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## SUSTAINABILITY AND BUSINESS PLAN

# 'SUNRAISE: SUSTAINABLE NATURAL RESOURCE USE IN ARCTIC AND HIGH MOUNTAINOUS AREAS'

## 586471-EPP-1-2017-1-EE-EPPKA2-CBHE-JP

SUNRAISE (c), 2020



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Co-funded by the Erasmus+ Programme of the European Union of the European Union

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### Development of the Sustainability plan

The primary goal of the sustainability plan is twofold: to further extend the use, implementation and development of the SUNRAISE project results and deliverables, and to propose specific actions which promote its further exploitation. Towards this direction, its main objectives include:

1. To ensure the further use of SUNRAISE project results, tools and services after the completion of the project works.

2. To propose actions for further exploitation of the SUNRAISE project results and solutions.

3. To suggest mechanisms as well as development and implementation actions for extending and improving SUNRAISE results and deliverables following the project's end.

Hence, the sustainability plans will attempt not only to provide the SUNRAISE project activities beyond the end of the project (and the associated end of the EC funding), but also to enhance their functionality and increase its outreach.

Planning for the sustainability of the project should occur throughout the life of the project to maintain desired outcomes after the grant period has ended. When drafting a sustainability plan, it is important to establish whether the entire innovation will be sustained or selected components. After the post-grant period has been clearly defined, a plan for sustaining the necessary implementation supports, infrastructure, and funding can be developed.

Sustainability is defined as the ability to achieve desired outcomes and maintain the ability to continue activities over time. The sustainability of project and post-project activities is ensured from the stage of the application to activities after the end of the project.

An approach of evaluating SUNRAISE project sustainability and the development of Sustainability plan based on the studying of project activities, project results and deliverables (trough web-site, mass-media and social networks), semi structed interviews with representatives of partner universities and was conducted into 3 phases (Table 1).

(a)		(b)	(c) Phase 1:	(d)	(e) Phase 2:	(f)	(g) Phase 3:
			Build Project		Complete Sustainability		Create actions for
			(organizational) profile		assessment		Sustainability plan
(h)	Who?	(i)	(j) Partner	(k)	(I) Representatives	(m	(n) Partner
			universities		of the universities,		universities,
					external expert		external expert
(0)	What?	(p)	(q) Key	(r)	(s) Interviews,	(t)	(u) SWOT-
			information about a		discussions, project		analysis,
			network of the		deliverables, activities		(v) Selected
			partner universities,		and etc.		opportunities for
			Project Application				sustainability,
							(w) Mitigated
							threats and
							weakness,
							(x) Planned
							sustainability
							actions
(y)	Why?	(z)	(aa) Prepare for	(bb	(cc) Identify specific	(de	(ee) Outline
			Phase 2 by bringing		areas of Partner		how partner
			all of project's		universities and focus		universities will
			systems into view		on activities increasing		address selected
					the probability of being		opportunities for
					sustainable over time		improvement and
							provide insight on
							improving
							sustainability over
							time
(ff)	How?	(gg	(hh) Summarize	(ii)	(jj) Complete	(kł	(II) Create
			key information in		Sustainability		Sustainability plan
			Short description of		assessment in		
			the project		Implementation status		
					of partner universities		

Development of the Sustainability plan included 3 phases (Figure 1): describing organizational profile, evaluating sustainability and development Sustainability plan based on strengths and opportunities of Partner universities.



Figure 1. Phases of the Sustainability plan development

This report is organized into 3 parts: the first is about project consortium (Short description of the project), the second part presents sustainability assessment (Implementation status of partner universities), in the last part you could find Sustainability plan.





















