



Sustainable Mountain Development Curricula: Current Practice and Lessons Learned for Mountain Studies

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Introduction

The **Education for Sustainable Mountain Development (ESMD)** project was initiated by the Mountain Research Initiative (MRI) Science Leadership Council (SLC). The project has three objectives: **(1)** Develop a global inventory of ESMD opportunities; **(2)** Analyze experiences and provide guidance for ESMD curriculum development, and; **(3)** Critically assess trans-disciplinary concepts and practices from a cross-cultural perspective. As a part of 2), this poster introduces opportunities of ESMD with their characteristics based on the web-based information.

Do we know how many institutions provide which kind of mountain curriculum around the world?

Classification of ESMD opportunities

An online search in English found 24 institutions, and classified six types education system as follows;

- (A) Courses delivered by an individual university/college.**
- (B) Regular intensive courses, such as summer or winter schools.**
- (C) Single center organizing multiple relevant courses, or a degree program delivered by a group of universities in collaboration.**
- (D) Online education programmes.**
- (E) Schools for environmental conservation or outdoor education by nonprofit organizations.**
- (D) Research facilities (institutes) or observatories.**

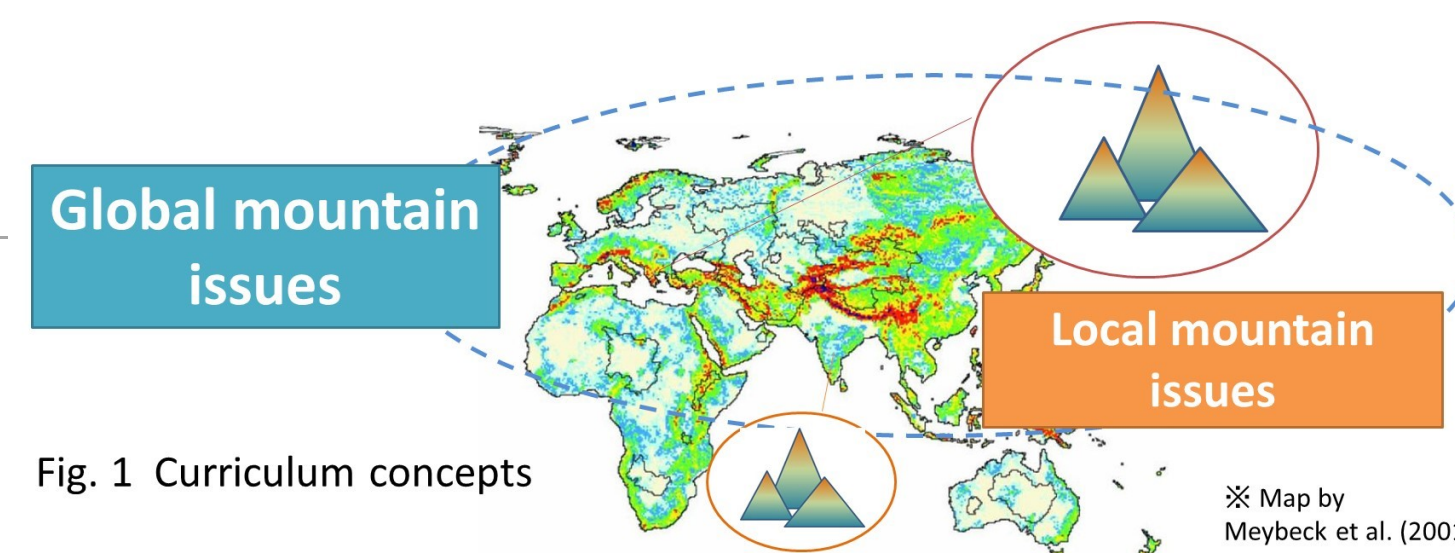


Fig. 1 Curriculum concepts

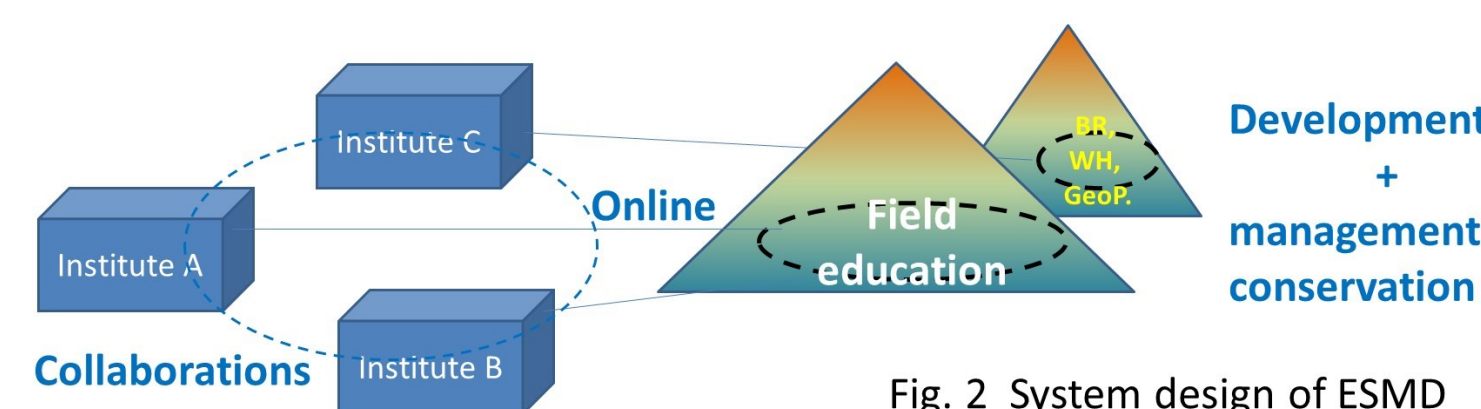


Fig. 2 System design of ESMD

Characteristics in the courses

- Many courses contain both local and global mountain issues in the curriculum (Fig. 1), with fieldwork/internship experiences.
- According to a small number of questionnaires, students seek 1) degree or certification for specific fields, or 2) general knowledge of overall/common mountain issues for their business/management.
- Some courses directly indicate having 'sustainable development (SD)' in the curriculum, but not many. In addition, 'management' and 'conservation' are key terms for SMD.
- A few institutions use UNESCO BR, Geopark, or WH sites to experience them, such as F-3.
- Types C and D are relatively new systems with significant and wide-reaching potential for ESMD, as such systems can offer a curriculum with interdisciplinary/cross-cutting concepts using limited resources. (Fig. 2)

