents, (iv) external experts/data visualizers, (v) government officials (Coulson et al., 2018).

A range of people were involved in the planning process, including residents, architects, urban planners, engineers, Domestic Data Streamers, a data design studio that helped them paint a picture of Barcelona, as well as a group of residents from the neighbourhood of Gracia, who had the same problem in recent years.

The pilot focused on the World Health Organisation's (WHO) recommendations on noise levels in the area. More than fifteen meetings and workshops were held to understand how citizen participation works. Due to these activities, many people were interested in having a noise sensor at home. The participants co-created measuring strategies which involved collecting data 24 hours a day over six weeks, so they could identify which days and times were the loudest each week. To get a clearer picture of the noise problem, participants used the data from their sensors, identified other indicators of noise and noted down observations in their booklets. They also developed awareness of open source technology.

The participants co-create solutions to make a positive change to their living conditions. They continue to meet every month to further their activities against noise pollution. Based on the recommendations from the participants, the city council initiated refurbishment works, installing large flower planters to deter revellers from congregating in some areas of the square (Coulson et al., 2018).

Photo source : Mapping the problem, Placa del Sol

The Sounds of Placa del Sol case, described above, is an interesting example of participatory planning phases: scoping, community building, planning, sensing, awareness, action, reflection and legacy (Coulson et al., 2018).

1. The first phase is Scoping – when the important issues were discovered, mapped and discussed by the key participants. The Placa del Sol community explored the history of the square using a timeline featuring memories, anecdotes, pictures and different kinds of maps and data. They had a debate about the current situation and identified the problem – noise.

2. The next phase is Community Building – when the participants came to the shared goals of the project: they agreed that they would address the issue by demonstrating that noise levels in the area were above those recommended by the WHO. Moreover, they started learning about how open-source technology and data collection could help them tackle environmental problems.

3. Planning is the third phase – when the participants collectively decided on the project plan and learned to use protocols for collecting data. Residents of the Placa del Sol installed 25 Smart Citizen Kit sensors in their houses and terraces. They also created measuring strategies and protocols.

4. Sensing phase – when the participants collected data, recording it in their booklets. As mentioned above, residents identified indicators of noise.

5. Awareness – when the participants shared their observations. They were able to capture data and make sense of the information gathered.

6. Action – when the participants (who had never met before) worked together with authorities and created recommendations.

7. Reflection phase – when the participants reflected on the process and considered what worked well and what could have been improved. This phase can be linked to the next phase,

8. Legacy – when the participants were keen to meet each other and work on other problems. It is important to point out that since the end of the participatory planning approach in Placa del sol, the participants (not only the residents, but also other key actors) continued to meet every month to further their activities against noise pollution (Coulson et al., 2018).

Useful Links:

Video source: city game of Rustavi
https://www.participatorymethods.org/page/about-participatory-methods

PART II.
METHODS

4 CASE STUDY TEACHING, PRINCIPLES AND METHODS

„Tell me, and I will forget;
show me, and I may remember;
involve me, and I will understand."
A Chinese Proverb

The use of the case study method in teaching has a long history; it is considered to be a unique tool for bridging the gap between theory and practice. Case studies are important for helping students establish a direct relation between societal issues and theoretical knowledge. Furthermore, Daneri, Trencher and Peterson (2015) argue that student-centered case studies could play an essential role in addressing problems of participating local communities.
A twofold definition of a case study as a research method is presented below:

"A case study is an empirical method that investigates a contemporary phenomenon (the „case") in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be evident" (Campbell et al., 2018).

Earlier textbooks on research methods failed to consider a case study as a formal method (Campbell et al., 2018), despite its nature facilitating exploration and understanding of complex issues (Zainal, 2007). However, since 1989, the interest in a case study as a research method increased. The role of the case study method in research became more prominent when addressing community-based problems, such as poverty (Johnson, 2006).

Nowadays, the case study method is well-recognized in qualitative research (e.g., Creswell and Poth, 2017) and is also prevalent in quantitative research. In fact, concerns among researchers about the limitations of quantitative methods and aspirations to broaden their work beyond statistical results seemed to contribute to the use of the case study method. Encompassing both quantitative and qualitative data allows to develop a more holistic understanding of the process and outcomes of a phenomenon under study (Tellis, 1997). A "case" can be an individual, a group, a community, an instance, an episode, an event, a subgroup of a population, a town or a city, etc. Considering the "targeted" social group or community as a single entity is essential for a case study. The selected case becomes the basis of a thorough, holistic and in-depth exploration of the subject's aspects. According to Burns (1997), a system must be bounded - and constitute an entity in itself - in order to qualify as a case study. A case study should focus on a system / subject / unit that is either very representative or extremely atypical.

A case study, according to Grinnell (1981), is characterized by a very flexible and open-ended technique of data collection and analysis. The case study design is based on an assumption that the case being studied can provide insight into the events and situations prevalent in a group from where the case has been drawn. According to Burns (1997), in a case study, the focus is on the case itself (and its complexity) and not on the different existing cases. Therefore, purposive, judgmental or information-oriented sampling techniques are often used when selecting a case (see the descriptions below).

Case studies are used for gaining in-depth insights, but the aim is not only to generate theoretical insights grounded in the data collection and analysis, but also to develop understandings broader than those applicable to the chosen case study (Hardy, 2005). Results from the case studies indicate „replication logic" (Walter, 2009) - the notion that the findings can be replicated or applied to other similar cases.

Designing a Transdisciplinary Case study as a Teaching and Research Method

The case study design „is a logical plan for getting from 'here' to 'there', where 'here' may be defined as the set of questions to be addressed, and 'there' is some set of conclusions about these questions"(Campbell et al., 2018, p. 60). The following five components of case study research design are considered to be utterly significant:

- Case study questions,
- Case study propositions, if any,
- Case(s),
- The logic linking the data to the propositions, and
- Criteria for interpreting the findings „(Campbell et al., 2018).

Just like in research design in general, the objectives of case studies, as well as their nature and overall structure, vary based on the type of research questions (Albert et al., 2009), such as:

- Exploratory - the selection of a case is based on theoretical considerations;
- Descriptive - the selected case should include maximal information about the specific features and characteristics of a particular social phenomenon;
- Explanatory - the selected case should maximize the opportunities for developing hypotheses or theories explaining the social phenomena at stake.

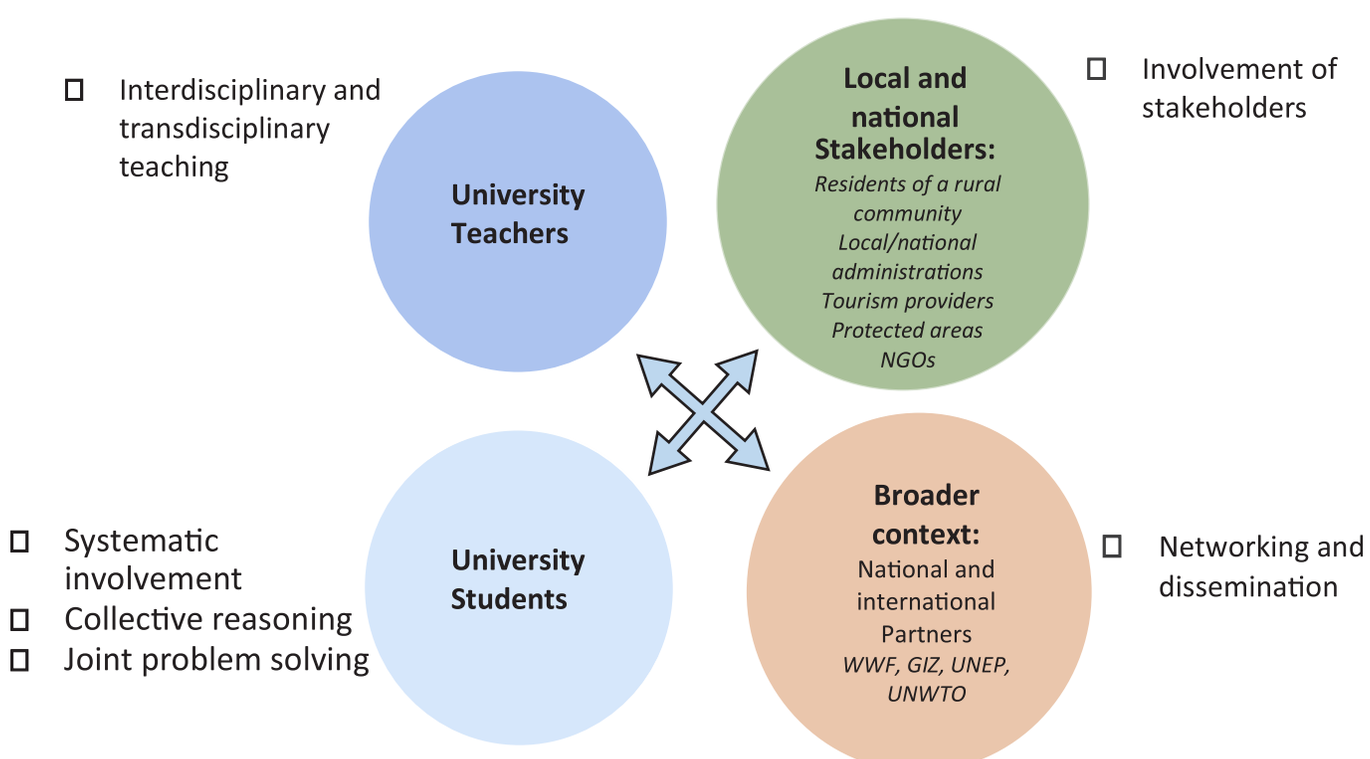
After establishing the type of the case study and the research question, the case (or cases) as a particular subject of research can be selected. The criteria for selecting a case(s) vary from the researcher's particular interests to theoretical considerations. Single-case designs examine a single unit of a social phenomenon, while multiple-case designs compare two to ten cases (Albert et al., 2009, p. 61). Importantly, the complexity of the cases depends on the level of studies (undergraduate or master). However, the following general procedure for teaching the case study can be proposed (Albert et al., 2009, p. 77):

- The presentation of the case and its specific background;
- The clarification of the study's aim and tasks;
- The formulation of research methodology (data collection and analysis methods);
- The process of decision making and argumentation;
- Group discussion about the study outcomes and reporting.

Experience from the CaucaSusT project:

Figure 4.1 illustrates the main aspects of a case study course and the main participants, as implemented in Armenia and Georgia during the CaucaSusT project.

Figure 4.1 Main components of Interdisciplinary and Transdisciplinary Case Study Teaching.



Source: Own figure made by the CaucaSusT Project team

The different components of a case study as well as selected possible methods that can be used as part of a case study course, are introduced and described below:

- Literature review
- Formulation of research questions
- Qualitative Research Methods (Sampling, Data Collection, Data analysis, Forms of Qualitative Research Results Visualization)
- Quantitative research methods (Sampling, Data Collection, Data analysis, Forms of Quantitative Research Results Visualization)
- Inter-and transdisciplinary methods

Literature Review & Formulating a Research Problem

Literature review is an integral part of the research process, ensuring that the researcher is familiar with the current trends in his/her respective research area (state of the art). It helps clarify ideas and establish the theoretical background of the research, as well as to choose the right research design and proper research methods. In the later stages of the study, it helps with embedding and examining the findings within the context of the existing body of knowledge. Reviewing literature helps understand the subject, focusing the study and gaining insights into the existing research question.

Literature review aims to map out the existing body of knowledge and identify the selected topic's areas with little or no relevant research. Several factors influence the literature review process, but can result in biased findings, if the process is not conducted properly. Moreover, unstructured and unsystematic approaches to literature review are more time consuming. Petticrew and Roberts (2006) provide step-by-step guidelines for avoiding a biased literature review, starting with defining the question of the review and ending with how to synthesize the various research findings.

Using literature databases

The main part of the literature review comprises searching for and collecting the materials via electronic databases. Most of the electronic databases, such as Google Scholar, Science Direct, Scopus and Web of Science, provide basic or advanced search options. To search for relevant literature based on the research questions, keywords and phrases should be identified (e.g. "tourism", "mountain development", "rural"). Keywords can be combined using Boolean operators AND, OR and NOT. As a single database does not cover all existing academic publications, combining various platforms is an advantageous searching strategy. Moreover, not all research findings end up in indexed journals. Thus, other sources, such as "grey literature", should not be neglected. Grey literature includes „information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing i.e. where publishing is not the primary activity of the producing body" (Gokhale, 1998).

Useful Links:

https://scholar.google.com/
An advanced search tutorial for Google Scholar can be found here: https://www.youtube.com/watch?v=C7Y5T8in6bA)
https://www.sciencedirect.com/search
An advanced search tutorial for Science Direct can be found here: https://www.youtube.com/watch?v=nyEFtclLR5g)

Reference management software (e.g. Mendeley, Zotero, Citavi) provides efficient tools for the allocation of articles from different sources. These tools help finalize the literature review, synthesizing various research findings though the following steps:

1. organizing the description of the studies into logical categories;
2. analysing the findings within each of the categories;
3. synthesizing the findings across all included studies.

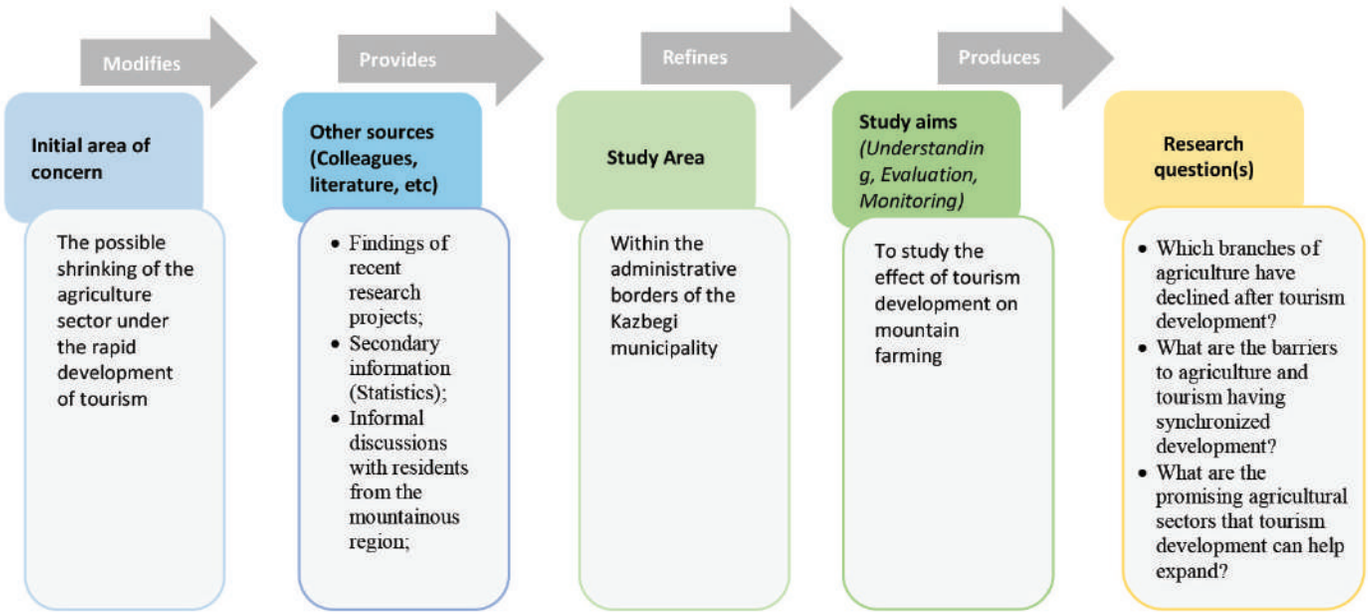
A comprehensive literature review enables researchers to build up their levels of knowledge, which leads to formulating a theoretical/conceptual framework for the study. From then on, based on the theory or model, a set of research questions can be developed, followed by the case selection (both in single or multi-case research) (Albert et al., 2009, p.120).

Formulation of research questions

Formulating research questions in qualitative research is different from the quantitative research process. In qualitative research, the aim is to develop an in-depth understanding of the phenomenon under study, to stay flexible and open to new ideas, continuously reflecting on the relevance of the research question and excluding aspects no longer considered relevant. The research question should always "drive the design of the study, and not the other way around" (quoted in Hass, 2004, p. 4).

Before starting the research process, the researcher must be well-aware of the precise issue(s) of investigation. Formulation of research questions is the vital first step in any research, because they act as a guide towards the necessary information to be collected. A research question(s) makes the precise area of a study as well as the specific aspect(s) of particular interests explicit (Lewis and Munn, 1987).

Figure 4.2 The Research Question Formulation - Decision-Making Process.



Source: Authors' own example and illustration based on Lewis and Munn (1987, p. 17)

According to Kumar (2014), when selecting a research question, the following aspects must be considered: 1) interest, 2) magnitude, 3) measurement of concepts (indicators), 4) level of expertise, 5) relevance, 6) availability of data, 7) ethical issues. Moreover, the formulation of research questions should be implemented with the active involvement of the societal actors affected by the issues / phenomena under investigation. Close collaboration with the local stakeholders is key for defining descriptive and socially relevant research questions about a particular social phenomenon (Albert et al., 2009, p.120, p. 4). Any matter or assumption related to a particular research topic, which aims at investigating the research area, can provide the basis for the research question. However, some issues are too complex and cannot be answered within a given timeline or due to lack of resources.

Each kind of a research question corresponds to different forms of knowledge, such as systems, target and transformation knowledge. In TD, research questions linked to systems, target and transformation knowledge can only be answered by explicating the assumptions related to the other two forms of knowledge. Hence, all three of them are interdependent. Table 4.1 summarizes the research questions for each form of knowledge and suggests questions that help position TD research within the interdependent forms of knowledge.

Table 4.1 Problem structuring in TD research in relation to the three forms of knowledge

	Research questions	Questions for positioning
System knowledge	Questions about the genesis and possible development of a problem and about life-world interpretations of a problem	Which types of change, desired goals and better practices are not referred to by the research question? Which technical, social, cultural, legal and other possible actions are referred to by the research question?
Target knowledge	Questions related to determining and explaining the need for change, desired goals and better practices	Which understanding of the genesis and possible problem developments as well as life-world interpretations does the research question refer to?
Transformation knowledge	Questions about technical, social, cultural, legal and other possible actions for the transformation of existing practices and the introduction of the desired ones	Which understanding of the genesis and possible problem developments as well as life-world interpretations does the research question refer to? Which needs for change, desired goals and better practices does the research question refer to?

Source: Pohl and Hirsch Hadorn 2007.

Using the example of systems knowledge, Table 4.1 should be read as follows: TD research about systems knowledge deals with questions about the genesis and possible developments of a problem and about interpretations of the problem as well as its causes. In order to produce systems knowledge that interrelates with target and transformation knowledge, two questions must be answered by the research team: Which understanding of the genesis and possible problem developments as well as life-world interpretations does the research question refer to (target knowledge)? Which technical, social, cultural, legal and other possible actions are referred to by the research question (transformation knowledge)? (Pohl and Hirsch, 2007, p. 40).

The next stage, after the research problem and research questions are identified, involves data collection, which, as mentioned above, could involve both qualitative and quantitative methods.

Qualitative vs. Quantitative Research

Quantitative research attempts to develop universal explanatory laws in social behaviours by statistically measuring what it assumes to be a static reality. In contrast, qualitative research is not concerned with numerical depth and illustrative information of the phenomenon to understand the problem under analysis (Yilmaz, 2013). The advantages of using either of these methods are determined by the purpose of the research and primarily depends on the research questions. Table 4.2: illustrates the main differences between quantitative and qualitative research methodologies.

Table 4.2 Differences between quantitative and qualitative research methodologies

Dimension	Quantitative research	Qualitative research
Focus on understanding the context of the problem	Smaller	Bigger
Dimension of group studies	Smaller	Bigger
Proximity of the researcher to the problem under study	Smaller	Bigger
Scope of the study in time	Immediate	Longer range
Researcher's point of view	External	Internal
Theoretical framework and hypotheses	Well structured	Less Structured
Flexibility and exploratory analysis	Lower	Higher

Source: Queirós et al. (2017).

Qualitative Research Methods

Qualitative research methods in a transdisciplinary case study should integrate and build upon the engagement of various academic and non-academic stakeholders, encompass open-ended discussion and other knowledge integration approaches with the aim of obtaining in-depth information and a thorough understanding of the study topics.

Sampling

Sampling methods provide guidance for selecting cases (or interview partners) from a wider population. Uwe Flick (2014) suggests techniques and principles for choosing interviewees according to the purpose of the research.

Purposive Sampling

The power of purposeful sampling is in the in-depth investigation of information-rich cases for the purpose of learning about the researcher's question and issues considered necessary by the researcher. There is also an efficient side in which a researcher seeks to solve real-world problems. The logic lies in finding information-rich cases, from which the researcher can learn the most about the investigated issue. Representativeness is not of relevance in selecting cases for purposeful sampling (Flick, 2014).

Based on Patton (2002), Flick highlights the following principles for developing a strategy and carrying out a purposive sampling:

- Integrate extreme or deviant cases;
- Select particularly typical cases (i.e., those cases in which success and failure are particularly characteristic for the average or the majority of the cases);
- Due to the time and resource constraints research sample could be small, but include a maximal variation of the cases; this ensures disclosing the range of variation and differentiation in the field;
- Cases may be selected according to the intensity with which the interesting features, processes, experiences, and so on are given or assumed in them;
- Next strategy is intending to select critical cases (e.g., in the opinion of experts or key stakeholders on the study topic).
- Select a sensitive case in order to most effectively present findings in research;
- Last principles also useful when we have limited resources of time and people, the criterion of convenience, which refers to the selection of those cases that are the easiest to access.

Judgmental Sampling

Judgmental sampling is a strategy in which particular

settings, persons or events are selected intentionally to provide imperative information that cannot be obtained from other sources (Maxwell, 1996). In this type of sampling subjects are chosen with a specific purpose in mind. Judgmental sampling includes cases that are believed to be a necessary addition and more fit for the research compared to others.
Judgmental sampling is useful for the initial stages of case study in three following situations:

- For selecting unique cases that are especially informative;
- For selecting members of a difficult-to-reach, specific population;
- For identifying particular types of cases for further in-depth investigation.

Information-oriented Sampling

Information-oriented sampling is mainly used to maximize the information utility from small samples and single cases (Flyvbjerg, 2011). Based on Widdowson's (2011) article on 'Case Study Research Methodology', cases in information-oriented sampling are watchfully chosen for their importance. Cases are selected on the basis of expectations about their information content. There are risky cases which may reveal or suggest certain findings, critical cases which can be exemplars or ‚typical' cases from which generalizations can be drawn through logical deduction.

For more information:

Additional sampling methods include: strategic sampling, theoretical sampling, random purposeful sampling, stratified purposeful sampling, mixed sampling, snowball sampling, etc.

Recommended Materials:

Miles, M. B. and Huberman, A. M., 1994. Qualitative Data Analysis: A Sourcebook of New Methods (2nd ed.)

Kvale, S., 2007. Doing Interviews. Series: Qualitative Research Kit. Los Angeles: SAGE. From the Qualitative Research Kit by Flick (2007), available online: http://93.174.95.29/main/94C33BDBF-8B181D80A4CF5C1AC93D9E4

Sample Structure

The sample structure is defined beforehand. The core principals of the technic are sampling criteria (e.g. representative of the local guesthouses) and sampling dimensions, which guide the whole process of sampling. Sample structure can be changed or reframed during the case study.

Sample Size

Sample size estimation deals with the question "How many interviews (or cases) are enough for studying a particular topic?" The saturation methodological principle is one of the conventional approaches to define sampling size in qualitative research during the data collection. According to this approach, the researcher can decide on a "stopping point" for further data collection during the study, based on the data already collected (Saunders et al., 2018).

Recommended Materials:

Flick, U., 2014. An Introduction to Qualitative Research. SAGE Publications, pp. 464-502;

რაოდენობრივი კვლევის მეთოდები სოციალურ მეცნიერებებში (2008), ლია წულაძე, (გვ. 42-43); // Tsuladze, L., 2008. Quantitative Research Methods in the Social Sciences. pp. 42-43;

Tadevosyan, G., 2006. Qualitative social research: Theory methodology: method (educational manual). Yerevan

Data Collection

The qualitative approach offers a plethora of data collection methods from interviews to group discussions; the most commonly used methods are briefly described below, with suggestions for more in-depth readings.

It is important to mention that the researcher should be aware of several basic principles (e.g. informed consent, participants privacy, data accuracy and storage), to ensure the implementation of ethically sound data collection. As the ethical issues vary by higher education institutions, make sure to consult with your University to familiarize yourself with the procedures they set for several data collection steps, including creating an interview guideline.

Semi-structured Interview

Although the semi-structured interview process follows predefined topics with suggested questions, there is always room for respondents to share their perspectives and add topics in addition to the asked questions. A semi-structured interview's discussion guideline mostly includes open-ended questions, while others arise spontaneously in a free-flowing conversation (Flick, 2014). However, the researcher's

decision on how much to follow the chronology of the questions and how closely to stick to the guide depends on the particular study (Kvale, 2007).

Recommended Materials:

Kvale, S., 2007. Doing Interviews. Series: Qualitative Research Kit. Los Angeles: SAGE. from the Qualitative Research Kit by Flick (2007), available online: http://93.174.95.29/main/94C33BDBF-8B181D80A4CF5C1AC93D9E4.

In-depth Interview

The in-depth interview method is a conversation designed to elicit depth on a topic of interest. Greg Guest, Emily E. Namey, and Marilyn L. Mitchell (2013) distinguished four main characteristics of in-depth interviews:

- **Utilize Open-Ended Questioning** - IDI questions are distinctively open-ended. Any planned questions in the discussion guide for an IDI are designed to lead the conversation into the topic of interest and are constructed so as to maximize the opportunities for discursive, detailed, and highly textured responses;
- **Use Inductive Probing to Get Depth** - The single most defining characteristic of in-depth interviewing is inductive probing—asking questions that are based on the interviewee's responses and simultaneously linked to the research objectives;
- **Look and Feel Like a Conversation** - Skilled interviewers conduct IDIs that appear highly conversational, making the technique seem deceptively simple to outside observers;
- **Are Conducted One-on-One** - The inductive probing at the heart of in-depth interviewing requires that the interviewer shapes the probing questions in a dynamic fashion, keeping in mind both the objectives of an interview and the substance of the participant's previous answers.

The guideline for an in-depth interview can provide some preliminary structure, based on the research questions, however, it should leave room for open discussion in order to get an in-depth understanding of the case.

Recommended Materials:

Kvale, S., 2007. Doing Interviews. Series: Qualitative Research Kit Los Angeles: SAGE., from the Qualitative Research Kit by Flick (2007), available online: http://93.174.95.29/main/94C33BDB-F8B181D80A4CF5C1AC93D9E4

Narrative Interview

Compared to in-depth and semi-structured interviews, a narrative interview is less structured. The interviewer defines the issue and the life period the narration should address. Other than that, the respondent takes the lead. Generally, the story is about a respondents' entire life or a specific experience. The interviewee refrains from interventions that might interrupt the respondents (Flick, 2014).