# Sustainable Natural Resource Use in Arctic and High Mountainous Areas / SUNRAISE

Project partners:

P1 University of Bremen (UNIHB), Bremen, Germany
P2 Paris Lodron University of Salzburg (PLUS), Salzburg, Austria
P3 Estonian University of Life Sciences (EMU), Tartu, Estonia
P5 Russian State Hydrometeorological University (RSHU), St.
Petersburg, Russia
P6 Siberian Federal University (SFU), Krasnoyarsk, Russia
P7 Gorno-Altaisk State University (GASU), Gorno-Altaisk, Russia
P8 Altai-Sayan Mountain Partnership (ASMP), Gorno-Altaisk, Russia
P9 Royal University of Bhutan (RUB), Thimphu, Bhutan
P11 Kumaun University (KU), Nainital, India
P12 Jawaharlal Nehru University (JNU), New Delhi, India
P13 Central Himalayan Environment Association (CHEA), Nainital, India

### Project aims and objectives

SUNRAISE (Sustainable Natural Resource Use in Arctic and High Mountainous Areas) project aims to promote sustainable management of Arctic and high mountainous ecosystems in Bhutan, India and Russia (partner countries, PCs) through enhanced tertiary education linked to labour markets and wider stakeholder circles. This aim will be achieved through the following objectives:

(1) To revise and upgrade selected BSc, MSc & PhD programs in PIs to make them end-user-oriented & policy-relevant, and enhance opportunities for LLL education.

(2) To develop SUNRAISE open education environment Platform (SUNRAISER) and online training services of the new generation (MOOC) for qualitative improvement of the education process and academic workflow support among universities and stakeholders across the PC and EU Member States.

(3) To create sustainable feedback mechanisms to end-users, ensuring adaptive and practice-relevant teaching contents, knowledge co-production opportunities and stakeholder support to post-project course development and teaching.

(4) To develop capacity for academic mobility, shared experimental facilities and joint research by PIs and beyond.

Achieving of these objectives will significantly enhance the quality of educational provision in PCs, as the expertise of the whole consortium will become available to individual and group learners (including the students from other programs and, in particular, the learners from remote regions). PhD students will access research facilities at other PCIs through joint research arrangements and benefit from new methods and richer data for their thesis. Likewise, revision of research agendas PhD studies and integrating to them emerging problems and methods, will build teaching capacity at PC HEIs and motivate business and policy actors to engage in closer cooperation. The proposed vehicles for such engagement are national (RU) and regional (IN+BT) SUNRAISE sector collaborative platforms to be set-up for the Arctic and High Mountainous Areas to create a "community of practice".

### List of short and long term impact indicators

Short term impact	Short term impact groups/potential Quantitative indicate beneficiaries		Qualitative indicators
Enhanced quality of BSc (specialist degree)/MSc provision in sustainable management of HM&A areas at PCIs	Students, academic staff at PCIs, research administrators, institution	140 students enrolled to relevant BSc & MSs programs in PIs (from M22 to 36), exposed to new and revised courses (at least 42ECTS), and to enhanced learning environment (over 90% of the students enrolled and actively using the SUNRAISER platform); At least 16 MSc students used shared research facilities for their thesis projects	Students' satisfaction (good anonymous evaluation of new/revised courses with overly positive comments) and stronger learning outcomes (noted in the evaluation, e-learning successfully accomplished, praised MSc theses)
Enhanced quality of doctoral provision in sustainable management of HM&A areas at PCIs	Student, academic staff at PCIs, research administrators, institution	7 PhD students (enrolled to relevant doctoral/aspirantura programs at Pls from M23 to 36); increased publication activity of PhD students and their supervisors (twice as much paper submissions to international journals); at least 8 PhD students used joint research arrangements and shared access to research facilities through SUNRAISE network (including the students from other PhD programs at PCIs)	Students' satisfaction (expressed in overly positive annual assessments and in the end-of-the-project survey), stronger learning outcomes (noted in progress reports by dissertation committees), higher capacity for successful careers (noted in written expressions of interest of industry representatives on PhD research), more multidisciplinary and internationally/practice- oriented theses topics (submissions to international multidisciplinary journals, written expressions of interest from the industry)