Perspectives for ESMD assessments

- We need to involve non-English candidates, especially in Asia, Russia, South America, and African regions.
- Development of EMSD inventories by international framework, especially for type B and E, are anticipated.
- Interviews are needed to assess whether the contents of curriculums meet the criteria of SD.

Table 1 List of ESMD opportunities worldwide found online using the search terms 'mountain', 'alpine' and 'education'. ✕ Companies and non-English information are excluded.

Types	Institution	Course name
A-1	U. Montana, USA	Mountain studies(undergraduate)
A-2	U. Washington, USA	Mountain Hydrology Research
A-3	Colorado Mountain College, USA	Outdoor education programs
A-4	U. Georgia, USA	Neotropical montology
A-5	U. Sheffield, UK	Polar and Alpine Change (Dep. Geography)
A-6	Weihenstephan-Triesdorf University of Applied Sciences, Gernany	Regional management in mountain areas
A-7	U. Punjab, Pakistan	MSc in Mountain Conservation & Watershed Management
A-8	U. Natural Resources and Life Sciences, Austria	Master programme Mountain Forestry
A-9	Shinsyu U., Japan	Environmental Sciences in Mountainous Area
B-1	LabEx ITEM, France	Winter School
B-2	U. Grenoble, France	Summer program in mountain studies
B-3	Scientific network for the Caucasus mountain region	Caucasus Sustainable Mountain Development Summer School
B-4	Mountain Patnrship, UN-FAO, U.Turin and U.Tuscia	IPROMO annual summer schools on the sustainable management of mountain areas
B-5	Chinese Academy of Science, China	Third Pole Environment, training course
C-1	UNIMOUNT (U.Milano etc.), Italy	Conservation and sustainable development of mountain areas, etc.
C-2	U.Tsukuba, Shinsyu, Yamanashi, Shizuoka U., Japan	Master Degree Program of Mountain Science
C-3	Free University of Bozen-Bolzano, Italy; U. Innsbruck, Austria	Master in Environmental Management of Mountain Area
D-1	U. Highlands and Islands, Perth college, UK	MSc in Sustainable Mountain Development
D-2	U. Alberta, Canada	Mountains 101
E-1	Mountain Studies Institute, USA	Experience mountain science program
E-2	Alpine School Campus, Victoria, Australia	School for student leadership
F-1	U. Colorado, USA	Institute of Arctic and Alpine Research
F-2	U. Central Asia	Mountain Societies Research Institute
F-3	Vancouver Island University, Canada	Mount arrowsmith biosphere region research institute (MARRRI)

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