Recommended Materials:

Kvale, S., 2007. Doing Interviews. Series: Qualitative Research Kit Los Angeles: SAGE., from the Qualitative Research Kit by Flick (2007), available online: http://93.174.95.29/main/94C33BDB-F8B181D80A4CF5C1AC93D9E4

Focus Groups

Focus groups mostly consist of a group of people who are moderated by the researchers. The group setting and dynamics are integral for data collection. Focus group discussions use essential elements of human conversation (sharing of experiences, opinions, perceptions, and reactions), enabling the group to address the research objectives (Greg Guest et al., 2013). Focus groups, as a qualitative method, are often used for market research activities due to their many advantages; they are perceived as easier to analyse, quicker, cheaper and tend to generate a wider range of information compared to in-depth interviews, because the respondents stimulate each other in the group process (Bergin and Strokes, 2006). On the other hand, some group members can feel social pressure and tend to agree to the opinions of others despite privately disagreeing with them, hence producing a consensus with which nobody disagrees, but also nobody fully accepts (Bergin and Strokes, 2006).

The role of the facilitator differs based on the type of

a focus group, which can be either a discussion or an interview. In a focus group discussion, the moderator allows the discussion to flow naturally; the participants can question each other, agree or disagree and persuade one another. The facilitator steps in to direct the discussion back to the topic of interest or settle disputes. The moderator can inquire about certain statements from group members and stir the discussion deeper into the researched topic while maintaining a friendly and open atmosphere (Bobby, 2005).

In a focus group interview the moderator´s role is to control the group interactions more closely, putting the group members in the role of respondents rather than participants. The discussion flows mainly between the moderator and the addressed respondent, rather than between the group members (Bobby, 2005). This gives the group members more space to express their individual opinions.

Recommended Materials:

Barbour, R., 2008. Doing Focus Groups. Series: Qualitative Research Kit. London: Sage Publications.

Participant Observation

The main features of this method allow the researcher to dive into the field. Such real-life engagement enables the researchers to observe research objectives from a community member's perspective. However, the researcher's participation influences what they perceive (Flick, 2014).

Useful Links:

During the participant observation mobile apps (MAXapp, ATLAS. Ti Mobile) can help effectively manage all collected field data, including notes, photos, videos, interviews, etc. The additional advantage of the mobile apps is the ability to transfer accumulated information directly to the Computer-Assisted Qualitative Data Analysis Software.
Link to MAXapp: _https://play.google.com/store/apps/details?id=com.atlasti.atlastimobile
Link to Ti Mobile: https://play.google.com/store/apps/details?id=de.maxqda.maxapp&hl=en_US

Recommended Materials:

Angrosino, M., 2007. Doing Ethnographic And Observational Research. Series: Qualitative Research Kit. Los Angeles: SAGE. Available online: http://93.174.95.29/main/94C33BDBF8B181D80-A4CF5C1AC93D9E4

Participatory Mapping

Mapping refers to cartographic materials created or drawn by members of the community or other stakeholders during the case study, with the facilitation by the researchers. It is a process of presenting information in a spatial form. Locals from the study area can quickly transfer their mental images and perceptions, as well as knowledge about their surroundings, onto a pre-printed map. The facilitator can enable participants to integrate their knowledge and ideas into the map of the study area (depending on the research questions, the map could be focused on the local street or district, encompass an entire community/village or even visualize the study area in the national, regional or international context), while facilitating an informal discussion on case study objectives through the language of the map (Narayanasamy, 2009).

CaucasusT Case study in Kazbegi Municipality: Participatory Mapping in Khurtisi Village.
Photo by Mariam Khizanishvili

Structured Questionnaire to support Qualitative Data

Along with the interviews and focus groups, the researcher can collect quantitative information about gender, age, education and other relevant data for the research (e.g. via a registration form, see Figure 4.3). This approach is used to collect the necessary additional quantitative information, which will further complement the obtained qualitative data. The obtained quantitative data can be used during data analysis and comparative analysis, in order to find potential patterns in the interview results from different population groups (mixed-method).

Photo by Gvantsa Salukvadze

Figure 4.3 Example of a Registration form for tourism representatives

1. Name of Respondent	
2. Gender	
1. Male	2. Female
3. Age	
4. Education	
1. Secondary school	
2. Bachelor Degree	
3. Master Degree	
4. PhD Degree	
5. Origin of the respondent	
6. Economic field	
7. Type of economic activity	
1. Hotel (4*-5*)	
2. Hotel	
3. Hotel-type establishment/Guesthouse	
4. Café/Restaurant	
5. Other	
8. Commenced date of the activity	
9. Position in the economic activity	
10. Approximate number of persons involved in this activity (if applicable)	
11. The head of the Business	
1. Local (Permanent resident in Kazbegi/Mestia)	
2. Local (Seasonal)	
3. Georgian (not local)	
4. Foreigner	
5. Other	

Source: The registration form was developed within the collaborative interdisciplinary research project "Linkages Between Tourism and Community-driven Economic Activities: Shaping Sustainability in Mountain Regions", implemented by TSU and University of Giessen between 2017-2020 and funded by the Shota Rustaveli National Science Foundation Georgia.

Recording and Transcribing Data

Each interview and focus group discussion should be recorded for better documentation. Different methods can be used (audio/video recording or note taking) depending on the available tools and on the consent of the participants. Subsequently, the gathered information can be transcribed. It is recommended to check the transcript against the recording, to ensure that all identifying information of the interview partners/ cases is recorded (for more information, see Udo Kuckartz, 2014), as well as to transcribe as much and as exactly as required by the research questions.

It is important to note that since May 2018, the General Data Protection Regulation (GDPR) came into force and changed the way organisations handle personal data of private EU citizens (Sirur et. al, 2018). Citizens gained new rights, and it is important for the organisations to follow the GDPR regulations in order to avoid fines. Therefore, it is necessary to have a written consent or any other required document from interviewees to process their personal data. For more information on the official legal text, follow this link: https://gdpr-info.eu/

Recommended Materials

Flick, U., 2014. An introduction to qualitative research. Sage publications. pp. 574-962;

Guest, G., Namey, E. E. and Mitchell, M. L., 2013. Collecting Qualitative Data: A Field Manual for Applied Research. pp. 331-610 [online] Available at: https://methods.sagepub.com/book/collecting-qualitative-data

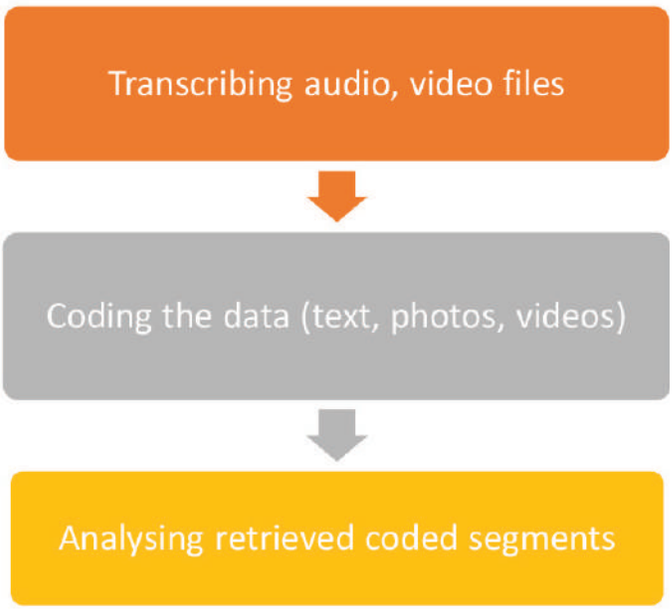
თვისებრივი მეთოდები სოციალურ კვლევაში (2016), თინათინ ზურაბიშვილი, (გვ. 16-36); // Zurabishvili, T., 2016. Qualitative Methods in Social Research. pp. 16-36;
Kyureghyan, E.A., 2006. Applied Sociology. Yerevan,

Tadevosyan, G., 2006. Qualitative social research: Theory methodology: method (educational manual). Yerevan

Data Analysis

Most of qualitative data analysis methods apply the following three steps (Figure 4.4):

Figure 4.4 Steps of Data Analysis



Source: Authors' own graphic

Udo Kuckartz describes the three text analysis methods with the help of the Computer-Assisted Qualitative Data Analysis approach in his book "Qualitative Text Analysis" (Kuckartz, 2014):

- **Thematic** Qualitative Text Analysis;
- **Evaluative** Qualitative Text Analysis;
- **Type-Building** Text Analysis.

Qualitative Content Analysis

Content analysis is among the social scientific methods for making sense of recorded human communication, such as media, policy documents, letters, and even video – but particularly, written texts. Practically, the methodology comprises the process of

breaking down textual information into smaller segments (paragraphs, sentences, phrases, or single words), which are then grouped based on common meaning – codes (Baxter, 2009).

Philipp Mayring (Mayring, 2000) provides detailed information on qualitative content analysis, principles, and procedures through Computer-Assisted Qualitative Data Analysis Software (CAQDAS). One of the main principles of qualitative content analysis is that categories are in the centre of data analysis. The segments of text interpretation are put into categories which have to be carefully developed and revised within the analysis process, in accordance with the research questions.

Some prevalent Computer-Assisted Qualitative Data Analysis Software products include:

- MAXQDA
- ATLAS.ti
- NVivo

Experience from the CaucaSusT Project:

Caution: It is overwhelming to carry out data analysis following above-mentioned method procedures during a short-term (two weeks) case study. However, summarising each interview right after the fieldwork proved to be the best way of integrating qualitative data into a case study. Organizing lectures and training programs in qualitative data analysis methods and software is also a good way to ensure students are prepared.

Recommended Materials

Kuckartz, U., 2014. Qualitative Text Analysis: A Guide to Methods, Practice and Using Software. Sage. pp. 69-120;

Mayring, P., 2000. Qualitative Content Analysis. Forum Qualitative Sozialforschung / Forum: Qualitative Social Research, 1(2). [online] Available at: http://www.qualitative-research.net/index.php/fqs/article/view/1089

Useful Links:

Several manuals on content analysis can be downloaded here:
https://www.maxqda.com/download/manuals/MAX2020-Online-Manual-Complete-EN.pdf
http://downloads.atlasti.com/docs/manual/atlas-ti_v8_manual_en.pdf
http://download.qsrinternational.com/Document/NVivo11/11.3.0/en-US/NVivo11-Getting-Started-Guide-Pro-edition.pdf

Visualization of the Results

There are various mainstream and innovative ways for presenting the qualitative data analysis results to the scientific and non-scientific audience:

- Graphs, Tables
- Mind maps
- Quotes of the respondents
- Word, Code Clouds
- Photos, Videos
- Different forms of art (painting, theatre)

Quantitative Research Methods

Applying quantitative research methods during a transdisciplinary case study can provide the advantages of obtaining generalizable data, assessing the scale of the study topic and covering a wide geographical area.

Sampling

One of the methods that can be applied in qualitative research is the sampling method. Its advantage lies in the possible generalization of results. The statistical generalization is based on the probability theory where researchers observe patterns in a smaller group, also called a sample, and estimate the likelihood of the observed pattern to hold in a larger group, such as the population (De Vaus, 2002).

Simple Random Sampling

There are five steps in selecting an SRS (De Vaus, 2002):

Steps	Simple Random Sampling (SRS)
1.	Obtain a complete sampling frame;
2.	Give each case a unique number starting at one;
3.	Decide on the required sample size;
4.	Select numbers for the sample size from a table of random numbers;
5.	Select the cases that correspond to the randomly chosen numbers.

Systematic Sampling

Steps for carrying out Systematic sampling (De Vaus, 2002):

Steps	Systematic Sampling
1.	Obtain a sampling frame;
2.	Determine the population size (e.g. 100);
3.	Determine the sample size required (e.g. 20);
4.	Calculate a sampling fraction by dividing the population size by the size of the sample needed (100÷20=5);
5.	Select a starting point by randomly selecting a number between 1 and 5 (or whatever the sampling fraction is; e.g. select number (3);
6.	The chosen number is the starting point, so case 3 is decided upon;
7.	Use the sampling fraction to select every nth case. With a sampling fraction of 5 select every 5th case and obtain a sample of 20 cases.

Stratified Sampling

Stratified sampling is a modification of SRS and is designed to produce more representative and thus more accurate samples. But this greater accuracy comes at the cost of a more complicated procedure. On the whole, stratified sampling has similar limitations to SRS. For example, to be representative, the proportions of various groups in the example should be the same as in the population.

Multistage Cluster Sampling

Cluster sampling divides the population into smaller groups (clusters) during multiple stages; the clusters are then again divided into sub-groups in order to simplify primary data collection, but remaining applicable for the wider population. The advantage of this method is mainly its cost-effectiveness.

The necessary procedure of sampling involves the following steps (example: the population of a city without a sampling frame of residents) (De Vaus, 2002)

Steps	Multistage Cluster Sampling
1.	Divide the city into areas (e.g. electorates, census districts). These areas are called clusters.
2.	Select an SRS of these clusters.
3.	Obtain a list of smaller areas (e.g. blocks) within the selected clusters.
4.	Select an SRS of the smaller areas (e.g. blocks) within each of the clusters selected at the earlier stage
5.	Obtain a list of household addresses (enumeration) for each selected block.
6.	Select an SRS of addresses within the selected blocks.
7.	Select an individual from each selected address to participate in the sample.

Recommended Materials

De Vaus, D., 2014. Surveys in Social Research. Sydney, Vic.: Allen & Unwin.

სოციოლოგიური მონაცემთა ანალიზი (2006), ნინო დურგლიშვილი, (გვ. 13-21) // Durglishvili, N., 2006. Sociological Data Analysis. pp. 13-21

რაოდენობრივი კვლევის მეთოდები სოციალურ მეცნიერებებში (2008), ლია წულაძე, (გვ. 45-52); // Tsuladze, L., 2008. Quantitative Research Methods in the Social Sciences, pp. 45-52;

Tadevosyan, G., 2006. Qualitative social research: Theory methodology: method (educational manual). Yerevan. [online] Available at: http://lib.ysu.am/close_books/262135.pdf

Kyureghyan, E. A., 2006. Applied Sociology (educational manual). Yerevan, [online] Available at: http://ijevanlib.ysu.am/wp-content/uploads/2018/01/կիրառական-սոցիոլոգիա.pdf

Data collection

Quantitative data collection methods examine structured data in different ways, including visiting the person on-site, calling the respondent on the phone, sending or posting the link of the questionnaire on social media.

Face-to-face surveys or interviews

Face-to-face surveys or interviews are characterized by an interviewer meeting with the respondent to conduct a survey. The interviewer reads out the questions and records the respondent's answers. This can be done either in the form of a paper-and-pencil

interview or a computer-assisted personal interview (Schröder, 2016).
Electronic data collection tools are especially preferable for a short-term case study in order to save time for transferring data from paper into a database.

Useful Links:

Open-source data collection tools with the support of a mobile app:

- KoBoToolbox: https://www.kobotoolbox.org/;
- Open Data Kit: https://opendatakit.org/;
- Google form (not available): https://www.google.com/forms/about/.

Telephone interviews

Telephone interviews involve calling selected sample members and asking the questions over the telephone. Telephone interview methods allow interviewers to build rapport yet maintain considerable respondent anonymity. It is also relatively easy to follow up with respondents, and telephone interviews are much cheaper to conduct than personal interviews since no travelling is involved (De Vaus, 2002).

Internet surveys, Web pages

Webpage questionnaires have all the dynamic, interactive features of questionnaires plus impressive visual enhancements and can be made available on the internet. This involves placing the questionnaire on a web server and getting respondents to visit the relevant webpage to answer the questionnaire (De Vaus, 2002).

Spatial Data

During the fieldwork researchers can additionally collect spatial data, such as the location of the interview partners or different tourism infrastructure, distribution of natural resources and potential viewpoints, which could be developed for tourism purposes. There are also several mobile apps available for this purpose:

Useful Links:

- OSMTracker: https://play.google.com/store/apps/details?id=net.osmtracker&hl=en_US
- KoBoToolbox (see above);
- Open Data Kit (see above).

Recommended Materials

De Vaus, D., 2014. Surveys in Social Research. Sydney, Vic.: Allen & Unwin. pp. 158 - 187

რაოდენობრივი კვლევის მეთოდები სოციალურ მეცნიერებებში (2008), ლია წულაძე, (გვ. 14-20); // Tsuladze, L., 2008. Quantitative Research Methods in the Social Sciences. pp. 45-52;

Tadevosyan, G., 2006. Qualitative social research: Theory methodology: method (educational manual). Yerevan. http://lib.ysu.am/close_books/262135.pdf

Data analysis

Descriptive Statistics

Descriptive statistics are those that summarize patterns in the case responses of a sample.
David de Vaus (De Vaus, 2002) distinguishes three broad ways of conducting and presenting descriptive analysis:

- **Tabular:** Tabular analysis involves presenting the results of the analysis in tables. This might be done in the simple form of a frequency table, a cross-tabulation or some other type of table;
- **Graphical:** Frequently, the information contained in a table can be presented as a graph. For simple analysis a graph might display patterns more readily than a table;
- **Statistical:** Statistics provide summarized information contained in a set of cases. These descriptive statistics are frequently a single number and do not contain as much information as a table or graph, but they can provide an easily understood snapshot of a set of cases.

Inferential statistics

Typically, we are not only interested in describing the attitudes and characteristics of people from the sample. Instead, we want to generalize the results from the sample to a broader population. The function of inferential statistics is to provide an idea about whether the patterns described in the sample are applicable to the community from which the sample is drawn. We can use inferential statistics when we have a sample obtained by probability sampling methods (De Vaus, 2014).

Univariate Analysis

A core part of univariate analysis is considering the distribution of variables. Since all variables have two or more categories or values, we can examine the

way in which cases are distributed across these categories. There are a number of aspects of such distributions to consider (De Vaus, 2014).

- **Simple description:** how many people belong to particular categories? Which categories have a lot of cases and which have few cases?
- **Typicality/central tendency:** do cases tend to belong to particular categories? Which typical category/ies do people belong in?
- **Variation:** are cases concentrated in a few categories or are they evenly spread across the categories? How similar (homogeneous) or dissimilar (heterogeneous) is the sample?
- **Symmetry/skewness:** in variables with rank-ordered categories, do cases tend to cluster towards the weak or the high end? Or do they cluster towards the middle of the variable?

Various data analysis software is available, including SPSS (Statistical Package for the Social Sciences), Excel or R.

Recommended Materials

De Vaus, D., 2014. Surveys in Social Research. Sydney, Vic.: Allen & Unwin. pp. 264 - 316

სოციოლოგიური მონაცემთა ანალიზი (2006), ნინო დურგლიშვილი, (გვ. 60-84) // Durglishvili, N., 2006. Sociological Data Analysis. pp. 13-21

რაოდენობრივი კვლევის მეთოდები სოციალურ მეცნიერებებში (2008), ლია წულაძე, (გვ. 53-63); // Tsuladze, L., 2008. Quantitative Research Methods in the Social Sciences. pp. 45-52;

Forms of Quantitative Research Results Visualization

- Graphs;
- Tables;
- Mind maps;
- Maps.

Mixed Methods Research

Besides using qualitative and quantitative research methods separately, they can be combined into mixed-method research. According to Greene (2007), mixed-methods thinking opened "multiple ways of seeing and hearing" (p. 20). Furthermore, it was referred to as the „third research paradigm" (Johnson and Onwuegbuzie, 2004, p. 15) and "a new star in the social science sky" (Mayring, 2007, p. 1).
„[Mixed methods research is defined] as research in which the investigator collects and analyzes data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry. (Tashakkori and Creswell, 2007b, p. 4)".

According to the pioneer of mixed-methods research, John W.Creswell, the main advantage of Mixed methods research is that it „provides a way to harness strengths that offset the weaknesses of both quantitative and qualitative research (Creswell and Clark, 2017, p. 95) .

Research processes aimed at analysing complex societal phenomena and addressing real-world challenges commonly use mixed method approaches. It is often the best approach to apply during a case study course.

In addition to mixed methods, there are certain research methods specifically aimed at bringing together different sources of knowledge, and can thus constitute the core of TD case study research. Several of them are described in the next section.

Inter-and transdisciplinary methods

System Analysis

Systema (Greek) is an organized whole, a body, "a set of objects, together with relationships between the objects and between their attributes" (Hall and Fagen, 1956). The general concept of the system fits

transdisciplinary research, which aims at addressing complex societal phenomena.

Different types of systems exist all around us, including:

- **Ecological systems:** such as a tropical rainforest, a reef, a mountain lake
- **Technical systems:** machines (car, hairdryer, etc.), production facilities
- **Social systems:** populations of organisms, society (from a local to international level), various communities and cultures, groups of individuals (i.e. family, clique), or educational systems.

Key concepts of a System

System - An organized entity made up of interrelated and interdependent parts.

Boundaries/Borders that define a system and distinguish it from other systems in the surroundings/ environment (defined by different dimensions).

System components (e.g. tourism system: infrastructure, population, natural resources, accommodation, attractions.

Impact variables/factors.

Each (core) system is defined by its boundaries, which distinguish it from the surrounding environment; these boundaries can be defined by different dimensions, such as:

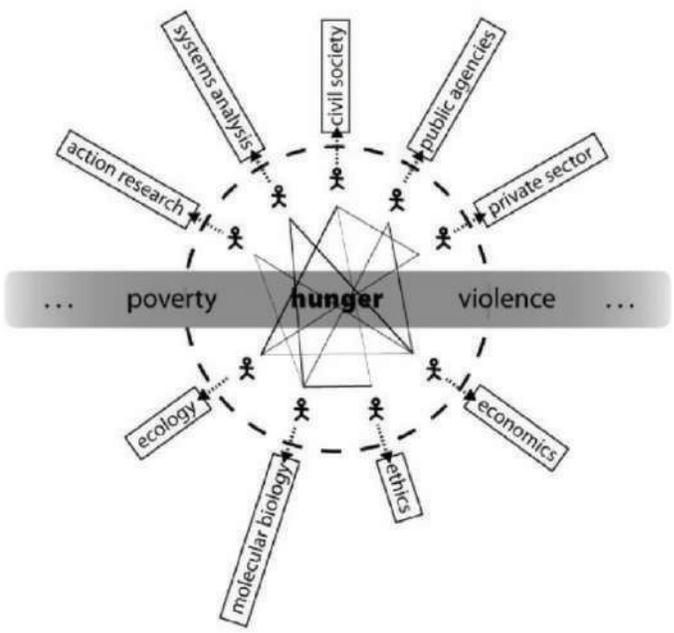
- Space (geographical, administrative)
- Structure (based on processes)
- Content (topics, problems)
- Institutional (administration)
- Personal (actors)

For the purposes of research and teaching, system boundaries can be set, based on a specific research question and the limitation of the study. The Core system is that which we can influence with our research.

Components of the system can include: various actors, institutions, natural resources or infrastructure elements. The term "system" refers to the connections between and interaction of these elements. The system (and each of its components) is influenced by a number of factors, both from within the core system, and from its surroundings.

A TD research project can comprise a system in itself. In this case, researchers and stakeholders (i.e. researchers from particular disciplines and actors of governmental and other public institutions, the private sector, the civil society) constitute system elements, and the interaction between them during the case study process (i.e., by discussing what the problem is about, by investigating the issue, by deliberating about values and goals, or by developing measures) comprises the system (Pohl and Hirsch Hadorn, 2008).

Figure 4.5 A transdisciplinary research project is the system built by the collaborative research process.



Source: Methodological challenges of transdisciplinary research (2008), Christian Pohl and Gertrude Hirsch Hadorn

Tourism is an example of a hybrid system characterized by a complex interaction of social, economic and biophysical components (Figure 4.6). Potential impact factors influencing a tourism destination include:

- External: global climate change, demand from tourists, available national or international development funds,
- Internal: language skills, local residents' willingness to host, available resources.

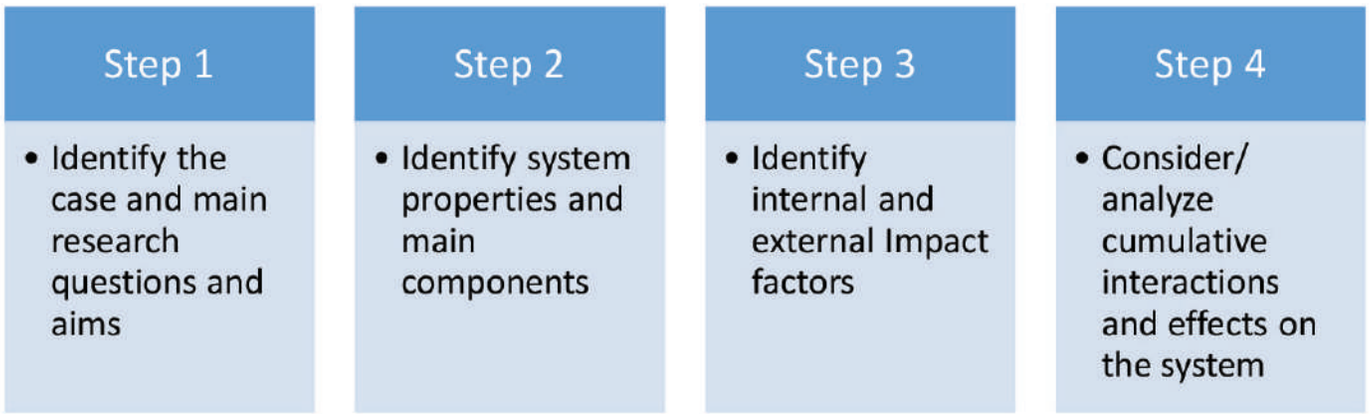
Figure 4.6 System Structure in the case of a local TD case study community.

Source: Own illustration by the Caucasus Project, based on a picture found online at: https://a248.e.akamai.net/secure.meetupstatic.com/photos/event/d/8/3/9/highres_440215353.jpeg

A system model can be developed for each facet of the problem under investigation. The system model should integrate heterogeneous knowledge of the stakeholders (also referred to as practice actors in TD research). The key variables and parameters are identified and described, and their relations to one another are determined during stakeholder workshops as well as focus groups and interviews. The goal of this process is to construct a functional system model and develop a joint understanding of the system under study that can serve as a basis for developing potential solutions to the addressed problem (i.e. scenario building, see the section on scenario development below). In addition, the modelling process of a system can constitute a learning process for both practice actors and scientists, as they exchange knowledge, perceptions and understanding of the problem (Bergmann et al., 2012, p. 88).

The aim of the description of the overall system is to achieve a common comprehensive understanding of the case (understanding of a topic) for all persons involved (students, stakeholders etc.).

Figure 4.7 Steps of System Analysis



Source: Own graphic, adapted from Glanzer et al., (2005).

Visualization and Assessment methods of System Analysis

Different methods are used to visualize systems and highlight key influencing factors and their relationships with the system components, as well as to identify problems and potentials:

Plus/Minus analysis or SWOT

Strength, Weakness, Opportunity and Threat (SWOT) analysis represents a method which can accurately study and analyse the current state of a system. The method integrates four main dimensions, such as Strength, Weakness, Opportunity and Threat. Accordingly, SWOT can be divided into two parts: the first part - SW (mainly used to analyse the internal conditions) and the second part - OT (mainly used to analyse the external conditions). Figure 4.8. demonstrates an example of SWOT analysis of tourism development in the Kazbegi Municipality, Georgia.