Table 1 - Short term impact indicators

Satisfaction of academic staff at relevant departments	Academic staff, student, institution	Feedback from questionnaires (%; at least 80% of academics, staff and students are satisfied about the change)	Level of satisfaction of supervisors (general) expressed in the end-of- the-project survey; enhanced disciplinary expertise & teaching skills (positively assessed by students in course assessments)
Enhanced expertise of young academic staff at PCIs in sustainable management of HM&A areas	Young academic staff (including PhD students) and broader research community at PCIs	At least 42 members of academic staff and PhD students trained by M36 Increased submission to international journal at partner departments (c.a. 10% by M36)	More multidisciplinary, international- and practice- relevant research at PCIs
Enhanced expertise of technical and administrative staff at PCIs in IT and organisational aspects	Technical and administrative staff at PCIs	At least 15 learners trained by M36 on SUNRAISE summer schools, and at least 18 on on-site seminars and training events at PIs	Smooth IT and organisational arrangements at PCIs (overly positively assessed by PIs' faculty, staff and students in end-of-the project survey)
Enhanced academic networking within the SUNRAISE consortium	Academic staff at PCIs	Number of joint academic publications (at least 10); number of jointly supervised MSc (at least 10) and PhD (at least 4) students; number of jointly co-organised training and networking events involving more than 2 PIs (at least 12); number of jointly developed courses (at least 10)	High motivation for joint work within the consortium (noted in the end-of-the- project survey)
Use of SUNRAISE e-learning resources by external users	Academic staff and students from HEIs and research institutions outside the SUNRAISE consortium, professionals and amateurs concerned with sustainable management of HM&A areas (LLLearners and one-off learners)	Growing external visitors statistics from M12 to 36 (at least 120 unique users by M36) and learners enrolled to MOOCs (at least 50 external users)	Overly positive feedback (and the negative one followed up in a timely manner) from external users left on the Educational Portal, and e- courses positively evaluated
Interest of national academic communities in further	External HEIs and research institutes	Number of external HEIs and research institutes expressed their interest in joining SUNRAISER	Overall interest in SUNRAISE and its deliverables (expressed in written requests and

developments of SUNRAISE deliverables and enhanced networking		and/or SCPs (at least 4 by M36); number of representatives of external institutions attended SUNRAISE events (at least 60 by M36) and published in special issues followed up SUNRAISE events (at least 15)	recommendations to follow SUNRAISER by faculty and students); increased visibility of partner departments or institutions partnering SUNRAISE (good applications responces to BSc and MSc calls; expressions of interest from praxis partners in consulting and/or research cooperation)
Interest of national professional communities in the products developed under SUNRAISE and in cooperation under the SUNRAISE SCPs	Companies (national parks, forestry, tourist and landscaping companies, architectural bureaus, environmental consultancies) and entrepreneurs, municipalities, governmental agencies, NGOs	Number of organisations and self-employed individuals joined the SUNRAISE SCP (at least 18 by M36) and number of their representatives participating in SCP seminars (at least 40); at least 18 companies offered practical placements to the students enrolled to the SUNRAISE universities	Awareness of SUNRAISE activities and willingness to contribute (good response to the call for conference papers, SCP seminars, exhibitions), expressions of interest in joining the SUNRAISE SCPs or in other forms of participating in SUNRAISE activities

Table 2 - Long term impact indicators

Long term impact	Target groups/potential beneficiaries	Quantitative indicators	Qualitative indicators
Employability	BSc(specialist)/M Sc students enrolled to the PCIs, participating in SUNRAISE or using SUNRAISE curricula and/or learning materials	During the project lifetime: Written requests in new employees submitted by companies and organisations (at least 35 by M36) After the end of the project: Percentage of graduates found their first job within 6 months after the graduation within their study-relevant field (at least 75%) within 5 years after the end of the project	Satisfaction of graduates about practical relevance of their skills (overly positive course evaluation and comments in project completion survey) Feedback from employers (expressed by SCP members in the project completion survey; positive comments received from the companies hosting practical placements)
Progression of PhD students	Student, supervisors	During the project lifetime: At least 80% of SUNRAISE PhD theses reported as successfully	Professional achievements of PhD students (involvement to prestigious research projects and consultancy