Figure 4.8 An example of SWOT Analysis

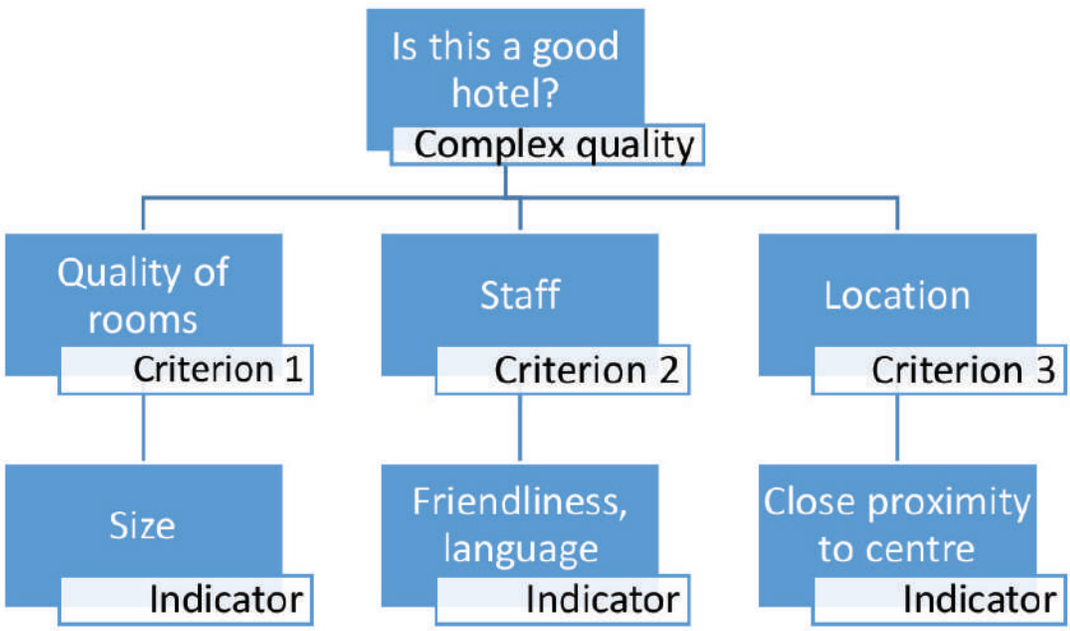
Strengths (S)	**Threats (T)**
- Favorable location, good accessibility; - Attractive environment and climate; - Cultural-historical monuments; - Kazbegi National Park; - Low level of crime.	- Uncertain and unstable political and economic situation (geopolitical aspect); - High dependence on tourism sector; - Ecological threats (natural risks, uncontrolled landfills); - Outmigration of young locals.
Opportunities (O)	**Weaknesses (W)**
- Exploration of unused tourist resources and diversification of tourist products/offers; - Taking advantage of the winter tourist season by developing tight links with the Gudauri ski resort; - Stronger and broader usage of information technologies; - Implementation of an internal quality assurance system for tourist products and services.	- Seasonality; - Underdeveloped agriculture; - Scarcity of locally produced goods; - Shortage of local qualified personnel; - Strong dependence on a single economic sector - tourism; - Lack of a long-term vision.

Source: CaucaSusT Project, SWOT analysis made by the participants of the TD Case Study Course in Kazbegi, Georgia, (2019)

Indicator-driven assessment

Indicator-driven assessment can provide a way to evaluate properties of a complex system based on the criteria of its components. Figure 4.9. provides an example, presenting a hotel as a system with a limited selection of components and indicators.

Figure 4.9 An example of an indicator-driven assessment.

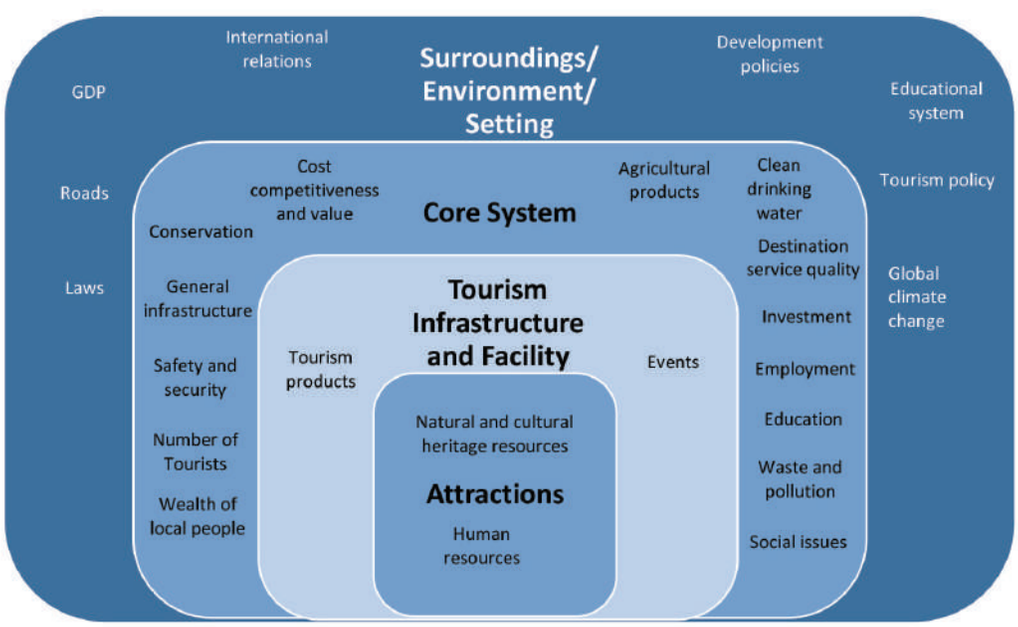


Source: Own figure developed for the CaucaSusT project.

System Graphs

Visualizing a system and its components is a very useful exercise to support systems analysis. Figure 4.10 provides an example of a Tourism System Graph.

Figure 4.10 An example of a Tourism System Graph



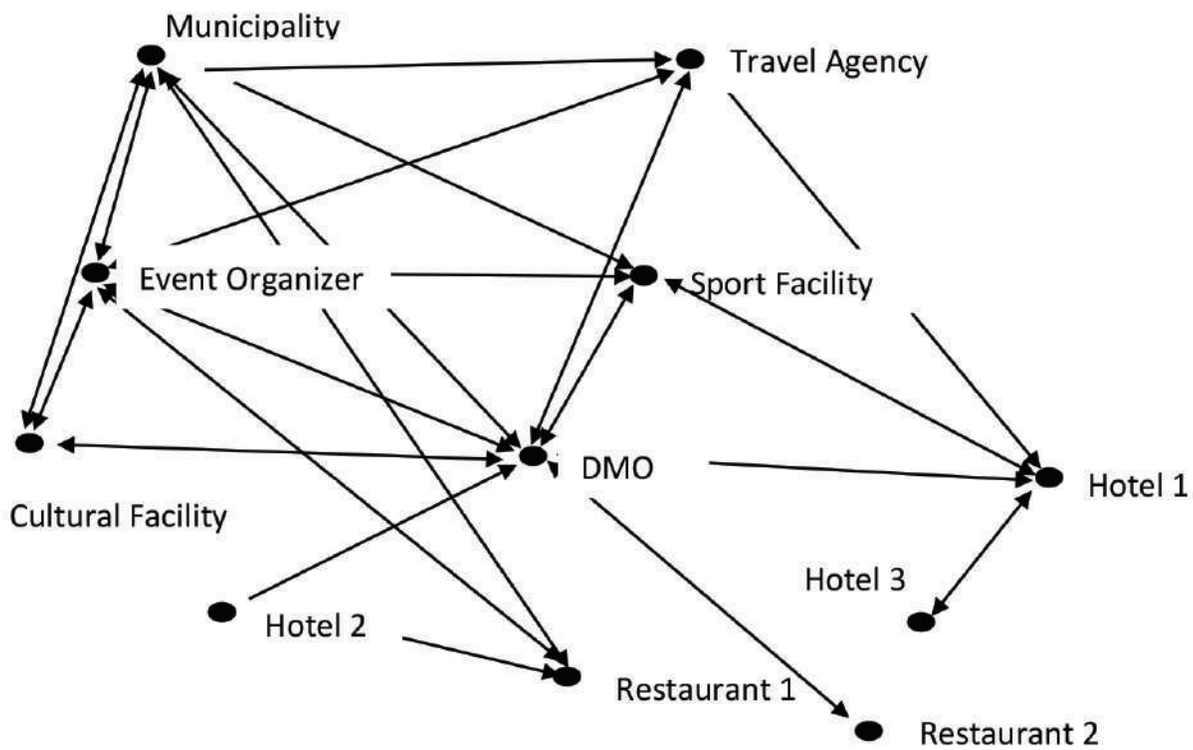
Source: Own illustration based on Peric and Djurkin (2014)

Social Network Analysis

Network analysis provides a way to describe the structure of relationships between stakeholders. While it can be done both qualitatively and quantitatively, the use of quantitative characteristics allows measuring these relationships. Based on these characteristics, one can assess the properties of the whole group as well as individual stakeholders. Social Network Analysis is an example of the application of matrix and graph theory (Hanneman and Riddle, 2005).

Matrices are commonly utilized in Social Network Analysis to form data on the relational bonds linking stakeholders together. Instead of using keywords in the matrix cells, Social Network Analysis uses numbers to represent the presence/absence of a tie as well as the relative strength of the relationship. Each matrix symbolizes a unique relation, such as contact, companionship, suggestion, conflict, etc. (Reed et al., 2009)

Figure 4.11 An Example of a matrix and graph of the network analysis.
Legend: D-DMO, H1- Hotel 1, H2- Hotel 2, H3- Hotel 3, R1- Restaurant 1, R2- Restaurant 2, T- Travel Agency, E- Event Organizer, M- Municipality, S- Sport Facility, C- Cultural Facility



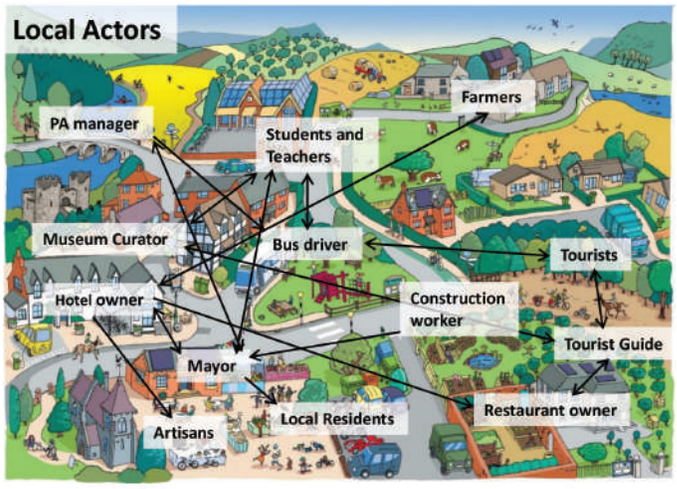
	D	H1	H2	H3	R1	R2	T	E	M	S	C
DMO	0	1	1	0	1	1	1	1	1	1	1
Hotel 1	1	0	0	1	1	0	1	0	0	1	0
Hotel 2	1	0	0	0	1	0	0	0	0	0	0
Hotel 3	0	1	0	0	0	0	0	0	0	0	0
Restaurant 1	1	1	1	0	0	0	0	1	1	0	0
Restaurant 2	1	0	0	0	0	0	0	0	0	0	0
Travel Agency	1	1	0	0	0	0	0	1	1	0	0
Event Organizer	1	0	0	0	1	0	1	0	1	1	1
Municipality	1	0	0	0	1	0	1	1	0	1	1
Sport Facility	1	1	0	0	0	0	0	1	1	0	0
Cultural Facility	1	0	0	0	0	0	0	1	1	0	0

Source: Gajdošík (2015).

For More Information:

The network perspective is often used in the context of tourism destinations. Tourism destinations can be characterized as places where cooperation and collaboration between the stakeholders create a tourism product (Pechlaner et al., 2012). These networks, whether based on informal local alliances, casual or formal partnerships can help compensate for the fragmented nature of tourism. Tourism is seen as geographically dispersed, consisting of small independent businesses, while the creation of a comprehensive product lies in the ability to cooperate (Scott et al., 2008). The main advantage of the network perspective lies in the quantitation of co-operative behaviour of tourism stakeholders in a destination, which helps understand the problems of the cooperative destination management.

Figure 4.12 An example of a Network

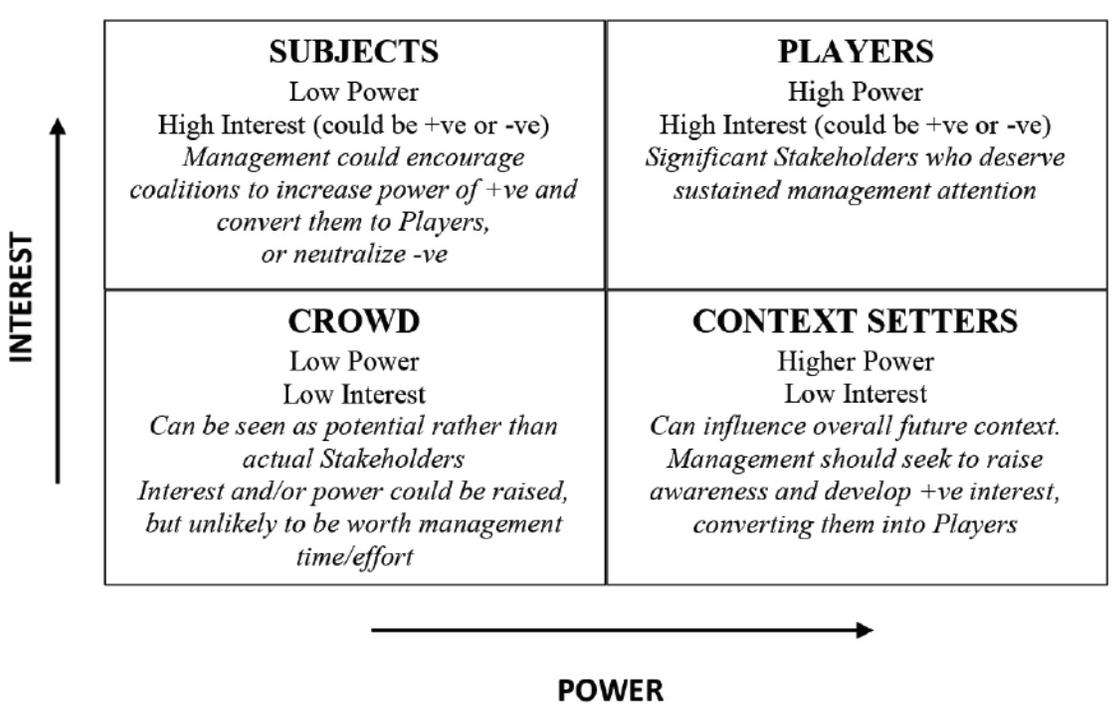


Source: Own illustration by the Caucasus Project, Photo file found online at: https://a248.e.akamai.net/secure.meetupstatic.com/photos/event/d/8/3/9/highres_440215353.jpeg

A power/interest grid is developed on the basis of a method, which classifies stakeholders into ''Key players", ''Context setters'', ''Subjects'' and ''Crowd'' (Eden and Ackermann, 1998). This approach helps determine how stakeholders might be engaged with respect to addressing the problem under investigation:

- Key players - have a high interest in and influence over a particular phenomenon and should be actively groomed;
- Context setters - are highly influential, but have little interest - they may be a substantial risk, should be monitored and managed;
- Subjects - have high interest but low influence - they are supportive, they lack the capacity for impact. However, they may become influential by forming alliances with other stakeholders;
- Crowd - have little interest in or influence over desired outcomes – there is little need to consider them in much detail or to engage with them (Reed et al., 2009).

Figure 4.13 Stakeholder power-interest grid



Source: Ackermann and Eden (2011).

Useful Links: The following Software can be used for network analysis:

NodeXL
https://nodexl.codeplex.com/ (NodeXL Basic is a free, open-source template for Microsoft Excel). Tutorial: https://www.youtube.com/watch?v=zE-grruOITHw

Graphviz
http://www.graphviz.org/about/ (Graphviz is an open source graph visualization software. Graph visualization is a way of representing structural information as diagrams of abstract graphs and networks). Tutorial https://www.youtube.com/watch?v=JXfobuvyFOA

igraph package for R/RStudio
https://igraph.org/r/ (igraph is an open source and free collection of network analysis tools. igraph can be programmed in R). Tutorial https://kateto.net/networks-r-igraph

Future Studies (in the context of Sustainability)

"There is not just one future, but many possible futures"
Sardar (2010)

Today's world faces social, environmental, economic, demographic and cultural transformations. To understand how these possible changes can be geared towards achieving sustainability, it is important to conceptualize our desired "future world".

"The future cannot be predicted, but alternative futures can be forecasted and preferred futures envisioned and invented - continuously" - states the Dator's First Law of future (Dator, 1996).

Our knowledge and skills as well as our understanding of the world as it is today can help us create possible visions and scenarios for the potential **future** state of our systems. Studying the future and designing possible scenarios involves not only focusing on the current moment **(now),** but also taking into consideration processes, which happened before and shaped the present state of the world (the **past**) (Sardar, 2010).

Sardar (2010) describes that thinking about the future:

- change people's **perceptions**
- make them **aware** of dangers and opportunities
- **motivate** people to take individual action
- encourage them to invent or **innovate**
- motivate people to take **collective action**
- make them **fearful**
- **empower** people
- **marginalize** people
- declare certain **cultures/belief systems** as (un) important

While thinking about the future, it is important to consider the kind of future we envision:

- **A possible** future is a broad concept, and can be imagined by asking the question - *what may happen?*
- **A probable future** narrows the possibilities to the most probable turns of events (usually based on previous experiences and current trends) - *what is most likely to happen?*
- **A preferable future** considers wishes and preferences - *what would we prefer to happen?* (who "we" are in this case, and whose preferences we should consider depends on the situation, the system's boundaries and / or on the research questions – this could be the researchers themselves, the research participants, the stakeholders, or the general population) (Bell, 2017).

*It might also be useful to think in terms of an "undesirable" future - *what we do not want to happen?* (e.g. land degradation, climate change, biodiversity loss). This might help us consider what can be done to avoid it.

Conceptualizing the possible, probable and preferable (or desired) futures can help create alternative visions of the future.

"Futures studies create alternative futures by questioning basic assumptions. Through questioning the future, emerging issues analysis, and scenarios, the intention is to move out of the present and create the possibility for new futures" (Inayatullah, 2013).

One of the methods used to conceptualize and design the future is **Scenario Development.**

Recommended Materials:

Inayatullah, S., 2013. „Futures studies: theories and methods." There's a future: Visions for a Better World, BBVA, Madrid [online] Available at: https://www.bbvaopenmind.com/wp-content/uploads/2013/01/BBVA-OpenMind-Book-There-is-a-Future_Visions-for-a-Better-World-1.pdf

Rialland, A., and Wold, K. E., 2009. Future Studies, Foresight and Scenarios as basis for better strategic decisions. Trondheim, [online] Available at: http://www.forschungsnetzwerk.at/download-pub/IGLO_WP2009-10_Scenarios.pdf

Scenario Development

> *"Scenarios are the most powerful vehicles I know for challenging our "mental models" about the world, and lifting the blinders that limits our creativity and resourcefulness"*
> ***Schwartz (1991)***

The concept of scenarios comes from cinema vocabulary (as a synonym for screenplay or script). There are various definitions and interpretations of "Scenarios", but for the purposes of TD research, they can be understood as *structurally different stories about the future* (Rialland and Wold, 2009).

As described by Inayatullah (2013) *"Scenarios open up the present, contour the range of uncertainty, reduce risk, offer alternatives, create more flexible organizational mindsets, and even better, they predict".*

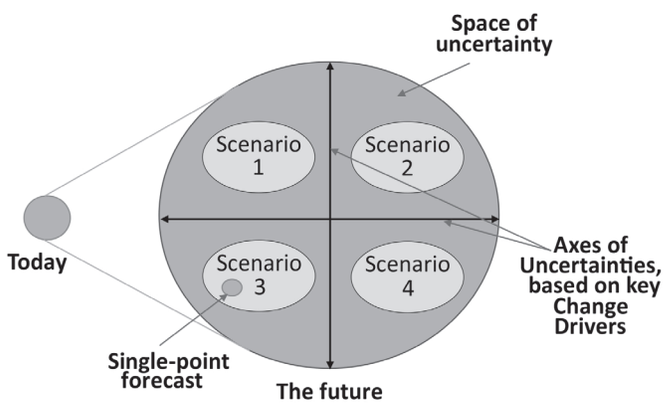
Scenarios aim at:

- identification of **uncertainties** and planning of how to deal with uncertainties
- **knowledge integration** (i.e. scientific and local knowledge)
- initiating a **process of understanding**
- stimulating **openness for new approaches and ways** (Braito and Penker, 2019)

Rialland and Wold (2009) highlight that the fundamentals of a future scenario deal with uncertainties.

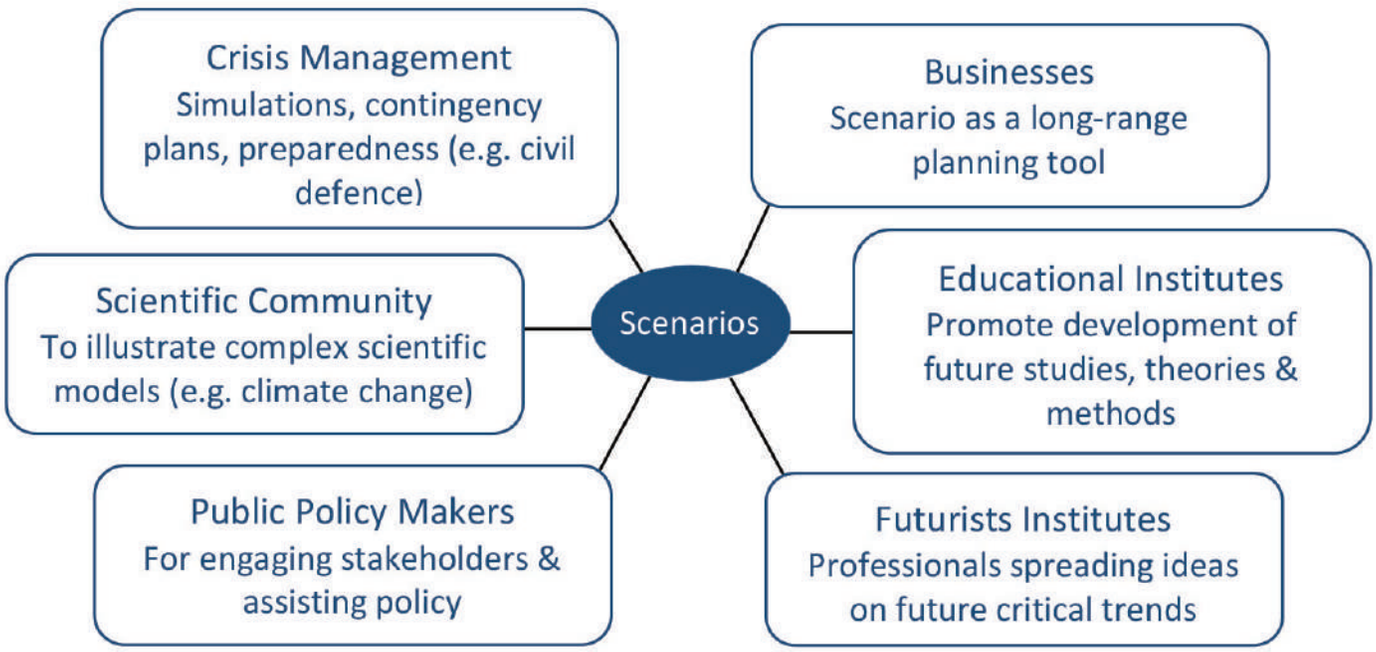
Figure 4.14 illustrates scenario-building as a projection into the future, showing a large scope of uncertainty compared to today.

Figure 4.14 Scenario as a projection into the future
Source: Rialland and Wold, (2009)



Scenarios are highly integrated into the different areas of our life, such as policy, management, education and science etc., as presented in Figure 4.15. They can be designed for various scales, from a small case (e.g a business, an organization) to countries or international unions (Williams and Hummelbrunner, 2010). Scenario planning is a useful tool for innovation, new educational and research methods, and regional development strategies (Edgar et al., 2013).

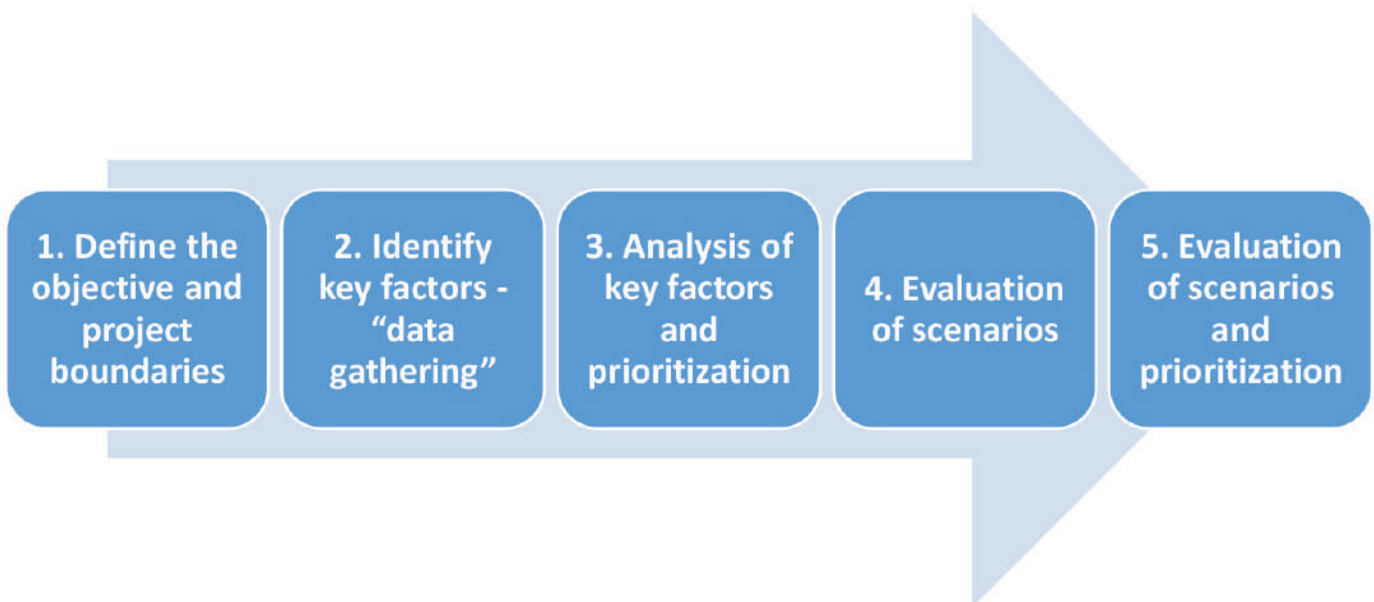
Figure 4.15 Areas of application of scenario techniques



Source: Bradfield et al. (2005)

The scenario technique is a tool for developing future situations/scenarios and describing the ways of reaching them. It aims at creating different scenarios based on the systems analysis. The outcome could be 1-2, best-case and worst-case scenarios. At least 1 trend scenario should also be identified. The scenarios must be logically structured in order to make decisions for future planning. Figure 4.16 presents scenario development steps.

Figure 4.16 Scenario development and evaluation process.



Source: Braito and Penker (2019)

Table 4.3 outlines the main phases of scenario development as well as its methods and guiding questions.

Table 4.3 Main phases, methods and guiding questions of scenario development

Steps/ Phase	1	2	3	4	5
Purpose	Define boundaries and establish focus	Identify up to 15 key factors or driving forces that have led to the present state of the system (for details, see Edgar et al., 2013, p. 106)	Analyse and filter the key factors / driving forces, rank the influence of the future state of the system	Develop the scenario logic and revise the ideas	Disseminate the message and its implementation on the ground
Methods	Brainstorming	Brainstorming, brain writing, World Cafe	Classifying the drivers based on: - the degree of impact on the target and - the degree of uncertainty of the outcome (from high and low). The "high-impact/high-uncertainty" drivers are the key drivers for defining the scenarios (for details, see Rialland and Wold, 2009, p 20)	Scenarios can be presented via storytelling (story mapping): - the story title should contain a central message; -the narrative should describe the main features /interconnections of the key elements; - graphic representation (diagrams, drawings) can help visualize the scenario	Backcasting (for more details see Inayatullah, 2013, p 58)
Guiding questions	What is the specific issue here? What is the topic? What problem is to be dealt with? How is the scenario field defined? What must be integrated? Who are the main stakeholders? What are the time limits?	Which factors are influencing the present and may have an impact on the development of the scenario objective? What are key factors or driving forces (social, environmental, political, technical) that have led to the present state of the system?	What are key drivers of change? What are future uncertainties?	What will the impact be? (Picture 2) What are the four possible and plausible futures?	What would be the threats and opportunities for our field if scenario 1 or 2 would happen? Which strategy and actions should we adopt, if scenario 1 or 2 would happen? What do we have to supervise in scenario 1 or 2, meaning which signposts can help us orientate our strategy?
Important to know	The objectives for the scenario planning should include the following: 1.Thematic framework, 2.Time horizon for the scenarios, 3.Geographical scope of the scenarios, 4.Stakeholders to be addressed by the project, 5.Unavoidable constraints on future plans, and 6.Definition and deadline for deliverables.	Driving forces are not problems; Driving forces are attributes of a system which are most relevant **at the present** and cause changes in the system state over time (e.g. social, economic, environmental, political, and technological); Driving forces indicate change but should not indicate direction or dimension.	We may be highly certain that something will happen (e.g. climate change) but highly uncertain about the impact it may have.	Select the two factors (A and B) that combine the **greatest perceived relevance** on the core issue with the **greatest uncertainty**; Each storyline describes how the future scenario emerges in a cause-effect evolution from today's situation.	Try to come up with suggestions about which activities/measures that have to be taken to reach the preferred scenario.

Source: Table compiled by the authors

Suggested Teaching Exercises

Topic: Scenario Development

Exercise name: Scenario development for a hiking tour

Instructions: Divide students into 4-5 smaller groups based on their interests (if the class is big, two or more groups could work on the same scenario). Plan a mountain hiking or climbing trip with the group: as an example, you can choose 2 mountains in your country.
Create both positive and negative scenarios and come up with advice to your group.

Scenario 1: Worst weather case (e.g. snow, heavy rain, hail, lightning etc.).
Scenario 2: Best weather case (sun, no wind etc.).

Make scenarios taking possible natural hazards (e.g. landslides, rock fall, avalanches etc.), animals, plants, equipment, etc. into consideration.
Use different tools to show the scenario process (e.g. mapping method).

Learning Outcomes:

- Design and development of the scenario process
- Understanding complex systems and interconnected features within the system boundaries
- Present possible future scenarios

PART III.
IMPLEMENTING A TD CASE STUDY COURSE

5 INTEGRATING THE CASE STUDY COURSE INTO AN HEI CURRICULUM

The aim of this section is to address the possibilities of organizing a transdisciplinary case study course, including teaching and research, in Higher Educational Institutions (HEI)[3] with little or no preliminary experience with transdisciplinary approaches. It is based on the experiences of teachers[4] in ASPU and TSU in implementing the TD Field Case Study Courses in 2018-2020.

We refer to a course as TD, if:

- it is developed in cooperation with non-academic actors (case actors, stakeholders, external experts),
- it is aimed at co-creating solutions to societal problems,
- it is taught by a team of teachers coming from different disciplinary backgrounds and university departments,
- it involves students from different study programmes and departments,
- it consists of close interactions between teachers, students and case actors as well as integration of knowledge among them.

Other examples of TD courses include inter-departmental research projects or TD research projects involving several universities, promoting TD cooperation both within and between them, etc.

Recommended Materials:

The papers below provide interesting examples of strengthening university TD practices and involving students in co-creating knowledge with non-academic actors:

König, A., 2015. Changing requisites to universities in the 21st century: organizing for transformative sustainability science for systemic change. Current Opinion in Environmental Sustainability 16, 105–111. http://dx.doi.org/10.1016/j.cosust.2015.08.011

Rosenberg Daneri, D., Trencher, G., Petersen, J., 2015. Students as change agents in a town-wide sustainability transformation: the Oberlin Project at Oberlin College. Current Opinion in Environmental Sustainability 16, 14–21. http://dx.doi.org/10.1016/j.cosust.2015.07.005

Trencher, G., Terada, T., Yarime, M., 2015. Student participation in the co-creation of knowledge and social experiments for advancing sustainability: experiences from the University of Tokyo. Current Opinion in Environmental Sustainability 16, 56–63. http://dx.doi.org/10.1016/j.cosust.2015.08.001

Useful Links:

The full journal issue, devoted to Sustainability Science, can be downloaded here: https://www.sciencedirect.com/journal/current-opinion-in-environmental-sustainability/vol/16/suppl/C

When integrating a TD Case Study course into a university curriculum, several options can be considered:

1. development and implementation of new programmes and courses;
2. modification of existing programmes and courses;

3 For the purposes of this section, we use Higher Educational Institutions (HEI) and universities interchangeably.
4 We use the word "teachers" to indicate educators of all levels teaching at HEIs.

3. a hybrid option of the two above - creation and implementation of a new course (for example, field practice) linked to/complementing existing courses, with respective modifications to the syllabi.

Considering the university rules and procedures, the most suitable option can be selected in each case.

Experience from the CaucaSusT Project:

Should the new courses be Elective or Mandatory?

Advice from ASPU: The newly added courses at ASPU are elective courses, lasting one semester.

Advice from TSU: Based on our experience, the course can be either elective or mandatory. It depends on the study plan, and on how credits are distributed during the semester. Setting the course as an elective, renders it open to the students studying in different study programs.
At the initial stage, it is important to review which practices and programmes already exist in a respective HEI, and how the new TD course could be imbedded into the existing structure.

Questions to consider:

- Which programs and courses already exist at the university?
- Are there examples of existing interdisciplinary courses, projects and programmes?
- Are there examples of existing transdisciplinary courses, projects and programmes?
- What field work and other practical experience-building are integrated into the current curriculum? What are the options for integrating inter- and transdisciplinary approaches into these activities?
- What are the rules of and barriers to developing new courses and integrating them into the curriculum?
- What are the options for and barriers to interdisciplinary teaching, such as:
    - bringing teachers and/or students from different fields and departments to participate in the same courses, or
    - co-supervising students by teachers from different departments?
- Which decision-makers should be involved in the development and integration of a new TD course, or the integration of inter- and transdisciplinary approaches into existing courses?
- What are the options for integrating practical experts and stakeholders into teaching and practice?
- Which preparatory inputs are required for implementing a TD course (materials, space, teaching capacities), which actions are needed to ensure them, and are there financial and human recourses available for this purpose?
- What are the experiences of other universities with development and introduction of new courses and what can be learnt from them?

Experience from the CaucaSusT Project:

Integrating a Transdisciplinary Case Study Course into the University Curriculum:

At ASPU, extensive discussions with university leadership and among teachers and department heads took place. Based on these meetings, decisions were made:
- to create a new elective course, which would encompass the TD Case Study Course,
- to create a more general subject based on sustainable development principles for both the Bachelor and Master studies.

A new elective course, which consists of theoretical and practical parts, is available to students from the departments of Sustainable Development and Ecology and Physical and Economic Geography.
Educators from several departments, including Sustainable Development and Ecology, Physical and Economic Geography and History, were involved in teaching a new course.

At the beginning of the CaucaSusT project, a new Master programme, Landscape Planning and Design, was established at ASPU in the framework of another project. This change facilitated the integration of the content introduced by the CaucaSusT partners into the ASPU curriculum as well as closer collaboration among the university departments and faculties.

Moreover, during the second year of the CaucaSusT project, the ASPU "Geography and its Teaching Methods" department developed a stronger focus on sustainable tourism, based on the demand and interest from the students.

Several new courses were added to the ASPU curriculum:

1. Assessment of Tourism Resources in the Context of Sustainable Development (2 credits)

2. Natural and Historical Architectural Monuments (2 credits)
3. Ecotourism (2 credits)
4. Recourse Management and Governance of Mountain Regions (2 ECTS; will be introduced in the upcoming semester)

The new course, Assessment of Tourism Resources in the Context of Sustainable Development was introduced in the Geography and its Teaching Methods department.

The newly established Master program of Landscape Planning and Design started to offer two optional courses: **Natural and Historical Architectural Monuments** and **Ecotourism.** The courses were developed and are taught jointly by the professors with different specialisations: geographers, historians, sociologists, biologists.

All the new courses will focus on examples from the selected case study regions in order to ensure the student are prepared for the field research component – the transdisciplinary case study course. More information about these courses is available in Annex I.

***

At TSU the course was developed in close interaction and cooperation among 4 academic units, namely: Department of Tourism, Department of Human Geography, Department of Landscape Studies, and Institute of Gender Studies, from 3 Faculties (Faculty of Economics and Business, Faculty of Exact and Natural Sciences; Faculty of Political and Social Sciences).

TSU opted for the modification of existing curricula in several existing courses and creation of the new joint field practice. Six existing courses in 3 different master programmes were modified, with a focus on topics related to transdisciplinarity, sustainable tourism development and relevant research methods.

The following changes were made at the Faculty of Economics and Business: 1) the management department adopted transdisciplinarity-related topics for lectures and practical work in the existing "Tourism policy" course, which is compulsory in the Tourism MBA programme; 2) the Department also established a new course: Sustainable Tourism Development. According to the content of the course, students will be able to get comprehensive knowledge about sustainability and transdisciplinary-related issues.

The Faculty of Exact and Natural Sciences and the Department of Geography made changes in the three existing courses: 1. Tourism and Recreational Resources, 2. Sustainable Development of Mountain Regions and 3. Landscape Management.
The Faculty of Social and Political Science and the Department of Human Geography made changes in two existing courses: 1. Geography of Tourism in Europe and 2. Fundamentals of Tourism Marketing;
Additionally, all three master programs amended their curricula by adding a new student field practice/case study course worth 5 ECTS credits. All these amendments were approved by the academic councils of corresponding faculties and the Quality Assurance office of TSU.

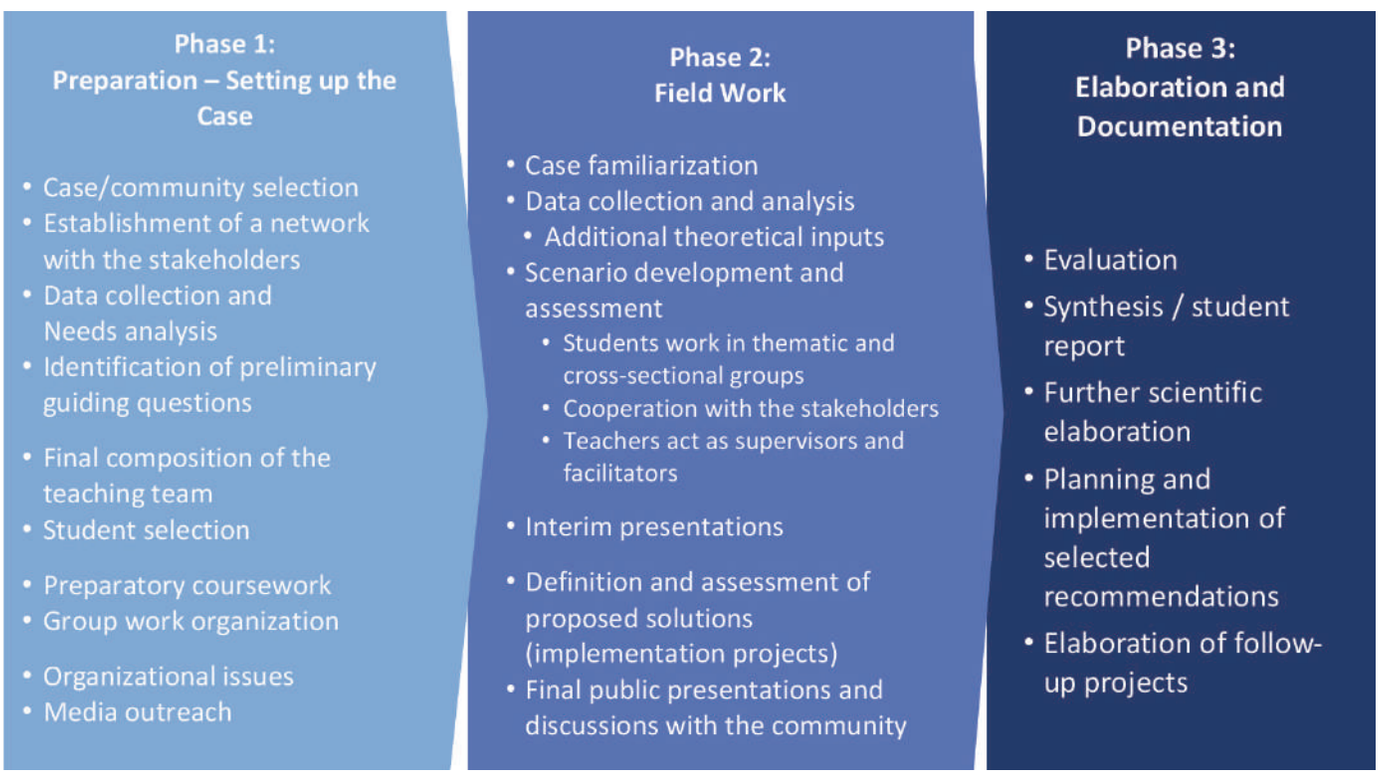
Experience from the CaucaSusT Project - suggested learning outcomes for the field TD Case Study Course

- The student can understand the transdisciplinary aspects of the case study and its complexity;
- The student can select the relevant scientific material for a comprehensive literature review;
- The student understands real-world issues and can establish a direct relationship between them and theoretical information;
- The student can work in teams, engage in discussions, reflections and group work;
- The student can collaborate with the societal stakeholders on research issues and ensure to integrate their perspectives throughout the case study process;
- The student can analyse the challenges and circumstances of the case study area;
- The student can collect and evaluate information in compliance with the case study objectives;
- The student can interpret facts;
- The student can formulate recommendations and develop possible alternative solutions;
- The student can present the best practices and the possibility of their implementation in the case study area;
- The student can show creativity and offer future development solutions based on their ideas;
- The student can present the findings and outcomes of the TD case study for a scientific and non-scientific audience;
- The student can elaborate the structure, layout and content of the final report on the case study in written form.

6 IMPLEMENTING A TRANSDISCIPLINARY CASE STUDY COURSE

Based on examples from literature (Steiner and Posch, 2006) and our experience during the Cauca-SusT project, we suggest considering several phases of Transdisciplinary Case Study Course implementation. Figure 6.1 presents the summary of the three phases: 1) Preparation – setting up the case; 2) Field work and 3) Elaboration and documentation, as well as the detailed description with some advice based on our experience implementing the courses in Armenia and Georgia.

Figure 6.1 Three phases of a TD field case study course



Source: Own elaboration based on Scholz and Tietje (2002).

Phase 1. Preparation - Setting up the case

Case/community selection

Several criteria could be considered when selecting a case, including, but not limited to, the following:

- Apparent need to address certain societal problems (such as challenges of sustainable tourism development, infrastructure planning, climate change adaptation, etc.) in a certain community/area;
- Interest of the main actors / stakeholders[5] to cooperate with the university students and teachers on addressing a selected problem; local actors' perception of the selected problem as relevant as well as their expression of commitment and co-ownership;

5 We use the terms "stakeholders" and "actors" interchangeably

- Feasibility to address a selected issue given the duration of the course, the distance of the case study location from the university and the available financial resources;
- Availability of the needed infrastructure for accommodating the university team in the case study area.

Experience from the CaucaSusT Project:

Personal and professional connections and networks with the case study community or case actors / stakeholders can constitute valuable assets and should be considered when selecting a case. Informing and involving community administrative structures and decision-makers is an important step when initiating cooperation. Support from the local decision makers can help direct the university towards the real local needs, facilitating local ownership and helping solve organizational issues.

Advice From ASPU: Personal connections can help in the trust-building process, so that the locals are open in sharing their thoughts/problems. Having a good network/relationship with the local mayor ensures high-level local participation and support from the municipality (networking, facilitating meetings with authorities, etc.). At the same time, one should be careful, because members of a local community could feel reluctant to speak about problems they face in front of the mayor, for example.

In this regard, establishing a network (before the field studies begin) with local active youth could be very helpful. During the Marmarik case study, ASPU colleagues were supported by the active youth from the community as well as the representatives of non-governmental organizations. Linking the efforts of ASPU students with the local youth and setting up Facebook groups, as well as a website to promote the community, made the communication easier and more effective.

During the Dilijan case study, personal contacts of ASPU staff with the local authorities were useful - they expressed willingness to share available data and participate in interviews. Moreover, ASPU students and graduates, who originally came from the case study communities, participated in the course and supported the process with their personal contacts.

Advice From TSU: Having close contacts with different actors/stakeholders unlocks new opportunities from the perspective of operational effectiveness. For instance, in the case of Kazbegi, we had strong support from the local governmental bodies. Correspondingly, this helped us access valuable information which was then used during the field research process. Furthermore, we could easily manage communication with the different stakeholders.

During the Tsagveri case study, however, we faced a lack of support from the local governmental bodies, but despite this, we had well established personal contacts with community representatives and local NGOs, which simplified the implementation of our work.

Establishment of a network with the stakeholders

After the case study location and respective community have been decided upon and the interest as well as the commitment of the local case actors have been ensured, it is important to consider which local knowledge would be useful to integrate into the case study and which stakeholders should be involved from the beginning of the planning process. Close communication with these stakeholders should be established.

Experience from the CaucaSusT Project:

It is important that local stakeholders understand the limitations of what students and teachers can contribute to the community within the scope of the case study course (i.e. the expertise students and teachers can provide, time constraints and financial resources available). Sometimes it might be important to clearly inform the community members whether any financial resources are available for the community, as some locals might expect financial support from "international" projects.

Moreover, some locals (especially in the famous tourist regions such as Dilijan, Armenia or Kazbegi, Georgia) don't trust NGOs and international organizations. This is often due to their negative experiences from other projects implemented in their regions and their perception that NGOs and other organizations use communities to earn money from international donors, while providing little benefits to the community itself.
In this respect, it is very important to carefully consider how the local communities will benefit from the case study courses, openly discussing this with local stakeholders and jointly evaluating benefits for the community.

Advice from ASPU: ASPU faced the same challenge of local people expecting financial support, especially during the Marmarik case study. However, after joint discussions, during which project principles and preliminary research questions were presented, the main purpose of the project became clear. In other words, the beneficiaries clearly understood the role of ASPU's work in the community at the beginning of the case study course. At the same time, publicizing the case study course and raising awareness about the community challenges, as well as about the joint activities of ASPU with some of the active locals, helped a group of stakeholders receive financial support for various projects from public and private donors.

In the case of the second case study course in Dilijan, the community's expectations from cooperation with ASPU teachers and students were clarified in advance, and focus was placed on the joint revision of an eco-trail in the Dilijan National park. This supported effective cooperation and joint generalization of new ideas.

Advice from TSU: To achieve project goals, we have established an effective network and partnership with the stakeholders (Governmental, NGO, Private Sector, International Organizations) in both research areas (Borjomi/Tsagveri and Kazbegi, Georgia).
Meeting preparations, informing stakeholders about project goals and objectives, as well as ensuring that local actors benefit from the project constituted challenging tasks.

A fundamental recommendation from that point of view is to clearly and effectively explain the general objectives and goals of the project to the relevant stakeholders. During the preliminary meetings, it is strategically important to place emphasis on the activities and plans considered in the framework of the project (both short- and long-term).

Our experience confirmed that it is essential not to create wrong expectations during the preliminary working activities - the more transparent the university team can be, the better. For instance, stakeholders often raised questions regard ing funding opportunities or financial benefits. In order to address such situations, the TSU team had to clearly define their tasks in order to send an encouraging message to the stakeholders; it was important to demonstrate that the project focused on identifying local problems and finding potential solutions. Moreover, when speaking with the decision-makers as well as local or regional governments, TSU also highlighted the aspirations and needs of the stakeholders with respect to the development of their communities. The latter was also perceived as a tangible benefit by the local actors.

Data collection and Needs analysis

We recommend conducting a Needs Analysis of the selected community in order to collect background information and preliminary data as well as to develop a better understanding of available resources and main challenges faced by the community. Data collection could include discussions with local stakeholders and preliminary field visits as well as literature research and consideration of strategic documents, etc. We also recommend checking the results of the analysis with the local stakeholders to make sure there is a shared understanding of the needs between the university and community, before proceeding further.

Experience from the CaucaSusT Project:

If feasible, students can be involved in the preparation phase, helping collect data and contributing to the Needs Analysis, although it is advisable for teachers to prepare the material in advance, in cooperation with stakeholders and non-academic experts on specific relevant topics.

We suggest considering the following elements and questions when conducting the Needs Analysis, to be collected via field visits and communication with the local communities (phone discussions, face-to-face meetings, focus groups, and observation), as well as from existing literature and documents (Table 6.1.).

Table 6.1 Needs analysis elements and guiding questions. (this example is focused on tourism development)

• Location of the village
• Demographic information
• Information about the local economic situation
• What economic sectors/activities create significant sources of income   ○ (In case of tourism-related foci: tourism statistics; share of income generated (directly and indirectly) by tourism in community and/or household revenues; seasonality of tourism operations; existing tourism offers and enterprises)

• Who are the main actors/stakeholders in the local context, what are their roles with respect to the planned study case - are they involved directly or indirectly? (In case of tourism-related foci: accommodations, restaurants, sites, natural and cultural attractions, transportation).
  ○ Do they cooperate among each other or coordinate their activities somehow?
  ○ What power relations exist in the case study site?
  ○ What are the institutions and individuals responsible for planning and coordinating respective activities (tourism, agriculture, landscape development, etc.) at the local level?

• Who are the relevant/important actors in the national/regional context?
• Is there any understanding of sustainable development at the local level?
• What are the strengths, weaknesses, opportunities and threats (SWOT analysis) of tourism development in the case study area?
• What are the gaps between the communities' visions about tourism development and the current reality, and what support do they need to fill these gaps?

• Who will contribute knowledge to the case study course, and what kind of knowledge will they contribute?
  ○ What knowledge is missing at the local level? (This should guide the decisions of which disciplines/departments should ideally be involved in the Case Study Course)
  ○ What knowledge can the university teachers and students provide?

• What are the proposals from the local actors regarding the contribution of students and teachers during the field study course?

Source: The Caucasus Project.

Experience from the CaucaSusT Project:

1. When initiating Needs Analysis in rural villages, it is better to organize face to face meetings with local stakeholders, rather than communicate via phone or electronically, as that makes the meetings more personal, establishing a sense of trust.
2. It is very important to gather preliminary information about the relevant, previously implemented projects in the case study community at the time of the Needs analysis. This can be done by reading project reports and records, if available, and getting in touch with organizations or individuals involved, both from within and outside the community. This will help find existing knowledge/practice gaps and support the identification of the preliminary research questions of the case study course.
3. Before the initial meeting of students with stakeholders, students and teachers should be well familiar with existing information about the community. During discussions with the locals, it is helpful to reference various sources, where the students found information about the community, in order to indicate that they have done preliminary research. At the same time, students should avoid sounding condescending towards community members. This will help improve the local perception of students/teachers as professionals.

Preliminary identification of research questions

Based on the results of the Needs Analysis, preliminary research questions can be identified. We recommend to consider the questions "preliminary" at this stage, due to the fact that they can and should be fine-tuned and reformulated based on closer examination and collaboration with the local stakeholders in the later stages of the case study course.

As the objective of a TD field case study course is to jointly develop an understanding of the selected challenges and elaborate potential solutions, we recommend to include questions focused on Systems, Target and Transformations Knowledge (see example questions in Table 6.2, but keep in mind that these knowledge types are not always easy to distinguish and can depend on whose perspective the questions are aimed for - the students / teachers, the local community, etc).

Table 6.2 Examples of preliminary research questions (focused on sustainable tourism)

Systems knowledge	• What are the key elements/components contributing to the tourism development in the Case Study area and how do they interrelate? • Are there existing tourism initiatives? Are they community-based? • Who are the key actors and decision makers in this field, and who are the main consumers of the tourism products?
Target knowledge	• What sustainable local tourism products could be developed? • How can participatory governance on the local level be organized? • What is the preferred long-term (5 years) scenario for sustainable tourism development in a specific location (i.e. community, region) ?
Transformations knowledge	• Which resources and actions are needed in order to implement sustainable tourism products? • How to ensure the local population benefits from the tourism initiatives? • How can the existing challenges of and barriers to achieving sustainability in tourism be overcome?

Source: CaucaSusT Project.

Composition of the teaching team - Identification of the disciplines, knowledge components and skills needed by the students and the teachers

After identifying the preliminary questions, the types of knowledge and competences needed to address them should be considered. Specifically:

- Which teachers (from which academic disciplines) should be involved in teaching the course?
- Which knowledge is necessary, but not available within the existing teaching team or at the university? Could external (practice) experts or local stakeholders provide this knowledge (and if yes, how can this be organized, for example, as an external lecture or a preliminary field visit).

The final composition of the teaching team can be decided upon based on the above considerations.

Experience from the CaucaSusT Project:

The involvement of teachers from different departments might pose an organizational challenge.

Advice from ASPU: It was challenging to involve teachers from different faculties during the first case study course, due to their lack of previous experiences in administratively processing interdepartmental teaching, and due to the fact that they were not familiar with each other before the project. A verbal agreement between the department heads and the university leadership helped address the former issue. A teacher workshop and joined preparation activities addressed the latter.

Additional challenges included lack of experience in inter-and transdisciplinary teaching. As a result, many teachers worked in rather a multidisciplinary than an interdisciplinary way (everyone was very attached to their own disciplinary backgrounds and methods, and little integration took place).

Moreover, some conflicts occurred during the field work in Meghradzor, when two teachers from different departments were coordinating a group together. In this regard, it is important to organize a preliminary workshop with participating teachers, helping them prepare for collaborative teaching and improving their facilitation skills.

While preparing for the second case, ASPU coordinators took organizational and interdisciplinary challenges into account.

Moreover, after the experience of cooperation during the case study course, the lecturers from different departments started working on interdisciplinary subject manuals, and the students of different departments, who met during the case study course, came up with joint articles.

Advice from TSU: From the organizational perspective, engaging teachers from different faculties was not an easy task. The CaucaSusT project

provided some funds for reimbursing the involved teachers, which was an important incentive for their participation. Furthermore, the program supervisors and teachers from the relevant departments became permanent participants in all the project-related teaching activities and took an active part in the decision-making process, which facilitated common understanding and cooperation. Finally, effective collaboration created a feeling of ownership among the teaching team, which can be considered a significant achievement from the perspective of the project implementation at the university level.