		progressing after the first annual evaluation After the end of the project: Percentage of SUNRAISE-oriented PhD students successfully defended within 5 years after their enrolment (at least 80%)	engagements, winning prestigious prices by M36)
Publication in peer-reviewed international journals	Student, supervisors	During the project lifetime: At least 6 publications submitted and 2 accepted to international peer-reviewed journals with IF above 2 After the end of the project: Number of publications relating to the PhD compared students graduation prior to the SUNRAISE programs (at least 10% of increase within 5 years after the end of the project)	N/A
Number of applications from prospective students and LLLearners	Institution	During the project lifetime: The same or growing number of applications for BSc and MSc programs in PCs (given the falling numbers of secondary school graduates in RU); over 1 application/place for programs in RU in the second application campaign (by M36); steadily growing number of LLLearners enrolled to MOOCs and other- resources from M24 to M36. After the end of the project: Number of applications to existing degree programs prior to and after involvement in the SUNRAISE project (at least 10% of increase within 5 years after the end of the project).	Growing interest of prospective students in degree programs as expressed by visitors on "opendoor" events at partner HEIs in PCs

Sharing and dissemination of SUNRAISE deliverables to academic communities in PCs	HEIs and research institutions, partner country	During the project lifetime: Number of request for the replication of SUNRAISE courses or use of learning materials (at least 20 by M36) After the end of the project: Number of cases of course replication or adaption to the curricula of external institutions (at least 40 within 5 years after the end of the project); number of instances of implementing minors/specialisation streams at external HEIs (at least 6 within 5 years after the end of the project)	Interest in using the deliverables as noted in the project completion survey
Improved international profiles and visibility of PC partners	PC institutions involved to SUNRAISE network	During the project lifetime: At least 10 international students applying by M36 to BSc and MSc programs, and 2 to PhD programs After the end of the project: Number of applications from prospective international students to existing degree programs (at least 20% of increase within 5 years after the end of the project)	During the project lifetime: n/a After the end of the project: Progress in international rankings (where applicable)
More competitive research products delivered to end- users and proactive approach of end- users to sustainable management of HM&A areas	HE and research institutions, companies (national parks, forestry, tourist and landscaping companies, architectural bureaus, environmental consultancies), individual entrepreneurs, municipalities, governmental	During the project lifetime: Representatives of at least 20 companies enrolled by M36 to national SCP seminars discussing emerging policy issues and management innovations After the end of the project: Increased R&D-related income (at least 10% of increase within 5 years after the end of the project); more views and	During the project lifetime: Potential interest in the topics developed under SUNRAISE curriculum- development and research expressed in the project completion surveys by employing companies and organisations After the end of the project: Greater use of innovative management approaches / more sustainable management of HM&A areas, and more

	agencies, NGOs,	downloads of learning	sustainable policies
	broader society	materials (increased at least by 200% within 5 years)	developed for and implemented on them Greater interest in the field from decision-makers and general public
Greater engagement of employers with academia	Employers (companies, individual entrepreneurs, municipalities, NGOs, governmental agencies, broader society), HEIs and research institutions, students and academic staff	During the project lifetime: At least 10 companies and organisations pledged to join SUNRAISE SCPs by M36 At least 20 companies and organisations outside the SCPs created profiles on the SUNRAISE www portal by M36 and offering placements and internships After the end of the project: Growing number of the members of SUNRAISE SCPs (at least 30 new members with 5 years after the end of the project) and participants of national seminars (at least 36 more); more representatives of employers involved in teaching, review, QA and governance (at least 4 at each partner institutions); more organisations ready to provide practical placements (at least 20 more); significant growth of e-LLL enrolments (at least 80% over 5 years)	Greater willingness for cooperation, to employment of graduates, meaningful contributions to SUNRAISE SCPs and their activities by praxis partners and academic institutions (expressed in the project completion surveys)
More sustainable natural resource use and better state of environment in HM&A areas	Major land- owners (including protected areas, forest and mining companies), urban and rural communities in	During the project lifetime: At least 6 MSc and 3 PhD theses addressing innovative management and/or policy tools and approaches for HM&A	After the end of the project: Comfortable, ecologically sustainable, and aesthetically pleasing built environments Use of innovative policies
	PCs (and beyond) cooperating within the SUNRAISE SCPs or with their members; local, regional and	areas started by M36 After the end of the project: Increased investments to sustainable management of HM&A areas	and management solutions for HM&A areas