Experience from the CaucaSusT Project:

Not all teachers may be familiar with TD approaches and have experience with case study courses. In this respect, it is useful to conduct a meeting or workshop as part of the case study course integration into the curriculum, during the initial phase of course preparation.

The CaucaSusT project team organized two teacher workshops, where ASPU and TSU teachers from different departments came together in order to establish common understandings of transdisciplinarity and practice methods (such as systems analysis and scenario development) and came up with a preliminary plan for the case study course in each university.

Student recruitment

The identified competences necessary for the case study course can also determine the selection of the students (alternatively, the case study could be adapted to the knowledge and skills of the participating students).

The following criteria can be considered:

- Motivation
- Previous experience with participatory approaches
- Communication skills and ability/interest to work in a group
- Language skills (in cases of courses conducted in an international setting or with international lecturers; students could also benefit from existing knowledge of a respective foreign language).
- Disciplinary background of students, in order to make sure that interdisciplinary groups can be composed (e.g. social sciences should be represented in all workgroups).
- Gender balance

Experience from the CaucaSusT Project:

Advice from ASPU: involving students from the Sociology department proved very useful for groupwork during the case study course.
Moreover, after the case study courses in Armenia, students indicated that they preferred more gender balanced groups.

ASPU involved a number of students, who participated in the first TD Case Study Course in Marmarik, also during the second Case Study Course in Dilijan. This proved useful, because these students could share their experiences with their newly enrolled peers.

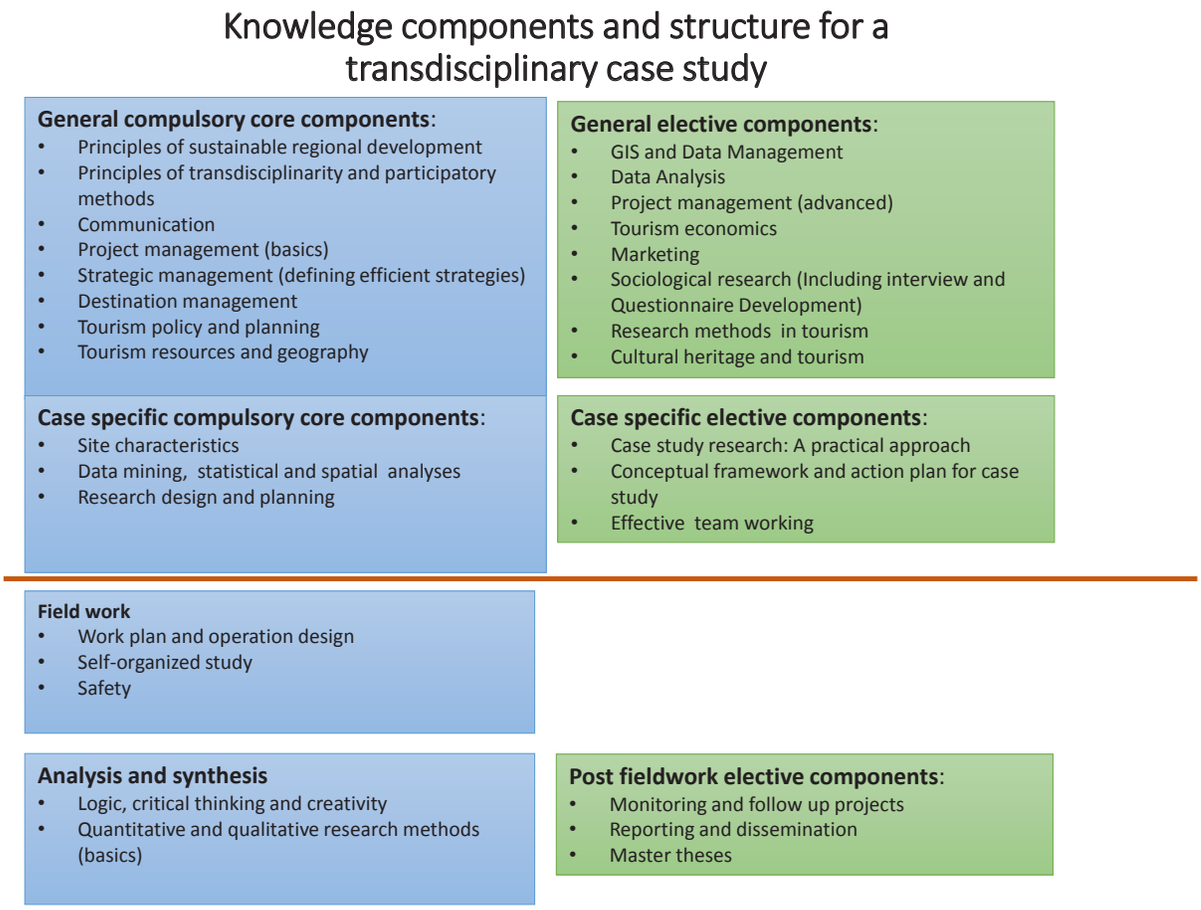
Experience from the CaucaSusT Project:

Student recruitment for a TD course could constitute a challenge due to its duration and intensity and would depend on the type of a course (i.e. elective or mandatory) and its integration into the HEI curriculum (see section III. Integrating the Case Study Course into the University Curriculum). The competences to be required by the students at the beginning of the course, and those to be gained during the preparatory course phase should already be planned when integrating the course into the curriculum.

Figure 6.2 demonstrates an example of knowledge components agreed on by the CaucaSusT project partners, which were necessary for the students participating in the TD field course:

- Compulsory core components comprise knowledge and skills that should ideally be gained by all participating students before going into the field.
- General elective components comprise knowledge and skills obtained by at least one student in the course before going to the field to contribute them during group work.

Figure 6.2 Example of knowledge components identified by the CaucaSusT project partners, which will be needed by the students when implementing the case study course



Source: CaucaSusT Project.

In practice, not all knowledge components presented in Figure 6.2 were represented among the participating students.
This was partly due to organizational and administrative challenges of introducing the TD Case study course in both ASPU and TSU for the first time, which made it difficult to concentrate on introducing the specific knowledge components in the preparatory teaching phase.

Advice from ASPU: In the first phase of the TD Case Study Course, ASPU teachers and students did not fully understand the principles of TD research. In order to address this, a number of seminars was organized by the project coordinators, facilitating understanding of TD; collaboration among lecturers from different disciplines and working with community stakeholders further facilitated the integration of the TD approach.

Due to the lack of understanding of the sustainable development paradigm as well as sustainable tourism among the students, relevant topics were included in the course content and updated after the first TD course. Communication and data analysing skills as well as teamwork were also new to a number of ASPU students.

The following year different ASPU teachers applied case methodology based on the experience

gained during the first case study course in their classes. The ASPU coordinators and teachers gained more experience cooperating with the local actors. During the first field course, the participating community stakeholders were mainly representatives of non-governmental organizations and individual entrepreneurs; during the second case, the circle of beneficiaries was expanded and included representatives of tourism organizations, school teachers, environmentalists and staff of the Dilijan National Park.

Advice from TSU: TSU's strategy with respect to integrating the TD course was based on the active cooperation between its three faculties and the relevant programs. Correspondingly, the academic background of the engaged students and teachers was quite different.

Due to the lack of experience, it was not possible to predict which types of knowledge components would be essential for the students and teachers at the initial stage. In this respect, the preparation of changes in the academic syllabi, considering the content of the field case study, constituted a significant contribution. Furthermore, workshops and training programs initiated in the framework of the project effectively contributed to the teachers' acquiring of knowledge regarding TD research and teaching format. It stimulated knowledge transfer, and as a result, most students and teachers were prepared for particular tasks.

After the first TD field Case study course was implemented in Tsaghveri, Georgia in 2018, the TSU team objectively assessed the outcomes of the field research and updated the programme in order to not leave gaps between field research tasks and required knowledge.

• Check: Are all knowledge components already part of the existing courses taught at the university/within the given programme?
  - If yes, it is important that all or some students attend the respective courses
  - If not, then these additional components should be introduced into the syllabi of existing courses, or new courses should be created, if possible.

Preparatory coursework

It is important to prepare students for working on the case study in advance, in order to allow sufficient time for their concentration on the case study during the field work. The key knowledge components needed by the students, which have been identified at the previous stage (Figure 6.2), should either constitute knowledge the students already have or be integrated into the preparatory coursework.

Experience from the CaucaSusT Project:

In general, students and teachers should be familiar with basic research methods: design, formulating research questions, data collection, analysis, etc. It is als important to know how to conduct research in a real-life setting, how to integrate knowledge among students from different disciplines and how to cooperate with the community actors.

Advice from ASPU: ASPU offered the following stages of preparatory work to the participating students:
- Basic principles of the TD approach included during Phase 1, in the content of the subjects introduced within the framework of the CaucaSusT project (see descriptions of selected preparatory courses in Annex 1).
- Practical exercises on formulating research questions, data collection, using system analysis and scenario development, development of questionnaires and enhancing communication skills.
- Additional preparatory seminars and practical workshops before the field work, presenting more detailed information about the studied area, needs assessment, and organizational issues.
- A two-day seminar based on the ten steps by Pohl et al. (2017) proved particularly useful for both students and teachers.

Due to the novelty of many topics for ASPU students, as described above, a number of lectures were provided to the students during the field phase of the case study course to ensure adequate understanding of the key aspects.

Advice from TSU: In the case of TSU, the design of the program and participation of the different faculties made it challenging to account for all the knowledge components, which are distributed among the different courses and Master programs as specific learning outcomes.
In order to facilitate the planning, mainly advanced Master students (in the second year of the Master program) are invited /accepted as participants in the case study courses. This ensures that the participants already have a fundamental knowledge of sustainable development, destination planning, strategic management, etc.

Furthermore, they should complete the mandatory courses (case study course prerequisites), to ensure a deeper understanding of transdisciplinarity and sustainable development.
The innovative format and content of the TD case study courses require particular skills, such as soft skills, communication, data collection, working with communities, research planning, etc. Additionally, the study plan must be prepared in a sequential and orderly way, considering TD research and teaching aspects.

In addition to the background information about the thematic focus of the case study (such as sustainable tourism in the case of the CaucaSusT project), it is important that the students are informed about the case study principles and the main cross-sectional concepts, such as sustainability and transdisciplinarity, as well as other core concepts described in the first section of this manual.

Moreover, students should become familiar with the details of the "case" itself. This can be done not only by providing the background and description of the case and by sharing the needs analysis with the students, but also by:

- working with data from the case in various subjects, such as GIS,
- identifying which additional information might be needed for addressing the case study,
- organizing additional data collection by the students/jointly by the students and teachers,
- putting students in touch with the local case actors or case experts, involving students with data collection on site,
- inviting local actors and experts as external lecturers/presenters to provide information to the students during the courses,
- approaching the case study – related issues in the context of specialization courses for students from specific programs.

Experience from the CaucaSusT Project:

Advice from ASPU: ASPU colleagues held meetings and seminars co-organized by both teachers from different departments and external lecturers, in order to provide a broad perspective to the students. Interdisciplinary lectures on natural and historical monuments, the socio-economic situation and tourism in the study areas were organized. Moreover, a protected area expert provided useful inputs, preparing the students for working in cooperation with the Dilijan National Park during the case study course in Dilijan.

Advice from TSU: TSU students initiated the invitation of external speakers during the semester, in the framework of particular preparatory courses. This format of cooperation allowed us to establish close contacts with non-academic stakeholders. During the meetings, different cases related to the tourism industry were discussed, mostly concentrating on practical aspects. These meetings were launched as an extra curriculum activity.

Based on the TSU experience, these so-called mentoring activities have positively influenced the learning outcomes of the courses, exemplifying the significance of mixing theoretical and practical studies in the cases.

In addition to learning in-depth information about the case, students should be prepared for the field work itself. Preliminary topics, objectives and tasks of the fieldwork should be discussed among the teachers and the students in advance.

Organization of Group Work

The organization of group work should be based on the number of students to be involved in the field course.

Experience from the CaucaSusT Project:

• We recommend forming interdisciplinary groups to make sure that students from different disciplines are represented in each group. Each group can focus on a specific research question or topic.

*The objectives of the group work do not include competition. On the contrary, cooperation and exchange among the groups should be encouraged.

Useful Links:

It is likely that the students coming together from different disciplines during the field work will not be familiar with each other. Before students begin working in groups, various activities could be organized for them to get to know each other and feel more comfortable when working together.

The following three manuals provide nice descriptions for icebreakers and teambuilding activities:

https://sixth.ucsd.edu/_files/_home/student-life/icebreakers-teambuilding-activities-energizers.pdf

http://www.cjcp.org.za/uploads/2/7/8/4/27845461/technical_manual_-__games_icebreakers_and_energizers.pdf

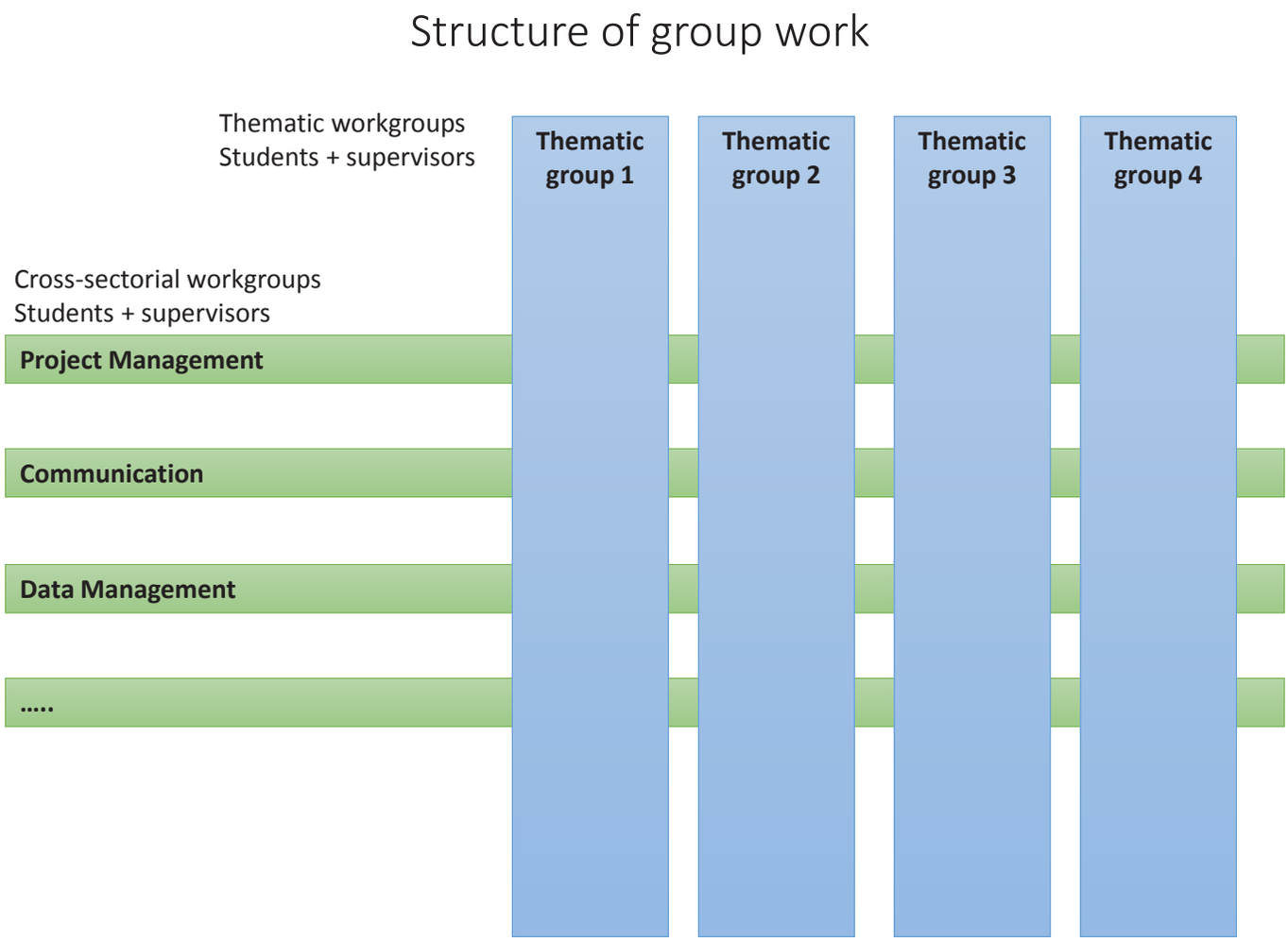
https://inside.trinity.edu/sites/inside.trinity.edu/files/file_attachments/3156/teambuilding-and-icebreaker-handbook.pdf

In addition to the thematic groups, students can be tasked with other organizational issues of the field study, including project management, communication with local stakeholders and potentially media, as well as joint management of data. This could be done in cross-sectorial working groups, where students from each thematic group should be represented. Figure 6.3 proposes a structure of thematic and cross-sectional groups.

Experience from the CaucaSusT Project:

Students in both ASPU and TSU pointed out that having a clear programme for the field course as well as clear instructions and updates throughout it was very important to them.

Figure 6.3 Suggested structure of group work: students divided between thematic and cross-sectional groups



Source: CaucaSusT Project.

Organizational Issues

Suggestion:

We suggest making a checklist to ensure that all organizational aspects of the Field Work phase are considered, including the ones below:

- How long is the fieldwork?
- Where and when will it take place?
- Which teachers will stay for the entire duration?
- Will the students have computers?
- Will there be a working Internet connection?
- What space will be available for meetings and for the final presentations? Will a projector as well as printing facilities be available?
- Will the students have to travel longer distances for interviews?
- Will there be a good infrastructure for traveling?
- Will it be possible for some students to spend a day together with the stakeholders?
- Will the stakeholders be interested in active participation?
- What activities can be offered to the students during the free time – hiking, swimming, etc.? (and what should the students bring with them in order to be able to participate?)
- How prepared is the university team for potential emergency situations? What are the university regulations in this respect? What infrastructure and resources are available on site?
- How could activities be affected in case of bad weather? What alternatives can be offered to the students?

Media outreach, visibility and social media

The students should think of how to make their work with the stakeholders visible, and it would be important to consider the options for this in the preparatory phase of the project:

- Are there local media outlets which could be interested in the course?
- Would a Facebook group be useful to provide information about cooperation with the community and the respective results?

Experience from the CaucaSusT Project:

Both ASPU and TSU students set up Facebook groups for each course and used other media channels to raise awareness about the TD courses.

The ASPU Case Study Course was publicised via various channels:

- the ASPU media crew participated in the field course in Megradzor and created a video for the university news channel.
- ASPU coordinators have been invited to the Central Television programme of Armenia to talk about the CaucaSusT project and participated in the production of a film focused on the emerging cooperation between the university and the community, the experience from the field case study courses and the communities where they were based. The film helped involve new students from the departments, who participated in the case study course in the next semester. Moreover, several articles about the project activities and results were published in the University newspaper.

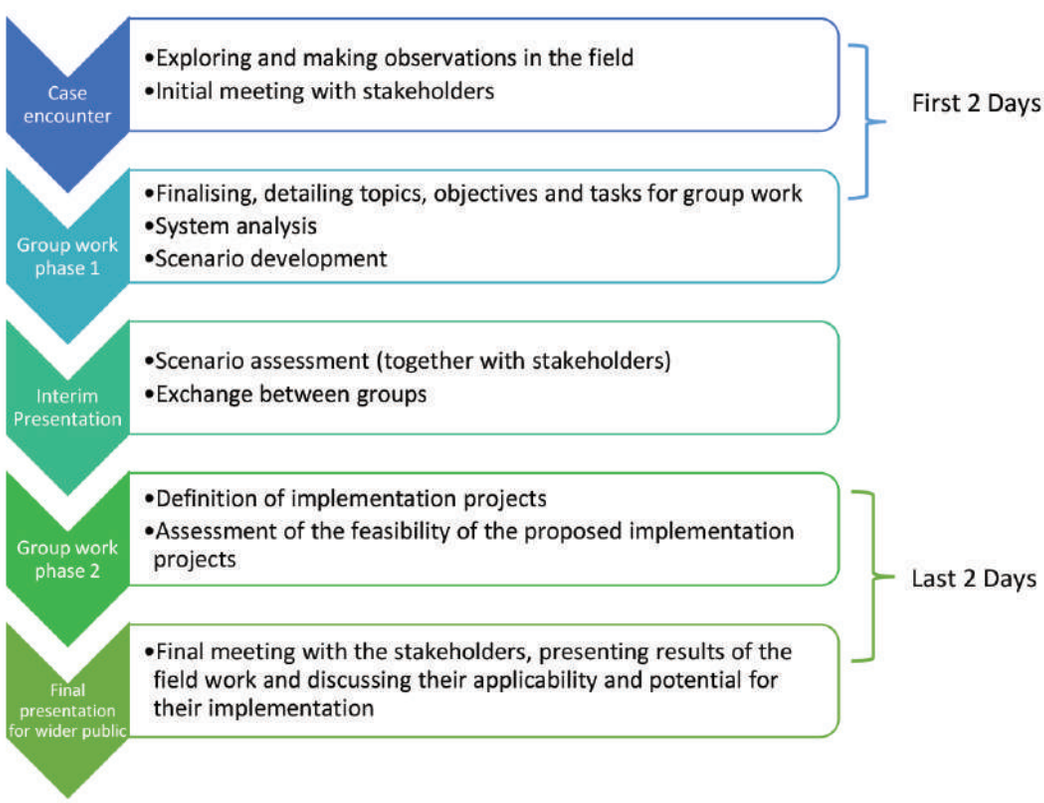
This publicity attracted attention both to the case study communities and to ASPU itself. The former contributed to some community activists receiving funds for the implementation of several development projects; the latter resulted in greater interest among students to study at ASPU.

The TSU program supervisors and project coordinator took part in a local television program in Tsaghveri, Georgia and talked about the CaucaSusT project. Furthermore, in the case of Kazbegi, the local governmental public office actively shared the information about the TD course with local stakeholders.

Phase 2. Field Work

The proposed structure of Field Work is demonstrated in Figure 6.4:

Figure 6.4 Proposed structure of Field Work



Source: CaucaSusT Project.

Suggested activities during the first 2 days in the field:

- Settling in accommodation and arranging organizational matters
- Initial meeting with all the students, explaining the aims of the fieldwork, final preparation for the stakeholder meetings
- Defining the working groups, fine-tuning the understanding of local problems
- Defining tasks for each group and the basic schedule

- Some individual interviews and stakeholder involvement should be predefined, based on the availability of the stakeholders: students could schedule them with the help of the teachers in advance

- Meetings with stakeholders, "officially" introducing the case study course aims and plans and discussing these with stakeholders
- Reflection on the meetings with stakeholders
- Preliminary System Analysis and Social Network Analysis, to be updated and refined during the first group work phase

General Schedule:

- Every day can consist of group work, joint reflection and update sessions.
- Student activities: collecting and recording data, analysing (qualitative and quantitative), working with stakeholders.
- During joint reflection and update sessions, each thematic group makes a brief update on what they have done and plan to do. Moreover, cross-sectional topics can be discussed on a regular basis.
- Teachers are available for questions and support to every group, as well as for providing additional theoretical inputs, as needed.

In addition to the substantial preparation of the students before the field work, some thematic and methodological aspects can be revisited during this phase. In our CaucaSusT experience, the following additional lectures have been provided to the students during the first days of the field work:

- Main elements of the Case Study:
  - Systems Analysis and Social Network Analysis
  - Scenario development and assessment

Additional inputs can be provided by the teaching team based on the realities of the case and the emerging needs of the stakeholders, such as:

- Practicing specific methods used by the students
- Dealing with gender-related issues or power relations in the community
- Exploring options for the implementation of specific recommendations

Suggestion:

"Experiential case encounter" - a day in the life of a stakeholder

In order to develop a better understanding of the local community, resources, daily routine and challenges faced by the local actors, students could spend half- or an entire day with local stakeholders (for more information on the "Experiential case encounter" method, see Scholz and Tietje, 2002).

Due to potential organizational challenges and dependence on the local actors' availability and interest, such "experiential case encounters" should be organized in advance.

Final 2 days:

- Preliminary presentation of the results by the student groups with discussion among the students and teachers.

This step is meant to prepare students for the final public presentations and allow for their results and suggestions to be refined by teachers and peers.
After these interim presentations, each group can follow-up with additional data collection and analysis, finalizing their scenarios and suggestions for implementation projects.

- If possible, stakeholders most actively collaborating with students should cooperate on the presentations or provide preliminary feedback during the interim presentations.

- Public event - final meeting with stakeholders, presenting results of the field work and discussing their applicability as well as the potential for their implementation - followed by a joint celebration.

- Inviting local media to the public presentation could be a good way to raise awareness about the case study course and inform a wider public about the results and suggestions co-created by the universities and local actors.

A joint celebration at the end of the presentations and discussion is a nice way to generate a positive atmosphere and facilitate informal discussions among students, teachers and local stakeholders. Informal discussions and festive atmosphere can provide an environment for joint reflection about the field work and cooperation between the university and the local community, as well as support initial plans for follow-up and the implementation of co-created solutions and projects.

Phase 3. Follow-up

Follow-up activities can include the following:

- Evaluation of the course by students, teachers and stakeholders. This can be carried out via focus group discussions, individual interviews, as well as questionnaires, which can be kept anonymous, if preferred.
- Composition of a report done by students with teacher support. A report is a useful way to bring together all activities and results of the case study course, as well as include pictures. It can also support further scientific elaboration by interested students and teachers.
- Potential elaboration of scientific presentations and papers based on the results of the case study course.
- Follow-up on recommendations, co-created solutions and projects resulting from the case study. Planning of potential implementation in cooperation with the local community. Passing

on responsibilities to local agencies, such as local action groups, local authorities, etc.
- Integration of further research questions into bachelor, master and PhD theses and coursework.
- Planning of a follow-up case study courses with the community.

Experience from the CaucaSusT Project:

Advice from ASPU: It is very important to present the results of the research work to the community and then to bring the existing problems to the attention of various responsible institutions. For example, ASPU raised an existing problem of a drinking water pipeline construction in Meghradzor, Armenia with the relevant governmental bodies, during the case study course. As a result of discussions with the students and teachers, governmental representatives visited the community in order to find an appropriate solution with the local population.

Moreover, sharing the TD course report can help local NGOs prepare grant proposals based on the case study course results, providing evidence regarding the existing problems and challenges of the community.

Advice from TSU: It is strategically important to follow-up on the case study activity. Based on our experience, preparation of a report can be helpful not only to the students, but also to the local community and stakeholders.

For instance, after the Tsagveri case study, TSU prepared the official letter on behalf of the university and sent the report to the local administrative bodies as well as to the community. The Tsagveri community established a local action group based on our report. Furthermore, the ongoing report can help local NGOs prepare grant proposals, adding to the evidence regarding the existing problems and challenges of the destination.

The duration of the follow-up phase can vary based on the potential implementation of recommendations and follow-up projects. The latter can require collaborative applications for funds, involvement of additional university students, teachers and external experts and planning of additional research and teaching activities.
Moreover, long-term collaboration between the university and the community can be established.

Experience from the CaucaSusT Project:

ASPU continued collaborating with the first case study community, Meghradzor, for several years after the case study implementation.

ASPU lecturers and students have organized lectures at the local school. Moreover, during the COVID-19 Pandemic in 2020, ASPU students and teachers organized a number of online courses on geography, history and on the topic “Tourism after COVID 19”.

Abbreviations

AA	Association Agreement
APA	Agency of Protected Areas
ASPU	Armenian State Pedagogical University
BOKU	University of Natural resources and Life Sciences
ca.	Circa, approximately
CAQDAS	Computer-Assisted Qualitative Data Analysis Software
CaucaSusT	Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region
CBT	Community-based Tourism
CEPA	Comprehensive and Enhanced Partnership Agreement
DMO	Destination Management Organizations
e.g.	Example given
ECEAT	European Center for Ecological and Agricultural Tourism
ESD	Education for Sustainable Development
et al.	And others
Etc.	Etcetera/ and other things
EU	European Union
EuroGites	European Federation of Rural Tourism
GAP	Global Action Programme
GDPR	General Data Protection Regulation
GIS	Geographic Information System
GNTA	Georgian National Tourism Administration
HEI	Higher Educational Institutions
i.e.	That is
IDI	In-depth Interview
IMC Krems	University of Applied Sciences Krems
MDGs	Millennium Development Goals
NGO	Non-governmental Organisation
OECD	Organisation for Economic Co-operation and Development
p.	Page
PA	Protected Area
PLA	Participatory Learning and Action
PRA	Participatory Rural Appraisal
RRA	Rural Rapid Assessment/Appraisal
RSP	Rounder Sense of Purpose
SD	Sustainable Development
SDGs	Sustainable Development Goals
SRS	Simple Random Sampling
ST	Sustainable
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TD	Transdisciplinary

TIC	Tourism Information Centres
TSU	Tbilisi State University
UN	United Nations
UNCED	The United Nations Conference on Environment and Development
UNCHE	The United Nations Conference on the Human Environment
UNCTAD	United Nations Conference on Trade and Development
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
USR	University Social Responsibility
vs.	Versus
WCED	World Commission on Environment and Development
WSSD	The World Summit on Sustainable Development
WTTC	World Travel & Tourism Council

Annex 1. Examples of Preparatory Courses

TSU courses:

Course Name	Tourism Policy
Main themes of the course	The following topics are included in the "Tourism Policy" course syllabus: • The role of transdisciplinary approaches in the tourism policy system; • The specifics of transdisciplinary research and its role in the formulation of tourism policy; • Defining the goals and needs of transdisciplinary research in tourism; • Stakeholder engagement and their roles in sustainable tourism strategies; • Dynamic System and transdisciplinary approaches at the local level; Case studies from: • the Tsaghveri destination; • the Kazbegi destination.
Competences addressed	• Systems thinking competence: Students can analyze sustainability problems in the context of national and regional tourism development. Therefore, students can apply system concepts in tourism policy elaboration, considering sustainable development issues; • Future thinking (or anticipatory) competence: Students can anticipate the positive and negative outcomes of the decision-making process at the local and national levels: • Strategic thinking competence: In the framework of the course, students are working on different strategic designs in the context of policy frames. They can develop and prepare plans for tourist destinations. • Collaboration (or interpersonal) competence: Students can support different types of cooperation, including team-work, collaboration with different stakeholders, etc. Furthermore, students are able to determine their roles and responsibilities within the group.
Learning Outcomes	• Identify and describe core issues of transdisciplinarity; • Apply the conceptual knowledge of transdisciplinary approaches in the process of tourism policy formation; • Describe the future trajectories in the context of sustainable development and system perspectives; • Make system analysis of the tourist destinations; • Develop different activities to solve/mitigate sustainable development challenges; • Describe the need for strategic thinking and necessity of changes in the system (considering the peculiarities of destinations); • Describe the need for stakeholder engagement in the processes of strategy development and policy formulation;
Description	*The "Tourism policy" course, which includes transdisciplinary topics and case studies, is part of the Tourism Master accredited for 7 years in 2019.*
What makes the methods of the course effective?	*Transdisciplinary approaches help integrate practical knowledge into academic research, structure the challenges and determine most effective problem-solving strategies.* *Students develop a system approach and generate system knowledge of ongoing processes; this gives them an ability to consider each "problem" and solution as part of the overall strategy. Therefore, they can critically approach any stand-alone research from specific subjects.* *Furthermore, several methods and approaches are included in this course:* • *Problem based learning;* • *Case study approaches;* • *Group working;* • *Brainstorming;*

Course Name	Sustainable Tourism Development
Main themes of the course	The syllabus of the "Sustainable Tourism Development" course includes the following topics: • The concepts of transdisciplinarity • The transdisciplinary methods of research Case studies from: • the Tsaghvery destination; • the Kazbegi destination.
Learning Outcomes	*The students acquire knowledge of transdisciplinary concepts and methods of research, such as:* • *The concept of transdisciplinarity and its relations to sustainable development* • *The difference between mono-disciplinarity, multi-disciplinarity, interdisciplinarity and transdisciplinarity;* • *Understanding of basic categories in the context of transdisciplinarity: "Problem" and "Problem field"; "Systems knowledge", "Target knowledge" and "Transformation knowledge";* • *Phases of transdisciplinary research: Problem Identification and Structuring, Problem Analysis and Bringing Results to Fruition;* • *Failed transdisciplinary research: "participatory research";* • *The method of clustering "Problems": "Critical Problems", "Leverage Problems", "Restricted Problems" and Buffer Problems";* • *Developing a Problem-solving strategy.* • *Identify and describe the inter-related (system) problems of a tourism destination;* • *Identify the destination's stakeholders, their common interests and conflicts of interests;* • *analyse stakeholders' needs;* • *Classify the identified problems into a "problem field" to generate "target knowledge";* • *Develop transformation knowledge in order to transition to "target knowledge";* • *Conceptualize the identified challenges and actions into the sustainable development theory;* • *Apply the conceptual knowledge of sustainable development in planning and implementing transdisciplinary research.*
Description	*The "Sustainable Tourism Development" course, which includes transdisciplinary topics and case studies, is part of the Tourism Master program accredited for 7 years in 2019.*
What makes the methods of the course effective?	*Transdisciplinary approaches help integrate practical knowledge into academic research, structure the challenges and determine most effective problem-solving strategies.* *Students develop a system approach and generate system knowledge of ongoing processes; this gives them an ability to consider each "problem" and solution as part of the overall strategy. Therefore, they can critically approach any stand-alone research from specific subjects.*

Course Name	**Organization of Tourist Activities**
Main themes of the course	The following topics are included in the syllabus of the "Organization of Tourist Activities" course: • The concept of sustainable tourism development in mountainous regions; • Transdisciplinary approaches in tourism research. Case studies from: • the Tsaghveri destination; • the Kazbegi destination.
Learning Outcomes	*The students acquire knowledge about sustainable tourism development and transdisciplinary research concepts, such as:* • The acute need of sustainable tourism development and the fragility of natural mountain systems; • The main differences between mass/traditional and sustainable tourism; • The difference between mono-disciplinary, multi-disciplinary, inter-disciplinary and trans-disciplinary research; • The benefits of sustainable tourism development for all involved actors. • Identify and describe the main ecological threats for the tourism destination; • Identify destination's stakeholders, their common interests and conflicts of interests; • Analyse stakeholders' needs; • Use the conceptual knowledge of sustainable development in transdisciplinary research.
Description	The "Organization of Tourist Activities" course, which includes sustainable tourism development in mountainous regions as well as transdisciplinary topics and case studies, is part of the Master Program in Human Geography accredited until the 2020-21 academic year.
What makes the methods of the course effective?	• Understanding of sustainable tourism development in mountainous regions makes students think more carefully about ecological aspects; • Strengthening group work skills of the students from different disciplines; • Identifying the roles of decision-makers, stakeholders and community-members in sustainable tourism development; • Transdisciplinary approaches help integrate the practical knowledge into academic research. *Students develop a system approach and generate system knowledge of ongoing processes; this gives them an ability to consider each "problem" and solution as part of the overall strategy. Therefore, they can critically approach any stand-alone research from specific subjects.*

Course Name	Tourism and Recreational Resources
Main themes of the course	Main themes of the course: • Sustainable tourism as a form of organization of environment subtopics: -The impact of tourism on the natural and socio-cultural environments; -The essence and functions of ecological tourism as an industry of environmental management; -The main provision of the concept of sustainable tourism development; -Ecological and sustainable tourism: the relationship of the concepts; • Estimation of the sustainability of tourism development. Subtopics: -Economic and social indicators of tourism development; -Criteria for the sustainability of tourism activities; -Monitoring and indicators of sustainable tourism. Case studies from: • the Tsaghvery destination; • the Kazbegi destination.
Competences addressed	• Students can analyze the concept of transdisciplinarity and its relations to sustainable development; • Students are able to determine their roles and responsibilities within the group; they can also support any types of cooperation with ruling bodies, stakeholders, etc., • Developing a problem-solving strategy in the context of national, regional and local levels, • Students can apply system concepts to tourism policy elaboration, considering sustainable development issues.
Learning Outcomes	• Identify and describe core issues of environmental management, • Apply the conceptual knowledge of transdisciplinary approaches in the process of sustainable tourism monitoring, • Describe the future trajectories in the contexts of sustainable development and system perspectives, • Construct system analysis of economic and social indicators of sustainable tourism, • Elaborate different activities contributing to sustainable development, • Understand the main provisions of the sustainable tourism development concept, • Identify criteria for the sustainability of tourism activities.
Description:	*The "*Tourism and Recreational Resources" course*, which includes trans- disciplinary topics and case studies, is part of the Master program in Landscape Planning accredited for 7 years in 2013.*
What makes the methods of the course effective?	*Transdisciplinary approaches help integrate practical knowledge into academic research, structure the challenges and determine most effective problem-solving strategies.* *Furthermore, several methods and approaches are included in this course:* • *Case-Problem;* • *Case study;* • *Collaborative methods;* • *Brainstorming.*

Course Name	**Recreational Resources Assessment in the Context of Sustainable Tourism**
Main themes of the course	• Formulation of a Sustainable Development Concept. • Natural and public resources, their targeted use in tourism. Recreation. • Tourism resource assessment methodology. Implementation of the Sustainable Development Concept in Tourism. Sustainable tourism. • Geography of tourism in the Republic of Armenia. Resources and evaluation methodology. Perspectives of sustainable tourism in Armenia. • Assessment of RA Tourism Resources and Infrastructure in the Context of Sustainable Development. • The local population's potential for labour resources in the field of tourism. • Regional tourism activity in Armenia. • Development of a tourist route in the context of sustainable tourism. • Modelling of tourism target areas.
Learning Outcomes	At the end of the course the student will be able to: • Understand and explain the global processes of sustainable development, challenges and obstacles, features of countries with transitioning economies. • Use the conceptual knowledge of sustainable development in transdisciplinary research. • Analyse the process of sustainable development in Armenia, assess tourism resources. • Clarify the issues of sustainable development, its ideological basis and the need for transition. • Explore and apply the potential of socio-economic tourism resources in the context of Sustainable Development. • Develop tourist routes in the context of sustainable tourism. • Analyse stakeholders' needs. • Model tourist target areas.
Description	The aim of this course is to investigate and use the tourism potential of socio-economic resources in the context of sustainable development. From the perspective of sociology, the course aims to provide sociological knowledge and methods, which can be used in the field of sustainable tourism development. The course is taught jointly by a Geographer and a Sociologist. Courses will focus on examples from the selected case study regions, in order to ensure student preparation for the field component – the transdisciplinary case study course.
What makes the methods of the course effective?	• Understanding of sustainable tourism development in Armenian regions makes students think more carefully about its social, economic and ecological aspects; • Strengthening group work skills among students from different disciplines; • Identifying the roles of decision-makers, stakeholders and community-members in sustainable tourism development; • Transdisciplinary approaches help integrate practical knowledge into academic research; • It makes students think critically.

Course Name	**"Natural and Historical-Architectural Monuments"**
Main themes of the course	The three main components envisioned for the course are: • Tangible cultural heritage (historical architectural monuments from various periods of times beginning from the Stone Age up to the 20th century, their unique features); • Intangible cultural heritage (national ceremonies and games, folk songs and dances, festivals, crafts and traditions connected with them); • Natural monuments (thermal springs both in Armenia and Nagorno-Karabakh, Symphony of Stones, Garni or Tsak Kar of Bjni). • The course will be taught by an interdisciplinary team, representing the following disciplines: • Ethnography; • Social or cultural anthropology including ethnophsychology; • Historical Geography; • Ethnotourism; • Ecotourism.
Learning Outcomes	• Awareness of the documents and legislative acts that lead to certain policies regarding the components mentioned above. • Ability to discuss if these acts and policies are enough in the context of sustainable tourism development in Armenia. • Ability to present RA's natural and historical-architectural monuments. • Use of conceptual knowledge of sustainable development in the transdisciplinary research. • Ability to compile questionnaires. • Analysing stakeholders' needs. • Ability to classify RA's environmental and historical-architectural monuments and map them. • Learning about basic methodological concepts.
Description	The **"Natural and Historical-Architectural Monuments"** course does not only focus on the examples of the cultural heritage, but also on getting the students to know the current situation in Armenia and the state's policies with respect to these monuments. Moreover, practical experts from organizations which are responsible for preservation of historical monuments and cultural heritage will be contacted and involved by the teachers.

Course Name	Ecotourism
Main themes of the course	• The United Nations Conference on Sustainable Development (United Nations Conference on Environment and Development in 1992; Rio + 10 in 2002; Rio + 20 in 2012; participation of Armenia in this process; The Future We Want). • Education For Sustainable Development: What is sustainable development?; What is Education for Sustainable Development (ESD)?; Why Should Higher Education Institutions Engage in Sustainable Development?. • The concept of ecotourism: the prerequisites for its emergence, international documents related to ecotourism, the spread of ecotourism and development trends; green and sustainable tourism, its socio-economic role, its groups and types, specially protected natural areas. • Basic Principles of Ecotourism: Minimizing negative environmental and socio-cultural impacts, maintaining environmental sustainability; Promoting the protection of nature and the local sociocultural environment; Ecological education; The participation of local residents and their income generated from tourism, motivating them to protect nature through an economic incentive; Economic efficiency and contribution to sustainable development of visited regions.
Learning Outcomes	• Abilities to introduce the concept of ecotourism and analyse the geographical features of its territorial organization. • Ability to present the prerequisites for the emergence of ecotourism. • Listing the features and components of ecotourism. • Construction of ecotourism maps. • Use of the conceptual knowledge of sustainable development in transdisciplinary research. • Developing scientifically grounded forms of conservation, enrichment and effective use of ecotourism.
Description	The course aims at: • Expanding the professional knowledge of students-future teachers in the specifics and directions of certain types of ecotourism • Promoting the recognition of characteristics, destinations and types of tourist groups as well as their ability to assess and use the tourist potential.

Annex 2. A Rounder Sense of Purpose. Educator competences in learning for sustainability

Source: The project: A Rounder Sense of Purpose: Educational Competences for Sustainable Development. RSP 2019. Reproduced with the authors' permissions.

Systems

The educator helps learners to develop an understanding of the world as an interconnected whole and to look for connections across our social and natural environment and consider the consequences of actions.

Learning Outcomes: The educator helps learners to...
1.1 Understand the root causes of unsustainable development and that sustainable development is an evolving concept
1.2 Understand key characteristics of complex systems such as living environments, human communities and economic systems, including concepts such as interdependencies, non-linearity, self-organisation and emergence
1.3 Apply different viewpoints and frames when looking at systems, e.g. different scales, boundaries perspectives and connections

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC1 Identify the level of complexity and abstraction to be tackled with students and use techniques such as concept mapping, systems analysis, games, or structured research-based activities to make complexity accessible to them
UC1.1a Identify and discuss causes of unsustainability, be they environmental, social, cultural, political or economic
UC1.1b Understand and critique different models of sustainability
UC1.2a Explain the difference between systematic and systemic thinking
UC1.2b Understand and apply boundaries and frames to systems, look for interconnections and emergence and recognise feedback and unpredictability
UC1.2c Understand the difference between linear and circular economies
UC1.3a Analyse issues and contexts from different perspectives and from different levels of detail
UC1.3b Use different forms of thinking and logic to aid analysis, e.g. linear vs systemic approaches, scientific method and artistic interpretation

Attentiveness

The educator helps learners to understand fundamentally unsustainable aspects of our society and the way it is developing and increases their awareness of the urgent need for change.

Learning Outcomes: The educator helps learners to...
2.1 Discuss limits and resilience of natural and human-made systems, and describe structural flaws in human-made systems that exceed limits and cause unsustainability
2.2 Recognise and discuss the urgent need to fundamentally change those human-made systems in order to address such flaws
2.3 Identify opportunities to contribute to improvements in quality of life, equity, solidarity, and environmental sustainability

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC 2 Use different methods to encourage learners to frame current development issues within the context of sustainability, e.g. conceptual change approaches, multi-perspective discussions, including geopolitics, and looking through the lens of social justice and environmental limits.
UC 2.1 Access and analyse current research and reports on a range of sustainability-related issues
UC 2.2 Identify the way in which issues are often multi-dimensional and interrelated

UC 2.3 Keep an open mind in relation to the multiple solutions that might emerge while maintaining the principles of sustainability

Transdisciplinarity

The educator helps learners to act collaboratively both within and outside of their own discipline, role, perspectives and values.

Learning Outcomes: The educator helps learners to...
3.1 Identify and express their own values and perspectives and the strengths and limitations of these within a given context related to sustainability
3.2 Cooperate in the construction of new knowledge and ideas in multi-, inter- and trans-disciplinary contexts
3.3 Cooperate in the construction of new knowledge and ideas in intercultural and intergenerational contexts

Underpinning Components In order to achieve the above Learning Objectives the educator should be able to:
UC 3 Use methods e.g. role-play, simulations, fieldwork, case studies, projects and interviews to help learners to work in heterogeneous groups and integrate knowledge from different disciplines and origins e.g. academic, local community and business
UC 3.1 Recognise the importance of involving people from different disciplines and other stakeholders to tackle sustainability related issues
UC 3.2a Manage the co-creation of collaborative processes: problem framing, value recognition, consensus building and the integration of different discipline and other stakeholders' knowledge
UC 3.2.b Recognise, and have strategies to deal with, the challenges which might undermine the collaborative process such as lack of trust, legitimacy, or common language
UC 3.3 Recognise the fundamental role that values and contexts play in our decision-making

Criticality

The educator helps learners to evaluate critically the relevance and reliability of assertions, sources, models and theories.

Learning Outcomes: The educator helps learners to ...
4.1 Reflect critically on the framing of sustainability related issues and not just on their solutions
4.2 Distinguish between facts, assumptions and opinions, including their own
4.3 Apply models and theories carefully, considering their limitations and uncertainties

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC4 Utilise techniques to challenge assumptions such as problem-based learning, debates or dilemma analysis
UC4.1a Guide the discussion and give space and value to diverse opinions and hypotheses while distinguishing facts from assumptions and opinions
UC4.1b Understand the difference between the indoctrination and empowerment of learners
UC4.2a Identify and propose a number of sources with contrasting perspectives for analysis
UC4.2b Encourage the analysis of sources including the identification of different perspectives and underlying values within arguments and set them in the context of sustainability
UC4.3 Identify the theories (and their limitations) behind interpretations of sustainability related issues

Futures

The educator helps learners to explore alternative possibilities for the future and to use these to consider how behaviours might need to change.

Learning Outcomes: The educator helps learners to...
5.1 Envision a range of futures, considering and evaluating likely impacts (potentials and risks) attached to different scenarios
5.2 Identify and analyse the steps that would need to be taken to reach desired and possible future scenarios
5.3 Recognise relations and possible evolutions between the past, present, near future and far future

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC 5 Utilise future studies techniques such as simulation games, future newspaper, scenario analysis and back casting
UC 5.1a Creatively imagine a number of different future scenarios while sharing worldviews and ideas, and discuss whether they are sustainable
UC5.1b Understand how the world might change as we project into the future and how these changes might be considered from different perspectives
UC5.2 Know about possible ways to make societal change become real through individual and collective actions
UC5.3a See how changes that take place are linked to past actions and evolve over time
UC5.3b Analyse and look for causes of change from different perspectives

Empathy

The educator helps learners to respond to their feelings and emotions and those of others as well as developing an emotional connection to the natural world.

Learning Outcomes: The educator helps learners to...
6.1 Listen to their own emotions and those of others; understand and apply strategies for dealing with fear, conflict or despondency, differentiating between unfounded hope and realistic sources of hope
6.2 Recognise needs and connections within and beyond the human species
6.3 Develop their own and others' coping mechanisms and sources of resilience when confronted with potentially overwhelming sustainability related issues

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC 6 Employ techniques to help learners develop their empathy within a context of sustainability, e.g. use of images, drama, paired simulation, debate and role-play
UC 6.1a Differentiate between understanding, sympathy and empathy
UC 6.1b Listen actively and authentically to others and build on each other's views
UC 6.2a Identify situations where they have drawn on coping mechanisms themselves and relate them to sustainability issues
UC 6.2b Use their imagination to put themselves in the position of others, including non-humans
UC 6.3 Understand the concept of resilience and identify sources of risk and protection

Creativity

The educator encourages creative thinking and flexibility within their learners.

Learning Outcomes: The educator helps learners to...
7.1 Build on their experience and existing knowledge as a basis for creativity in responding to sustainability related issues
7.2 Use their judgement to recognise when tried and tested approaches are appropriate rather than assuming that new is always better

7.3 Develop ideas and create innovations, based on real-world scenarios/problems and sustainable entrepreneurial skills development.

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC7 Apply creative and innovative teaching techniques in relation to sustainability issues, positioning the teaching processes in a real-world or simulated context
UC7.1 Facilitate a process of generating new ideas among learners
UC7.2 Encourage learners to critically evaluate existing alternatives developed by sustainability actors
UC7.3 Recognise opportunities for building new value (i.e. social, environmental or economic benefits) in a sustainable way from any given situation

Responsibility

The educator helps the learners to reflect on their own actions, act transparently and to accept personal responsibility for their work.

Learning Outcomes: The educator helps the learners to ...
8.1 Identify the potential social, environmental and economic consequences of their decisions and actions
8.2 Accept personal responsibility and accountability, where appropriate, for their own decisions and actions
8.3 Reflect critically on their own decisions and actions and those of others, looking for opportunities for improvement and development

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC8.1 Encourage learners to consider the consequences of their decisions and actions by using techniques and approaches such as simulation games, concept mapping, and project-based learning
UC8.2 Help learners to recognise a range of rights, roles and responsibilities and related systems by which people can be held to account
UC8.3 Reflect on their own work and functioning and behave responsibly and transparently themselves

Participation

The educator helps learners to contribute to changes that will support sustainable development.

Learning Outcomes: The educator helps learners to...
9.1 Participate actively, giving them opportunities to share ideas and experiences openly
9.2 Recognise their potential contribution towards societal transformations for sustainable development
9.3 Propose, facilitate and participate in actions that will trigger transformations of systems and unsustainable practices

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC 9 Use techniques and pedagogies fostering participation of learners within and outside the class, such as project-based pedagogy, leadership games and consensus-building activities
UC 9.1 Identify varying degrees of participation and different ways in which people can participate and provide examples to illustrate this
UC 9.2 Understand the central importance of enabling participants to be heard and the implications of not doing so
UC 9.3 Identify strengths and weaknesses in top down and bottom up approaches and note the advantages of participative solutions

Values

The educator develops an awareness among learners of how beliefs and values underpin actions and how values need to be negotiated and reconciled.

Learning Outcomes: The educator helps the learners to...
10.1 Engage with others in ways that build positive relationships and trust
10.2 Identify and analyse their own values and beliefs in relation to sustainability issues and to recognise how they underpin commitment and action
10.3 Seek out, listen to, understand and reflect upon the values and beliefs of others in the context of sustainability

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC 10 Use a variety of approaches and methods which stimulate learning in a collaborative and collegiate way
UC 10.1 Facilitate and participate in the learning process with colleagues as well as learners
UC 10.2a Recognise and embrace difference, treating all equally and with respect
UC 10.2b Operate in an open way that engenders trust and empowers others
UC 10.3 Recognise the values and beliefs behind the actions and behaviours of others

Action

The educator helps the learners to take action in a proactive and considered manner.

Learning Outcomes: The educator helps the learners to...
11.1 Explore and critically analyse their local natural, social and built environment, including their own institution, as a context for change
11.2 Engage in democratic processes of decision making within a context of sustainability
11.3 Develop their agency and their awareness of social, political and economic structures

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should:
UC11.1a Be supportive and encouraging towards students, coaching them in order to enhance their sense of agency
UC11.1b Make use of the reflective learning cycle (planning, acting, reflecting, adjusting or the Anticipation-Action-Reflection cycle)
UC11.2a Work in a democratic, open way with students
UC11.2b Utilise project-based learning techniques
UC11.3 Be able to see meaningful educational opportunities in ‘real life’ and encourage learners to do the same

Decisiveness

The educator helps the learners to act in a cautious and timely manner even in situations of uncertainty.

Learning Outcomes: The educator helps the learners to ...
12.1 Act in a timely manner even when faced with unforeseen events, keeping in mind the precautionary principle
12.2 Take decisions even in a context of sustainability related dilemmas, uncertainties, contradictions and wicked problems in accordance with their values, being aware that postponing decisions and not acting is also a decision
12.3 Gather information and consider various options while being open to alternatives

Underpinning Components for the educator In order to achieve the above Learning Outcomes the educator should be able to:
UC12 Use techniques such as dilemma-situations, improvisation, problem-solving activities and simulation games to develop quick, yet cautious decision making among learners
UC12.1a Identify a variety of information sources and ensure that these present alternative options

UC12.1b Exercise good judgement and make sound and well-informed solutions based on pre- identified alternatives or known options.
UC12.2a Manage competing priorities and make effective and timely decisions addressing conflicting issues.
UC12.2b Make decisions with significant consequences and perceive the impact and implications of these decisions
UC12.3a Highlight the impact of different time-frames when addressing a problem
UC12.3b Act promptly and with confidence when a situation requires a quick decision, drawing on collective intelligence where possible

ANNEX 3. Glossary of terms

Glossary of terms

Agritourism	a form of rural tourism, a commercial enterprise at a working farm, which offers opportunities for holidaymaking, such as familiarizing oneself with agricultural production, recreation in the agricultural environment and/or providing help with farming tasks during the visit
Anthropocene	the geological period from the beginning of the Industrial Revolution to nowadays, characterized by the irreversible damage caused by human activity on our planet
Case study	an empirical method that investigates a contemporary phenomenon (the "case") in depth and within its real-world context
Community	refers to a collection of people in a geographical area, which may have a social structure and a sense of community spirit or belonging.
Community participation	is described as a working process with people in the community for the benefit of the community
Community-based tourism	managed and owned by the community and for the community, enabling visitors to increase their awareness and learn about the community and the local ways of life
Competency	A cluster of specific and interrelated individual dispositions comprising knowledge, skills, motives, and attitudes, i.e., combining cognitive, effective, volitional and motivational elements. Competency facilitates self-organized action, a pre-condition to achieve successful performance and a positive outcome in various complex situations, responding to the specific situation and context. While competencies might be context-dependent, key competencies ought to be applicable across different contexts.
Destination Management Organisation	an organization which coordinates the many constituent elements of a tourism product; provides visitor services and the necessary information to market the destination in a most democratic way and enhance residents' well-being.
Ecotourism	responsible travel to the natural environment, which contributes to the protection of the environment and the well-being of the local people. Its main components are environmental awareness by interpretation and maintenance of the ecosystem, and protection of local residents' interests.
Education for Sustainable Development	based on raising the awareness regarding the effects local population's actions have on their environment. Acting responsibly while being aware of the implications actions can have on the lives of people and the planet in the future.