	national governments	Improved dynamics of biodiversity loss & deforestation, containment of urban growth, soil degradation Expanding nature protected areas	
Increased expertise of environmental and human development movements working HM&A areas in PCs	Formal and informal activist movements, policy and research networks working on environmental, natural resource management or human development issues in HM&A areas	During the project lifetime: N/A After the end of the project: Increasing share of projects and initiatives using policy and management innovations promoted by SUNRAISE	During the project lifetime: Intentions to explore policy and management innovations promoted by SUNRAISE, expressed by end-users in the project completion surveys After the end of the project: Enhanced expertise in appropriate policy and management solutions for achieving environmental sustainability of HM&A areas

### Dissemination and exploitation strategy. Sustainability of the project

SUNRAISE dissemination is encompassed in the business plan, and specific promotion activities in the promotion plan. The groups targeted by SUNRAISE dissemination and exploitation include:

(1) Partner universities involved to SUNRAISE: academic (we make them aware of SUNRAISE and engage with its objectives), administrative (to gain support for SUNRAISE activities and promote its approach to curriculum development) and technical staff (they secure ICT development), students (we help them to make most of SUNRAISE opportunities);

(2) External universities and organizations: students, academic and administrative staff (we want them to participate in SUNRAISE events and actions, to use SUNRAISE learning contents, research agenda & regulation);

(3) Practitioners working in the field: companies, entrepreneurs, NGOs, agencies, municipalities (involve them into the SUNRAISE stakeholder collaborative platforms, students&graduates, and innovative solutions for HM&A);

(4) Broader stakeholder circles: government, local communities, environmental activists, amateur naturalists (use learning resources and participation in stakeholder collaborative platform events);

(5) Prospective applicants to degree programs at partner universities (consortium create interest in their career track and attract the applicants).

SUNRAISE sectoral collaborative platforms is a formal network set to disseminate and sustain SUNRAISE results after the end of the project; and promotes the engagement of professionals dealing with sustainable management and policies with academia for knowledge co-production and development of excellence in training and research. Stakeholder collaborative platforms will organise annual national seminars discussing emerging issues and possible solutions, training events and conferences.

The www Portal (<u>http://sunraise.sfu-kras.ru/</u>) is the main tool for information and awareness. It contains project news, discussion section, surveying tools, repositories, links to SUNRAISER open education, and the catalogue of potential employers in partner countries, with an option for them to edit profiles and information on cooperation opportunities, invitations to students & graduates, promotion to other stakeholders. A dedicated working groups ensures that target groups are addressed. After the end of the project, the Portal will serve as the platform of stakeholder collaborative platforms; Siberian Federal University commits to host it, while other universities will be responsible for the maintenance.

SUNRAISE courses will be submitted to Ministries of education to enhance the national dissemination.

A newsletter will target all the groups; social media (Twitter, FB) will be exploited and connected to the site. PIs will hold responsible for media coverage of SUNRAISE events they are involved to. SUNRAISE conferences and journal special issues will enhance its visibility to academia, while stakeholder platforms-branded activities (e.g. national seminars, training events) will reach employers.