Grey literature	information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing, ie. where publishing is not the primary activity of the producing body
Higher Educational Institutions	an umbrella term, encompassing many types of academic institutions, including universities, colleges, etc.
Mixed methods research	research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry
Participation	a process of working together to (jointly) find multiple perspectives and ways for problem-solving
Public participation	a deliberative process in which interested or affected citizens, civil society organizations, and government actors get involved in policy-making before a political decision is taken
Replication logic	the notion that the findings can be replicated or applied to other similar cases
Resilience	the ability to absorb change and to anticipate future perturbations through adaptive capacity
Rural tourism	a complex, multi-faceted activity which includes farm-based holidays as well as special interest nature holidays and ecotourism: walking, climbing and cycling holidays, adventure, sport and health tourism, hunting and angling, educational travel, arts and heritage tourism, and, in some areas, ethnic tourism
Scenario	structurally different stories/outlooks for the future
Social learning	takes places through social interactions in groups of actors; it occurs through collective engagement and exchange of ideas
Solidarity tourism	a social movement helping local communities retain control over tourism destinations and benefit
Sustainability	the quality of being able to continue or preserve something over a period of time
Sustainability competencies	complexes of knowledge, skills and attitudes that enable successful task performance and problem solving with respect to real-world sustainability problems, challenges and opportunities

Sustainable development	meeting the needs of the present without compromising the ability of future generations to meet their own needs
Sustainable tourism	tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment, and host communities
System	an organized whole, a body; a set of objects, including relationships between these objects and between their attributes

References:

Introduction

Keryan, T., Mitrofanenko, T., Muhar, A., Khartishvili, L., In print. UNESCO's Education for Sustainable Development framework and the reality of university-community cooperation in the Caucasus mountain region. Mountain Research and Development.

Part I. Main Concepts and Terms

1. The term Sustainability and the concept of Sustainable Development

AA (Association Agreement), 2014. Between the European Union and the European Atomic Energy Community and their Member States, of the one part, and Georgia, of the other part. Chapter 9. Official Journal of the European Union L 261: pp. 67–83.

Ahern, J., 2011. From fail-safe to safe-to-fail: Sustainability and resilience in the new urban world. Landscape and urban Planning 100 (4), pp. 341.

Anderies, J. M., Folke, C., Walker, B. and Ostrom, E., 2013. Aligning key concepts for global change policy: robustness, resilience, and sustainability. Ecology and Society 18 (2).

Balmford, A., Beresford, J., Green, J., Naidoo, R., Walpole, M. and Manica, A. A., 2009. Global perspective on trends in nature-based tourism. PLoS Biol., 7, e1000144.

Barlet, S. and Collombon, J.-M., 2004. Approches de quelques définitions. In Tourisme solidaire et développement durable, Les Éditions du Gret, Paris

Bocchini, S., Chiolerio, A., Porro, S., Accardo, D., Garino, N., Bejtka, K. et al., 2013. Synthesis of polyaniline-based inks, doping thereof and test device printing towards electronic applications. *Journal of Materials Chemistry C* 1 (33), pp. 5101–5109.

Butler, R. W., 1999. Sustainable tourism: A state-of-the-art review. *Tourism Geographies.* 1:1, p. 10, DOI: 10.1080/14616689908721291. [online] Available at: https://doi.org/10.1080/14616689908721291 [Accessed 15 May 2020].

Cambridge Dictionary, 2020. SUSTAINABILITY | Meaning In The Cambridge English Dictionary. [online] Available at: <https://dictionary.cambridge.org/dictionary/english/sustainability> [Accessed 30 September 2020].

CEPA, 2017. EU-Armenia Comprehensive and Enhanced Partnership Agreement (CEPA)

Chiran, A., Jităreanu, A.F., Gîndu, E. and Ciornei, L., 2016. Development of rural tourism and agrotourism in some european countries. Lucrări Științifice Management Agricol, 18, pp. 225.

Darnhofer, I., Bellon, S., Dedieu, B. and Milestad, R., 2010. Adaptiveness to enhance the sustainability of farming systems. A review. *Agronomy for sustainable development* 30 (3), pp. 545–555.

Die Bundesregierung, 2018. Deutsche Nachhaltigkeitsstrategie. Konsultationspapier zur Aktualisierung der Strategie 2018. [online] p.2. Available at: <https://www.bundesregierung.de/resource/blob/997532/1142112/88878d7f20d8508a1d84e8d9ff4e942a/2018-06-06-konsultationspapier-data.pdf?download=1> [Accessed 22 May 2020].

Donohoe, H. M. and Lu, X., 2009. Universal tenets or diametrical differences? An analysis of ecotourism definitions from China and abroad. *International Journal of Tourism Research, 11*(4), pp. 357-372.

Edelenbos, J., Van Buuren, A. and van Schie, N., 2011. Co-producing knowledge: joint knowledge production between experts, bureaucrats and stakeholders in Dutch water management projects. Environmental science & policy, 14(6), pp. 675-684.

Embacher, H., 2014. Farm holidays in Austria – strategy and contributions towards sustainability.

Enengel, B., Muhar, A., Penker, M., Freyer, B., Drlik, S. and Ritter, F., 2012. Co-production of knowledge in transdisciplinary doctoral theses on landscape development—An analysis of actor roles and knowledge types in different research phases. *Landscape and Urban Planning* 105 (1-2):106-117. doi:10.1016/j.landurbplan.2011.12.004

Engfeldt L. G., 2009. From Stockholm to Johannesburg and beyond: the evolution of the international system for sustainable development governance and its implications. Swedish Ministry for Foreign Affairs, Stockholm

Etzkowitz, H. and Leydesdorff, L., 2000. The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university–industry–government relations. *Research policy* 29 (2): pp. 109-123

Faulkner, B., 2000. "The future ain't what it used to be": Coping with Change, Turbulence and Disasters in Tourism Research and Destination Management.". In Griffith University Professorial Lecture Series No 6.

Faulkner, B., 2001. Towards a framework for tourism disaster management. In Tourism management 22 (2), pp. 135–147.

Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T. and Rockström, J., 2010. Resilience thinking: integrating resilience, adaptability and transformability. In Ecology and Society 15 (4).

Fukuda-Parr, S. and Hulme, D., 2011. International norm dynamics and the "end of poverty": understanding the Millennium Development Goals. Global governance: a review of multilateralism and international organizations, 17(1), pp. 17-36.

Fukuda-Parr, S., 2016. From the Millennium Development Goals to the Sustainable Development Goals: shifts in purpose, concept, and politics of global goal setting for development. Gender & Development, 24(1), pp. 43-52.

Gatti, L., Seele, P. and Rademacher, L., 2019. Grey zone in – greenwash out. A review of greenwashing research and implications for the voluntary-mandatory transition of CSR. *Int J Corporate Soc Responsibility* **4,** 6 [online] Available at: https://doi.org/10.1186/s40991-019-0044-9 [Accessed 20 August 2020].

Giampiccoli, A. and Mtapuri, O., 2017. Beyond community-based tourism. Towards a new tourism sector classification system. Gazeta de Antropología; 33 (1).

GNTA, 2015. Georgia National Tourism Strategy 2025, Volume 1: Situation Analysis

GNTA, 2018, 2019. Georgian Tourism in Figures 2018, [online] Available at: https://gnta.ge/wp-content/uploads/2019/02/2018-ENG.pdf; Georgian Tourism in Figures 2017, [online] Available at: https://gnta.ge/wp-content/uploads/2019/02/2017-ENG.pdf

GNTA, 2018. Marketing, Branding and Promotional Strategy for Georgia. Part II- Strategy. GNTA.

GNTA, 2019. Georgian Tourism in Figures 2018, [online] Available at: https://gnta.ge/wp-content/uploads/2019/02/2018-ENG.pdf

Goodwin H. and Santilli R., 2009. Community-based tourism: A Success? ICRT Occasional Paper 11. Leeds, UK: International Centre for Responsible Tourism, Leeds Metropolitan University and German Technical Cooperaiton Agency (GTZ).

Gretzel, U., Fuchs, M., Baggio, R. et al., 2020. e-Tourism beyond COVID-19: a call for transformative research. *Inf Technol Tourism* 22, 187–203. [online] Available at: https://doi.org/10.1007/s40558-020-00181-3 [Accessed 9 September 2020].

Hassler, U. and Kohler, N., 2014. Resilience in the built environment: Taylor & Francis

Honey, M., 2008. Ecotourism and sustainable development: Who owns paradise?. Island Press.

Idziak, W., Majewski, J. and Zmyślony, P., 2015. Community participation in sustainable rural tourism experience creation: a long-term appraisal and lessons from a thematic villages project in Poland. Journal of Sustainable Tourism 23 (8-9), pp. 1341–1362.

Johnson, S., 2012. UNEP. The First 40 Years. A Narrative. United Nations Environment Programme, Nairobi. [online] Available at: https://wedocs.unep.org/handle/20.500.11822/8751

Juganaru, I. D., Juganaru, M., and Anghel, A., 2008. Sustainable tourism types. Annals of University of Craiova - Economic Sciences Series. 2. pp. 797-804.unct

Keeble, B.R., 1988. The Brundtland Report: "Our Common Future". Medicine and War, 4(1), pp. 17-25; [online] Available at: https://doi.org/10.1080/07488008808408783

Khartishvili, L. and Baumgartner, Ch., 2020. Ecotourism Market Potential Analysis in Georgia; A base for the Ecotourism Strategy for Georgia 2020-2030; GIZ Private Sector Development and Technical Vocational Education and Training Programme South Caucasus (PSDTVET SC). Tbilisi, Georgia

Khartishvili, L., Muhar, A., Dax, Th. and Khelashvili, I., 2019. Rural Tourism in Georgia in Transition: Challenges for Regional Sustainability. Sustainability 11 (2), pp. 410.

Kontogeorgopoulos, N., Churyen, A. and Duangsaeng V., 2014. Success factors in community-based tourism in Thailand: The role of luck, external support, and local leadership. Tourism Planning & Development 11(1): pp. 106–124.

KPMG, 2017. The KPMG Survey of Corporate Responsibility Reporting 2017. p. 7, [online] Available at: https://assets.kpmg/content/dam/kpmg/xx/pdf/2017/10/kpmg-survey-of-corporate-responsibility-reporting-2017.pdf

Lane, B. and Kastenholz, E., 2015. Rural tourism: The evolution of practice and research approaches – towards a new generation concept? Sustainable Tourism 23(8–9), pp. 1133–1156

Lane, B., 2012. Second generation rural tourism: research priorities and issues. Turismo rural em tempo de neoruralidades, Proceedings of the VIII CITURDES, Vila Real: CETRAD-UTAD, pp. 1020–1041.

Le Blanc, D., 2015. Towards integration at last? The sustainable development goals as a network of targets. Sustainable Development, 23(3), pp. 176-187.

López-Ridaura, S., van Keulen, H., van Ittersum, M. K. and Leffelaar, P. A., 2005. Multi-scale sustainability evaluation of natural resource management systems: Quantifying indicators for different scales of analysis and their trade-offs using linear programming. In The International Journal of Sustainable Development & World Ecology 12 (2), pp. 81–97.

Mackenzie, A. F. D. and Dalby, S., 2003. Moving mountains: community and resistance in the Isle of Harris, Scotland, and Cape Breton, Canada. Antipode, 35(2), pp. 309-333.

Martínez-Alier, J., Pascual, U., Vivien, F-D. and Zaccai, E., 2010. Sustainable de-growth: Mapping the context, criticisms and future prospects of an emergent paradigm. Ecological Economics 69, pp. 1741–1747. doi: 10.1016/j.ecolecon.2010.04.017

Miller, G. A., 2003. Consumerism in sustainable tourism: A survey of UK consumers. Journal of Sustainable Tourism, 11(1), pp. 17-39.

Mitrofanenko, T., 2018. Integrating approaches from the Intergenerational field into protected area management and regional development governance (PhD). University of Natural Resources and Life Sciences, Vienna, Vienna, Austria.

Mtapuri, O. and Giampiccoli, A., 2013. Interrogating the role of the state and nonstate actors in community-based tourism ventures: Toward a model for spreading the benefits to the wider community. South African Geographical Journal 95(1), pp. 1–15.

Mtapuri, O. and Giampiccoli, A., 2016. Towards a comprehensive model of community-based tourism development. South African Geographical Journal 98(1), pp. 154–168

Murphy, P., 1985. Tourism: a community approach. Methuen: New York and London. Tourism Review 6 (2), pp. 9–10.

Norton, A. and Stuart, E., 2015. 'How far down the road: comments on the secretary general's synthesis Report on Post 2015', ODI Report, [online] Available at: http://www.odi.org/publications/9116-sdgs-post-2015-secretary-general-owg [Accessed 9 January 2016]

Novelli, M., Klatte, N. and Dolezal, C., 2017. The ASEAN community-based tourism standards: Looking beyond certification. Tourism Planning & Development 14(2), pp. 260–281.

Novelli, M., Schmitz, B. and Spencer, T., 2006. Networks, clusters and innovation in tourism: A UK experience. Tourism Management, 27, pp. 1141–1152.

OECD Development Committee on Tourism Secretariat, 1994. Tourism Strategies and Rural Development; OECD: Paris, France.

Olsson, P., Galaz, V., Boonstra and Wiebren J., 2014. Sustainability transformations: a resilience perspective. Ecology and Society 19 (4).

Opdyke, A. and Javernick-Will, A. (Eds.), 2014. Resilient and sustainable infrastructure systems: The role of coordination, stakeholder participation, and training in post-disaster reconstruction: Engineering Project Organization Conference.

Pohl, C. and Hadorn, Gh., 2007. Principles for designing transdisciplinary research: oekom Munich.

Pooley, J. A. and Cohen, L., 2010. Resilience: A definition in context. Australian Community Psychologist 22 (1), pp. 30–37.

Pradhan, P., Costa, L., Rybski, D., Lucht, W. and Kropp, J. P., 2017. A systematic study of Sustainable Development Goal (SDG) interactions. Earth's Future, 5(11), pp. 1169-1179

Purvis, B., Mao, Y. and Robinson, D., 2019.Three pillars of sustainability: in search of conceptual origins. *Sustain Sci Journal* 14, pp. 681–695.

Redman, C. L., 2014. Should sustainability and resilience be combined or remain distinct pursuits? Ecology and Society 19 (2).

Reid, DG., Mair, H. and George W., 2004. Community tourism planning: A self-assessment instrument. Annals of Tourism Research 31(3), pp. 623–639.

Sekulova, F., Kallis, G., Rodríguez-Labajos, B. and Schneider, F., 2013. Degrowth: from theory to practice. Journal of Cleaner Production 38, pp. 1–6. https://doi.org/10.1016/j.jclepro.2012.06.022

Siano, A., Vollero, A., Conte, F. and Amabile, S., 2017. "More than words": Expanding the taxonomy of greenwashing after the Volkswagen scandal. Journal of Business Research, 71, pp. 27-37

Sidali, K. L., Kastenholz, E. and Bianchi, R., 2015. Food tourism, niche markets and products in rural tourism: Combining the intimacy model and the experience economy as a rural development strategy. Journal of Sustainable Tourism 23 (8-9), pp. 1179–1197.

Stanford, D., 2008. 'Exceptional visitors': Dimensions of tourist responsibility in the context of New Zealand. Journal of Sustainable Tourism, 16(3), pp. 258-275.

Stoll-Kleemann, S. and O'Riordan, T., 2017. The Challenges of the Anthropocene for Biosphere Reserves. Parks 23:89–100. doi: 10.1016/B978-0-12-409548-9.09828-6

Suansri, P., 2003. Community Based Tourism Handbook. Bangkok, Thailand: REST. Responsible Ecological Social Tour. [online] Available at: https://www.mekongtourism.org/community-based-tourism-handbook/ [Accessed on 17 July 2020].

Sustainable Development Goals Fund., 2020. From Mdgs To Sdgs. [online] Available at: https://www.sdgfund.org/mdgs-sdgs [Accessed 8 July 2020].

Szabo, S. and Webster, J., 2020. Perceived Greenwashing: The Effects of Green Marketing on Environmental and Product Perceptions. Journal of Business Ethics, pp. 1-21.

Sznajder, M., Przezbórska, L. and Scrimgeour, F., 2009. Agritourism. Wallingford, England. *CABI International.* [online] Available at: https://www.cabi.org/leisuretourism/ebook/20093120380 [Accessed 5 October 2020].

Tainter, J. A. and Taylor, Temis, G., 2014. Complexity, problem-solving, sustainability and resilience. Building Research & Information 42 (2), pp. 168–181.

Team, U. T., 2012. UN System Task Team on the Post-2015 Development Agenda: Addressing Inequalities: The Heart of the Post-2015 Agenda and the Future we Want For All.

The International Ecotourism Society, 2018. What Is Ecotourism - The International Ecotourism Society. [online] Available at: https://ecotourism.org/what-is-ecotourism/.

UN, 2012. The future we want. Resolution 66, pp. 288.

UN, 2015. "Transforming Our World: The 2030 Agenda for Sustainable Development. Resolution Adopted by the General Assembly on 25 September 2015." United Nations General Assembly. [online] Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

UN, 2020. The 17 Goals. Department Of Economic And Social Affairs. [online] Available at: <https://sdgs.un.org/goals>

UNEP and UNWTO, 2005. Making Tourism More Sustainable - A Guide for Policy Makers, pp. 11-12

United Nations Conference on Trade and Development, 2014. World Investment Report, Investing in the SDGs: Action Plan. [online] Available at: https://unctad.org/en/PublicationsLibrary/wir2014_en.pdf [Accessed 12th January 2019]

United Nations, 2020. Inequality In A Rapidly Changing World. *World Social Report 2020.* United Nations publication. [online] Available at: <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/01/World-Social-Report-2020-FullReport.pdf> [Accessed 11 August 2020].

UNWTO, 2017. Tourism Highlights 2017 Edition. UNWTO, p.14. [online] Available at: <https://www.e-unwto.org/doi/pdf/10.18111/9789284419029> [Accessed 14 June 2020]

Vinod, B., 2020. The COVID-19 pandemic and airline cash flow. *J Revenue Pricing Manag* **19,** 228–229. [online] Available at: https://doi.org/10.1057/s41272-020-00251-5 [Accessed 9 September 2020].

Walker, B. and Salt, D., 2012. Resilience thinking: sustaining ecosystems and people in a changing world: Island Press.

Wals, A. E. J. and Peters, M. A., 2017. Flowers of Resistance: Citizen science, ecological democracy and the transgressive education paradigm. König A, Jerome R (eds) Sustainability Science: Key Issues. Routledge, London, pp. 29–52

Wapner, P., 2003. World Summit on Sustainable Development: Toward a Post-Jo'burg Environmentalism. Global Environmental Politics 3, pp. 1–10. https://doi.org/10.1162/152638003763336356

WCED, S. W. S., 1987. World commission on environment and development. Our common future, 17, pp. 1-91.

World Commission on Environment and Development, 1987. Report of the World Commission on Environment and Development: Our Common Future. Oxford: Oxford University Press.

World Travel & Tourism Council, 2018. City Travel & Tourism Impact 2018. pp. 5. [online] Available at: https://www.wttc.org/-/media/files/reports/economic-impact-research/cities-2018/city-travel--tourism-impact-2018final.pdf [Accessed 14 June 2020]

2. Education for Sustainable Development and the Role of Higher Educational

Abson, D.J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmeier, U., von Wehrden, H., Abernethy, P., Ives, C.D., Jager, N.W. and Lang, D.J., 2017. Leverage points for sustainability transformation. Ambio. A *Journal of the Human Environment* 46, pp. 30–39. https://doi.org/10.1007/s13280-016-0800-y

Barth, M., 2016. Teaching and Learning in Sustainability Science, in: Heinrichs, H., Martens, P., Michelsen, G., Wiek, A. (Eds.), Sustainability Science. An Introduction. *Springer Netherlands,* Dordrecht, pp. 325–333.

Berkes, F., 2009. Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management* 90, pp. 1692–1702. https://doi.org/10.1016/j.jenvman.2008.12.001

Breznitz, S. M. and Feldman, M. P., 2012. The engaged university. The Journal of Technology Transfer 37 (2): pp. 139-157. doi:10.1007/s10961-010-9183-6

Brundiers, K., Barth, M., Cebrián, G., Cohen, M., Diaz, L., Doucette-Remington, S., Dripps, W., Habron, G., Harré, N., Jarchow, M., Losch, K., Michel, J., Mochizuki, Y., Rieckmann, M., Parnell, R., Walker, P. and Zint, M., 2020. Key competencies in sustainability in higher education—toward an agreed-upon reference framework. *Sustainability Science.* pp. 1–17. https://doi.org/10.1007/s11625-020-00838-2

Buffel, T., Skyrme, J. and Phillipson, C., 2017. Chapter 7. Connecting Research with Social Responsibility: Developing 'Age-Friendly' Communities in Manchester, UK, in: Shek, D.T.L., Hollister, R.M. (Eds.), University Social Responsibility and Quality of Life A Global Survey of Concepts and Experiences, Quality of Life in Asia. *Springer Nature,* Singapore.

Clark, B., 2001. The entrepreneurial university: New foundations for collegiality, autonomy, and achievement. *Higher Education Management,* vol 13. vol 2. OECD, Paris, pp. 9-24

Clark, W. C. and Dickson, N. M., 2003. Sustainability science: the emerging research program. Proceedings of the national academy of sciences, 100(14), pp. 8059-8061.

Enengel, B., Muhar, A., Penker, M., Freyer, B., Drlik, S. and Ritter, F., 2012. Co-production of knowledge in transdisciplinary doctoral theses on landscape development-An analysis of actor roles and knowledge types in different research phases. Landscape and Urban Planning 105, pp. 106–117. https://doi.org/10.1016/j.landurbplan.2011.12.004

Geilfus, F., 2008. 80 Tools for Participatory Development: Appraisal, Planning, Follow-up and Evaluation. Inter-American Institute for Cooperation on Agriculture (IICA).

Gibbs, P., 2017. Transdisciplinary higher education: A theoretical basis revealed in practice. *Springer: Cham,* Switzerland.

Hirsch Hadorn, G., Hoffmann-Riem, H., Biber-Klemm, S., Grossenbacher-Mansuy, W., Joye, D., Pohl, C., Wiesmann, U. and Zemp, E. (Eds.), 2008. Handbook of Transdisciplinary Research. *Springer Science + Business Media B.V.*

Kates, R. W., Clark, W. C., Corell, R., Hall, J. M., Jaeger, C. C., Lowe, I., et al., 2001. Sustainability science. *Science, 292*(5517), pp. 641-642.

Kerr, C., 2001. The Uses of the University, Fifth. ed. Harvard University Press, Cambridge Massachusetts.

Kioupi, V. and Voulvoulis, N., 2019. Education for sustainable development: A systemic framework for connecting the SDGs to educational outcomes. *Sustainability* 11, pp. 1–18.

Lang, DJ., Wiek, A., Bergmann, M., et al., 2012. Transdisciplinary Research in Sustainability Science: Practice, Principles, and Challenges. *Sustainability Science* 7: pp. 25–43. doi: 10.1007/s11625-011-0149-x.

Larrán Jorge, M. and Andrades Peña, F.J., 2017. Analysing the literature on university social responsibility: A review of selected higher education journals. *Higher Education Quarterly* 71, pp. 302–319. https://doi.org/10.1111/hequ.12122

Max-Neef, M.A., 2005. Foundations of transdisciplinarity. *Ecological Economics* 53, pp. 5–16. https://doi.org/10.1016/j.ecolecon.2005.01.014

Merck, J. and Beermann, M., 2015. The relevance of transdisciplinary teaching and learning for the successful integration of sustainability issues into higher education development. *Integrative Approaches to Sustainable Development at University Level,* Springer: Cham, Switzerland; pp. 19-25.

Mochizuki, Y. and Yarime, M., 2015. Education for Sustainable Development and Sustainability Science: Re-purposing Higher Education and Research, in: Barth, M., Michelsen, G., Rieckmann, M., Thomas, I. (Eds.), . Routledge, London, pp. 11–24.

Muhar, A. and Penker, M. 2018. Knowledge Co-Production. An Analytical Framework. GAIA - *Ecological Perspectives for Science and Society,* 27(3), 272. https://doi.org/10.14512/gaia.27.3.3

Peer, V. and Stoeglehner, G., 2013. Universities as change agents for sustainability–framing the role of knowledge transfer and generation in regional development processes. *Journal of Cleaner Production* 44: pp. 85-95. doi:10.1016/j.jclepro.2012.12.003

Pohl, C. and Hirsch Hadorn, G., 2007. Principles for Designing Transdisciplinary Research. *Oekom Verlag,* Munich.

Pohl, C., Krütli, P. and Stauffacher, M., 2017. Ten Reflective Steps for Rendering Research Societally Relevant. GAIA 26, pp. 43 – 51. https://doi.org/10.14512/gaia.26.1.10

Pohl, C., Rist, S., Zimmermann, A., Fry, P., Gurung, G. S., Schneider, F., Speranza, C. I., Kiteme, B., Boillat, S., Serrano, E., Hadorn, G. H. and Wiesmann, U., 2010. Researchers' roles in knowledge co-production: experience from sustainability research in Kenya, Switzerland, Bolivia and Nepal. *Science and Public Policy* 37 (4): pp. 267-281. doi:10.3152/030234210x496628

ProClim/CASS, 1997. Research on Sustainability and Global Change – Visions in Science Policy by Swiss Researchers. Bern: CASS/SANW.

Rieckmann, M., 2012. Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures* 44 (2): pp. 127-135

RSP [A Rounder Sense of Purpose], 2019. A Rounder Sense of Purpose. Educator competences in learning for sustainability.

Schneidewind, U., Singer-Brodowski, M. and Augenstein, K., 2016. Transformative Science for Sustainability Transitions, in: Brauch, H.G., Oswald Spring, Ú., Grin, J., Scheffran, J. (Eds.), Handbook on Sustainability Transition and Sustainable Peace, Hexagon Series on Human and Environmental Security and Peace. *Springer International Publishing,* Switzerland, pp. 123–136. Doi:10.1007/978-3-319-43884-9_5.

Steelman, T.; Nichols, E. G.; James, A.; Bradford, L.; Ebersöhn, L.; Scherman, V.; Omidire, F.; Bunn, D. N.; Twine, W. and McHale, M. R., 2015. Practicing the science of sustainability: the challenges of transdisciplinarity in a developing world context. *Sustainability Science* 10, pp. 581-599.

Stephens, J. C., Hernandez, M. E., Román, M., Graham, A. C. and Scholz, R. W., 2008. Higher education as a change agent for sustainability in different cultures and contexts. *International journal of sustainability in higher education* 9 (3): pp. 317-338

Tassone, V. C., O'Mahony, C., McKenna, E., Eppink, H. J. and Wals, A. E., 2018. (Re-) designing higher education curricula in times of systemic dysfunction: a responsible research and innovation perspective. *Higher Education* 76 (2): pp. 337-352. doi:10.1007/s10734-017-0211-4

UN [United Nations], 1992. Agenda 21. Programme of Action for Sustainable Development. United Nations Conference on Environment & Development. Rio de Janerio, Brazil, 3 to 14 June 1992.

UNECE [United Nations Economic Commission for Europe], 2012. Learning for the future: Competences in Education for Sustainable Development.

UNESCO [The United Nations Educational, Scientific and Cultural Organization], 2019a. UNESCO 40th General Conference adopts a new global framework for Education for Sustainable Development for 2020-2030 [WWW Document]. UNESCO. Building peace in the minds of men and women. [online] Available at: https://en.unesco.org/news/unesco-40th-general-conference-adopts-new-global-framework-education-sustainable-development [Accessed 9.23.2020]

UNESCO [The United Nations Educational, Scientific and Cultural Organization], 2019b. Framework for the implementation of Education for Sustainable Development (ESD) beyond 2019.

UNESCO [The United Nations Educational, Scientific and Cultural Organization], 2017. Education for Sustainable Development Goals - Learning Objectives. UNESCO, Paris, France.

UNESCO [The United Nations Educational, Scientific and Cultural Organization], 2019. Framework for the implementation of education for sustainable development (esd) beyond 2019. [online] Available at: https://unesdoc.unesco.org/ark:/48223/pf0000370215

United Nations, 2015. "Transforming Our World: The 2030 Agenda for Sustainable Development. Resolution Adopted by the General Assembly on 25 September 2015." *United Nations General Assembly.* [online] Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

Vare, P., 2018. A Rounder Sense of Purpose: developing and assessing competences for educators of sustainable development. Form@re - *Open Journal per la formazione in rete 2*, pp. 164–173. https://doi.org/doi:10.13128/formare-23712

Wiek, A., Bernstein, M., Foley, R., Cohen, M., Forrest, N., Kuzdas, C. and Withycombe Keeler, L., 2015. Operationalising competencies in higher education for sustainable development. *Handbook of Higher Education for Sustainable Development;* Barth, M., Michelsen, G., Rieckmann, M., Thomas, I., Eds, pp. 241-260.

Wiek, A., Withycombe, L. and Redman, C.L., 2011. Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science* 2, pp. 203–218. https://doi.org/10.1007/s11625-011-0132-6

3. Public Participation

Aarts, N. and Leeuwis, C., 2010. Participation and power: reflections on the role of government in land use planning and rural development. Journal of Agricultural Education and Extension 16 (2), pp. 131–145.

Ahern, J., 2011. From fail-safe to safe-to-fail: Sustainability and resilience in the new urban world. *Landscape and urban Planning* 100 (4), pp. 341.

Albert, N. M., Collier, S., Sumodi, V., Wilkinson, S., Hammel, J. P., Vopat, L., et al., 2002. Nurses's knowledge of heart failure education principles. Heart & Lung 31 (2), pp. 102–112.

Anderies, J. M., Folke, C., Walker, B. and Ostrom, E., 2013. Aligning key concepts for global change policy: robustness, resilience, and sustainability. *Ecology and Society* 18 (2).

Arnstein, S. R., 1969. A ladder of citizen participation. Journal of the American Institute of planners 35 (4), pp. 216–224.

Beierle, T. C. and Cayford, J., 2002. Democracy in Practice: Public Participation in Environmental Decisions. Resources of the Future, Washington.

Bocchini, S., Chiolerio, A., Porro, S., Accardo, D., Garino, N., Bejtka, K. et al., 2013. Synthesis of polyaniline-based inks, doping thereof and test device printing towards electronic applications. *Journal of Materials Chemistry* C 1 (33), pp. 5101–5109.

Chambers, R., 1994. The origins and practice of participatory rural appraisal. World development, 22(7), pp. 953-969.

Chambers, R., 2004. Participatory rural appraisal: methods and applications in rural planning: essays in honour of Robert Chambers (Vol. 5). Concept Publishing Company.

Chouinard, M., 2018. Uncovering themysteries ofinclusion: empirical and methodological possibilities in participatory evaluation in an international context. (E. P. 67:70–78., Ed.). [online] Available at: https://doi.org/10.1016/j.evalprogplan.2017.12.001.

Collins, K. and Ison, R., 2009. Jumping off Arnstein's ladder: social learning as a new policy paradigm for climate change adaptation. Environmental Policy and Governance 19 (6), pp. 358–373.

Cornwall, A., 2002. Beneficiary consumer citizen: perspectives on participation for poverty reduction (Vol. 2). Swedish International Development Cooperation Agency.

Coulson, S., Woods, M., Scott, M., and Hemment, D., 2018. Making Sense: Empowering participatory sensing with transformation design. *Design Journal,* 21(6), pp. 813–833. [online] Available at: https://doi.org/10.1080/14606925.2018.1518111

Darnhofer, I., Bellon, S., Dedieu, B. and Milestad, R., 2010. Adaptiveness to enhance the sustainability of farming systems. A review. *Agronomy for sustainable development* 30 (3), pp. 545–555.

EIPP, European Institute for Public Participation, 2009. Public Participation in Europe - An international perspective. [online] Available at: http://www.participationinstitute.org/wpcontent/uploads/2009/06/pp_in_e_report_03_06.pdf [Accessed 03.05.2011]

Enengel, B., Muhar, A., Penker, M., Freyer, B., Drlik, S. and Ritter, F., 2012. Co-production of knowledge in transdisciplinary doctoral theses on landscape development—An analysis of actor roles and knowledge types in different research phases. *Landscape and urban Planning* 105 (1-2), pp. 106–117. DOI: 10.1016/j.landurbplan.2011.12.004.

Ernstson, H., Van der Leeuw, S. E., Redman, C. L., Meffert, D. J., Davis, G., Alfsen, C. and Elmqvist, T., 2010. Urban transitions: on urban resilience and human-dominated ecosystems. *AMBIO: A journal of the human environment* 39 (8), pp. 531–545.

Felt, A. P., Ainslie, A., Reeder, R. W., Consolvo, S., Thyagaraja, S., Bettes, A. and Grimes, J. (Eds.), 2015. Improving SSL warnings: Comprehension and adherence. Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems.

Folke, C., Carpenter, S. R., Walker, B., Scheffer, M., Chapin, T. and Rockström, J., 2010. Resilience thinking: integrating resilience, adaptability and transformability. *Ecology and Society* 15 (4).

Folke, C., Carpenter, S., Elmqvist, T., Gunderson, L., Holling, C. S. and Walker, B., 2002. Resilience and sustainable development: building adaptive capacity in a world of transformations. *AMBIO: A journal of the human environment* 31 (5), pp. 437–440.

Fung, A., 2003 Thinking about Empowered Participatory Governance Archon Fung and Erik Olin Wright. Deepening democracy: Institutional innovations in empowered participatory governance 4 (3).

Hassler, U. and Kohler, N., 2014. Resilience in the built environment: Taylor & Francis.

Honey, M., 2008. Ecotourism and sustainable development: Who owns paradise?. Island Press.

Hubert, B. and Bonnemaire, J., 2000. La construction des objets dans la recherche interdisciplinaire finalisée : de nouvelles exigences pour l'évaluation, *Natures Sciences Sociétés,* 8, 3, pp. 5-19.

Justyna, K., 2019. Let's Play the City Game. UNDP. [online] Available at: www.ge.undp.org: https://www.ge.undp.org/content/georgia/en/home/blog/2019/city-game.html

Kerr, C., 2001. The uses of the university. Harvard University Press

Koontz, T. M., 2006. Collaboration for sustainability? A framework for analyzing government impacts in collaborative-environmental management. *Sustainability: Science, Practice and Policy* 2 (1), pp. 15–24.

Kotus, J. and Sowada, T., 2017. Behavioural model of collaborative urban management: extending the concept of Arnstein's ladder. Cities 65, pp. 78–86

Krek, A., 2008. Games in Urban Planning: The Power of a Playful Public Participation. *REAL CORP 2008: Mobility Nodes as Innovation Hubs Verkehrsknoten Als Innovations- Und Wissensdrehscheiben, 2*(Krek 2005), pp. 683–691. [online] Available at: http://www.corp.at/archive/CORP2008_45.pdf

Lew, A. A., 2014. Scale, change and resilience in community tourism planning. *Tourism Geographies* 16 (1), pp. 14–22.

López-Ridaura, S., van Keulen, H., van Ittersum, M. K. and Leffelaar, P. A., 2005. Multi-scale sustainability evaluation of natural resource management systems: Quantifying indicators for different scales of analysis and their trade-offs using linear programming. The International Journal of Sustainable Development & World Ecology 12 (2), pp. 81–97.

Lozano, S. and Arenas, A., 2007. A model to test how diversity affects resilience in regional innovation networks. Journal of Artificial Societies and Social Simulation 10 (4), pp. 8.

Moulaert, F., 2013. The international handbook on social innovation: collective action, social learning and transdisciplinary research: Edward Elgar Publishing.

Nared, J. and Bole, D. (Eds.), 2020. Participatory Research and Planning in Practice. 1st ed. 2020. Cham: *Springer International Publishing; Springer* (The Urban Book Series).

Newig, J., 2007. Does public participation in environmental decisions lead to improved environmental quality?: towards an analytical framework. Communication, Cooperation, Participation (International Journal of Sustainability Communication) 1 (1), pp. 51–71.

Nkhata, A. B., Breen, C. M. and Freimund, W. A., 2008. Resilient social relationships and collaboration in the management of social–ecological systems. *Ecology and Society* 13 (1).

Olsson, P., Galaz, V. and Boonstra, W. J., 2014. Sustainability transformations: a resilience perspective. *Ecology and Society* 19 (4).

Opdyke, A. and Javernick-Will, A. (Eds.), 2014. Resilient and sustainable infrastructure systems: The role of coordination, stakeholder participation, and training in post-disaster reconstruction: Engineering Project Organization Conference.

Parfitt, T., 2004. The ambiguity of participation: a qualified defence of participatory development. *Third world quarterly* 25 (3), pp. 537–555.

Peer, V. and Stoeglehner, G., 2013. Universities as change agents for sustainability–framing the role of knowledge transfer and generation in regional development processes. Journal of Cleaner Production 44, pp. 85–95.

Pohl, C. and Hirsch Hadorn, G., 2007. Principles for Designing Transdisciplinary Research. Oekom Verlag, Munich.

Pooley, J. A. and Cohen, L., 2010. Resilience: A definition in context. *Australian Community Psychologist* 22 (1), pp. 30–37.

Popescu, L. G., 2013. From a holistic approach of public policy to co-governance. Theoretical and Applied Economics 20 (7), pp. 584.

Redman, C. L., 2014. Should sustainability and resilience be combined or remain distinct pursuits? *Ecology and Society* 19 (2).

Resolution Adopted by the General Assembly on 25 September 2015." United Nations General Assembly

Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.
[Accessed 03.11.2020]

Ritter, T., Wilkinson, I. F. and Johnston, W. J., 2004. "Managing in complex business networks", Industrial Marketing Management, Vol. 33 No. 3, pp. 175-183.

Saladin, C. and van Dyke, B., 1998. Implementing the Principles of the Public Participation Convention in International Organizations. Center for International Environmental Law, Washington DC, June.

Schauppenlehner-Kloyber, E., 2017. Collaboration: Long-Term Partnerships for Local Development. Management of Cities and Regions, pp. 1.

Stauffacher, M., Flüeler, T., Krütli, P. and Scholz, R. W., 2008. Analytic and dynamic approach to collaboration: a transdisciplinary case study on sustainable landscape development in a Swiss prealpine region. Systemic Practice and Action Research, 21(6), pp. 409-422.

Stuart, G., 2020. *What Is The Spectrum Of Public Participation?.* [online] Sustaining Community. Available at: <https://sustainingcommunity.wordpress.com/2017/02/14/spectrum-of-public-participation/>

Tainter, J. A. and Taylor, T. G., 2014. Complexity, problem-solving, sustainability and resilience. *Building Research & Information* 42 (2), pp. 168–181.

Terry, J. P. and Khatri, K., 2009. People, pigs and pollution–Experiences with applying participatory learning and action (PLA) methodology to identify problems of pig-waste management at the village level in Fiji. Journal of Cleaner Production, 17(16), pp. 1393-1400.

Tritter, J. Q. and McCallum, A., 2006. The snakes and ladders of user involvement: moving beyond Arnstein. Health policy 76 (2), pp. 156–168.

UN, 2012. The future we want. *Resolution* 66, pp. 288.

United Nations, 2015. Transforming Our World: The 2030 Agenda for Sustainable Development. Resolution Adopted by the General Assembly on 25 September 2015. United Nations General Assembly. [online] Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

Walker, B. and Salt, D., 2012. Resilience thinking: sustaining ecosystems and people in a changing world: *Island Press.*

Wilcox, D., 1994. Community participation and empowerment: putting theory into practice. Rra Notes 21, pp. 78–82

Part II. Methods

4. Case Study Teaching, Principles and Methods

Ackermann, F. and Eden, C., 2011. Strategic Management of Stakeholders: Theory and Practice. Long Range Planning, 44(3), pp. 179–196. [online] Available at: https://doi.org/10.1016/j.lrp.2010.08.001

Baxter, J., 2009. Content Analysis. In R. Kitchin & N. Thrift (Eds.), International Encyclopedia of Human Geography, pp. 275–280. Elsevier Inc. [online] Available at: https://doi.org/10.1016/B978-008044910-4.00415-6

Bell, W., 2017. Foundations of Futures Studies: Volume 2: Values, Objectivity, and the Good Society. Routledge.

Bergmann, M., Jahn, T., Knobloch, T., Krohn, W., Pohl, C. and Schramm, E., 2012. Methods for Transdisciplinary Research. A Primer for Practice. Digital Times (Vol. Unknown). Campus Verlag. [online] Available at: https://www.press.uchicago.edu/ucp/books/book/distributed/M/bo15474881.html%0Ahttp://www.dt.co.kr/contents.html?article_no=2012071302010531749001

Boddy, C., 2005. A rose by any other name may smell as sweet but "group discussion" is not another name for a "focus group" nor should it be. Qualitative Market Research: An International Journal, 8(3), pp. 251.

Bradfield, R., Wright, G., Burt, G., Cairns, G., and Van Der Heijden, K., 2005. The origins and evolution of scenario techniques in long-range business planning, *Futures,* 37(2005): pp. 795–812

Bratio, M. and Penker, M., 2019. Scenario process for knowledge integration. Presentation from the online-conference by Gabriele Bammer on knowledge integration. [online] Available at: https://www.slideserve.com/malcolm-kirby/scenario-process-for

Burns, R., 1997. Introduction to Research Methods (3rd ed.). South Melbourne [N.S.W.]: Addison Wesley Longman.

Creswell, J. W. and Clark, V. L. P., 2017. Designing and Conducting Mixed Methods Research (Third Edit). SAGE Publications, Inc. [online] Available at: https://us.sagepub.com/en-us/nam/designing-and-conducting-mixed-methods-research/book241842

Creswell, J. W. and Tashakkori, A., 2007. Editorial: Differing Perspectives on Mixed Methods Research. Journal of Mixed Methods Research, 1(4), pp. 303–308. [online] Available at: https://doi.org/10.1177/1558689807306132

Dator, J., 1996. 'Foreword', in: R.A. Slaughter (Ed.), The Knowledge Base of Futures Studies, 3 vols., DDM Media Group, Hawthorn, Australia, 1996

De Lopez, T. T., 2001. Stakeholder management for conservation projects: a case study of Ream National Park, Cambodia. Environmental Management 28, 47–60.

De Vaus, D., 2014. Surveys in Social Research. Sydney, Vic.: Allen & Unwin.

Eden, C. and Ackermann, F., 1998. Making Strategy: The Journey of Strategic Management. Making Strategy: The Journey of Strategic Management. SAGE Publications Ltd. [online] Available at: https://doi.org/10.4135/9781446217153

Edgar, B., Abouzeedan, A., Hedner, T., Maack, K. and Lundqvist, M., 2013. Using scenario planning in regional development context: the challenges and opportunities. *World Journal of Science, Technology and Sustainable Development.*

Flick, U., 2007. Qualitative Research Kit. *SAGE Publications,* ISBN: 0761949763,9780761949763

Flick, U., 2014. An introduction to qualitative research. *SAGE Publications,* ISBN: 1847873235

Flyvbjerg, B., 2011. Case Study. In Denzin Norman K & Lincoln Yvonna S. (Eds.), The Sage Handbook of Qualitative Research (4th ed.). Thousand Oaks, CA: Sage, pp. 301–316

Gajdošík, T., 2016. Network Analysis of Cooperation in Tourism Destinations. *Czech Journal of Tourism,* 4(1), pp. 26–44. [online] Available at: https://content.sciendo.com/view/journals/cjot/4/1/article-p26.xml

Glanzer, M., Freyer, B., Muhar, A., Schauppenlehner and T., Vilsmaier, U., 2005. Leben 2014 - Perspektiven der Regionalentwicklung in der Nationalparkregion Hohe Tauern/Oberpinzgau. Dokumentation der Ergebnisse; Verlag Tauriska, Neukirchen/Großvenediger

Glanzer, M., Muhar, A., Vilsmaier, U. and Freyer, B., 2006. Initiating transdisciplinarity in academic case study teaching. *International Journal of Sustainability in Higher Education***,** 7, pp. 293-308.

Gokhale, P.A., 1998. Third International Conference on Grey Literature: A Report. SRELS Journal of Information Management Vol 35, No 1. pp. 68-70

Gratzer, G., Muhar, A., Winiwarter, V., Lindenthal, T., Radinger-Peer, V. and Melcher, A., 2019. The 2030 Agenda as a challenge to life sciences universities. *GAIA - Ecological Perspectives for Science and Society,* 28, pp. 100-105.

Greene, J. C., 2007. Mixed Methods in Social Inquiry. [online] Available at: https://www.wiley.com/en-us/Mixed+Methods+in+Social+Inquiry-p-9780787983826

Grinnell, R. M. and Unrau, Y. A., 1981. Social work research and evaluation : foundations of evidence-based practice (Eleventh).

Guest, G., Namey, E. E. and Mitchell, M. L., 2013. Collecting Qualitative Data: A Field Manual for Applied Research. [online] Available at: https://methods.sagepub.com/book/collecting-qualitative-data

Hall, A. D. and Fagen, R. E., 1956. Definition of a system, General Systems, pp. 18–28.

Hanneman, R. A. and Riddle, M., 2005. Introduction to Social Network Methods. [online] Available at: https://faculty.ucr.edu/~hanneman/nettext/

Hass, B., 2004. The brouhaha surrounding scientifically-based research. Stanford Educator.

Inayatullah, S., 2013. "Futures studies: theories and methods." There's a future: Visions for a Better World, BBVA, Madrid: pp. 36-66.

Johnson, P., Buehring, A., Cassell, C. and Symon, G., 2006. Evaluating qualitative management research: Towards a contingent criteriology. *International Journal of Management Reviews,* 8(3), pp. 131–156. [online] Available at: https://doi.org/10.1111/j.1468-2370.2006.00124.x

Johnson, R. B. and Onwuegbuzie, A. J., 2004. Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher,* 33(7), pp. 14–26. [online] Available at: https://doi.org/10.3102/0013189X033007014

Kuckartz, U., 2014. Qualitative Text Analysis: A Guide to Methods, Practice and Using Software. Sage.

Kumar, R., 2014. Research Methodology: A Step-by-Step Guide for Beginners. [online] Available at: https://study.sagepub.com/kumar4e

Kvale, S., 2007. Doing Interviews. (U. Flick, Ed.), Doing Interviews. *SAGE Publications,* Ltd. [online] Available at: https://doi.org/10.4135/9781849208963

Lewis, I. and Munn, P., 1987. So You Want To Do Research! A Guide for Teachers on How To Formulate Research Questions.

Maxwell, J. A. J., 1996. Qualitative Research Design: An Interactive Approach (Vol. 41). *Applied Social Research Methods Series.* [online] Available at: https://doi.org/10.1007/978-3-8349-6169-3_3

Mayring, P., 2000. Qualitative Content Analysis. Forum Qualitative Sozialforschung / Forum: *Qualitative Social Research,* 1(2). [online] Available at: http://www.qualitative-research.net/index.php/fqs/article/view/1089

Mayring, P., 2007. Generalisierung in qualitativer Forschung. Forum Qualitative Sozialforschung / Forum: *Qualitative Social Research* (Vol. 8). [online] Available at: http://www.qualitative-research.net/fqs/

Mills, A. J., Durepos, G. and Wiebe, E., 2009. Encyclopedia of Case Study Research Activity Theory.

Narayanasamy, N., 2009. Participatory rural appraisal: Principles, methods and application. Participatory Rural Appraisal: Principles, Methods and Application. *SAGE Publications* Inc. [online] Available at: https://doi.org/10.4135/9788132108382

Patton, M. Q., 2002. Qualitative research & evaluation methods : integrating theory and practice (3rd ed.). *Sage Publications.*

Pechlaner, H., Herntrei, M., Pichler, S. and Volgger, M., 2012. From destination management towards governance of regional innovation systems – the case of South Tyrol, Italy. *Tourism Review,* 67(2), pp. 22–33. [online] Available at: https://doi.org/10.1108/16605371211236123

Peric, M. and Djurkin, J., 2014. Systems thinking and alternative business model for responsible tourist destination. *Kybernetes,* 43(3), pp. 480–496. [online] Available at: https://doi.org/10.1108/K-07-2013-0132

Petticrew, M. and Roberts, H., 2006. Systematic Reviews in the Social Sciences. (M. Petticrew & H. Roberts, Eds.). Oxford, UK: *Blackwell Publishing Ltd.* [online] Available at: https://doi.org/10.1002/9780470754887

Pohl, C. and Hadorn, G., 2008. Methodological challenges of transdisciplinary research. Natures Sciences Sociétés, 16(2), pp. 111–121. [online] Available at: https://doi.org/10.1051/nss:2008035

Queirós, A., Faria, D. and Almeida, F., 2017. Strengths and Limitations of Qualitative and Quantitative Research Methods Innovation and Entrepreneurship View project Observatory of Portuguese Academic Spin-offs View project European Journal of Education Studies STRENGTHS AND LIMITATIONS OF QUALITATIVE AND QUANTITATIVE RESEARCH METHODS. *European Journal of Education Studies,* 3(9), pp. 369–387. [online] Available at: https://doi.org/10.5281/zenodo.887089

Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J. and Stringer, L. C., 2009. Who's in and why? A typology of stakeholder analysis methods for natural resource management. *Journal of Environmental Management,* 90(5), pp. 1933–1949. [online] Available at: https://doi.org/10.1016/j.jenvman.2009.01.001

Rialland, A. and Wold, K. E., 2009. Future Studies, Foresight and Scenarios as basis for better strategic decisions. Trondheim.

Rosenberg Daneri, D., Trencher, G. and Petersen, J., 2015. Students as change agents in a town-wide sustainability transformation: The Oberlin Project at Oberlin College. Current Opinion in Environmental Sustainability. [online] Available at: https://doi.org/10.1016/j.cosust.2015.07.005

Sardar, Z., 2010. The Namesake: Futures; futures studies; futurology; futuristic; foresight—What's in a name? *Futures* 42 (3): pp. 177-184

Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B. and Jinks, C., 2018. Saturation in qualitative research: exploring its conceptualization and operationalization. Quality & Quantity, 52(4), pp. 1893–1907. [online] Available at: https://doi.org/10.1007/s11135-017-0574-8

Schröder, J., 2016. Face-to-Face Surveys. [online] Available at: https://doi.org/10.15465/gesis-sg_en_005

Schwartz, P., 1991. The Art of the Long View: Planning for the Future in an Uncertain

World, 1st Ed., Doubleday Business.

Scott, N., Baggio, R. and Cooper, C., 2008. Network Analysis and Tourism: From Theory to Practice, ASPECTS OF TOURISM. *Channel View Publications,* Clevedon, Buffalo,Toronto.

Sirur, S., Nurse, J. R., and Webb, H., 2018. Are we there yet? Understanding the challenges faced in complying with the General Data Protection Regulation (GDPR). In *Proceedings of the 2nd International Workshop on Multimedia Privacy and Security.* pp. 88-95.

Spaniol, M. J. and Rowland, N. J., 2019. "Defining scenario." *Futures & Foresight Science* 1.1: e3.

Stokes, D. and Bergin, R., 2006. Methodology or "methodolatry"? An evaluation of focus groups and depth interviews. Qualitative Market Research: An International Journal, 9(1), pp. 27.

Tellis, W. M., 1997. Introduction to Case Study Examples. Case Study Research in Software Engineering, 3(2), pp. 127–132. [online] Available at: https://doi.org/10.1002/9781118181034.ch9

Walter, M., 2009. Participatory Action Research. Social Research Methods . In A. (Ed. . Bryman (Ed.), Social Research Methods, London: The Falmer Press. Scientific Research Publishing, pp. 151–158.

Widdowson, M., 2011. Case Study Research Methodology. *International Journal of Transactional Analysis Research & Practice,* 1(1). [online] Available at: https://doi.org/10.29044/v2i1p25

Williams, B. and Hummelbrunner, R., 2010. Systems concepts in action: a practitioner's toolkit. *Stanford University Press.*

Yilmaz, K., 2013. Comparison of Quantitative and Qualitative Research Traditions: epistemological, theoretical, and methodological differences. *European Journal of Education,* 48(2), pp. 311–325. [online] Available at: https://doi.org/10.1111/ejed.12014.

Yin, R. K. and Campbell, D. T., 2018. How to Know Whether and When to Use the Case Study as a Research Method. In Case Study Research and Applications: Design and Methods (Sixth). *SAGE Publications Ltd.*

Zainal, Z., 2007. The Case Study as a Research Method. *Jurnal Kemanusiaan,* 5(1), pp. 15–15. [online] Available at: https://doi.org/10.4135/9781473915480.n2.

Part III. Implementing a TD Case Study Course

5. Integrating the Case Study Course into an HEI curriculum

König, A., 2015. Changing requisites to universities in the 21st century: organizing for transformative sustainability science for systemic change. *Current Opinion in Environmental Sustainability* 16, pp. 105–111. http://dx.doi.org/10.1016/j.cosust.2015.08.011

Rosenberg Daneri, D., Trencher, G. and Petersen, J., 2015. Students as change agents in a town-wide sustainability transformation: the Oberlin Project at Oberlin College. *Current Opinion in Environmental Sustainability* 16, pp. 14–21. http://dx.doi.org/10.1016/j.cosust.2015.07.005

Trencher, G., Terada, T. and Yarime, M., 2015. Student participation in the co-creation of knowledge and social experiments for advancing sustainability: experiences from the University of Tokyo. *Current Opinion in Environmental Sustainability* 16, pp. 56–63. http://dx.doi.org/10.1016/j.cosust.2015.08.001.

6. Implementing a Transdisciplinary Case Study Course

Pohl, C., Krütli, P. and Stauffacher, M., 2017. Ten Reflective Steps for Rendering Research Societally Relevant. *GAIA* 26, pp. 43 – 51. https://doi.org/10.14512/gaia.26.1.10.

Scholz, R.W. and Tietje, O., 2002. Embedded Case Study Methods. Integrating Quantitative and Qualitative Knowledge. *SAGE PUBN,* Thousand Oaks, CA.

Steiner, G. and Posch, A., 2006. Higher education for sustainability by means of transdisciplinary case studies: an innovative approach for solving complex, real-world problems. *Journal of Cleaner Production* 9, pp. 877–890. https://doi.org/10.1016/j.jclepro.2005.11.054

The project Transdisciplinarity for Sustainable Tourism Development in the Caucasus Region (CaucaSusT) is supported by the Austrian Partnership Programme in Higher Education and Research for Development (APPEAR). APPEAR is a programme of the Austrian Development Cooperation and is implemented by the OeAD.

BOKU

imc FH KREMS
UNIVERSITY OF APPLIED SCIENCES

With funding from
Austrian Development Cooperation

appear