### Analysis of the progress

Implementation status of the project progress was evaluated based on next criteria: **Exceeding Target (ET):** 

The project has gone beyond the requirements of the defined ESAP target and evaluation criteria within the defined timeframe.

### Achieved Target (AT):

The project has achieved the ESAP action targets and fulfilled the evaluation criteria within the defined timeframe.

### On Target (OT):

The project is on target for achieving ESAP action targets and fulfilling the evaluation criteria within the defined timeframe.

### Minor Delay (MD):

The project has not achieved the ESAP action targets within the defined timetable but has put systems, processes or mitigation measure in place, which are working towards addressing the deficiencies within a reasonable timeframe. In such case please specify the new target date.

### Significant Delay (SD):

No significant progress has been made towards achieving the ESAP action targets within the defined timeframe. In such case please specify the new target date.

### Not Applicable yet (NA):

The defined ESAP action is not applicable yet, e.g., if the project is currently at design stage and the defined ESAP action will be applicable only during the operational stage.

Indicator	Implementation status	Comments
Enhanced quality of BSc (specialist degree)/MSc provision in su areas at PCIs	ustainable manag	ement of HM&A
140 students enrolled to relevant BSc & MSs programs in PIs (from M22 to 36),	ОТ	
exposed to new and revised courses (at least 42ECTS),	AT	
and to enhanced learning environment (over 90% of the students enrolled and actively using the SUNRAISER platform);	AT	
At least 16 MSc students used shared research facilities for their thesis projects	ОТ	Due to Covid- 19
Enhanced quality of doctoral provision in sustainable managem	ent of HM&A area	as at PCIs
7 PhD students (enrolled to relevant doctoral/aspirantura programs at PIs from M23 to 36);	AT	
increased publication activity of PhD students and their supervisors (twice as much paper submissions to international journals);	N/A	
at least 8 PhD students used joint research arrangements and shared access to research facilities through SUNRAISE network	ОТ	Due to Covid- 19
Satisfaction of academic staff at relevant departments		
Feedback from questionnaires (%; at least 80% of academics, staff and students are satisfied about the change)	AT	

### Table 3 - Implementation status of short term indicators

Enhanced expertise of young academic staff at PCIs in sustainable management of HM&A areas				
At least 42 members of academic staff and PhD students	AT			
trained by M36				
Increased submission to international journal at partner	N/A			
departments (c.a. 10% by M36)				
Enhanced expertise of technical and administrative staff at PCIs	s in IT and organis	sational aspects		
At least 15 learners trained by M36 on SUNRAISE summer	AT			
schools, and at least 18 on on-site seminars and training				
events at PIs				
Enhanced academic networking within the SUNRAISE consorting	um			
Number of joint academic publications (at least 10); number of	AT			
jointly supervised MSc (at least 10) and PhD (at least 4)				
students; number of jointly co-organised training and				
networking events involving more than 2 PIs (at least 12);				
number of jointly developed courses (at least 10)				
Use of SUNRAISE e-learning resources by external users				
Growing external visitors statistics from M12 to 36 (at least	OT			
120 unique users by M36) and learners enrolled to MOOCs (at				
least 50 external users)				
Interest of national academic communities in further developme and enhanced networking	nts of SUNRAISE	E deliverables		
Number of external HEIs and research institutes expressed	AT			
their interest in joining SUNRAISER and/or SCPs (at least 4				
by M36);				
number of representatives of external institutions attended	AT			
SUNRAISE events (at least 60 by M36)				
published in special issues followed up SUNRAISE events (at	OT			
least 15)				
Interest of national professional communities in the products de	veloped under SL	JNRAISE and in		
cooperation under the SUNRAISE SCPs				
Number of organisations and self-employed individuals joined	OT			
the SUNRAISE SCP (at least 18 by M36)				
number of their representatives participating in SCP seminars	OT			
(at least 40);				
at least 18 companies offered practical placements to the	OT			
students enrolled to the SUNRAISE universities				

Table 4 - Implementation status of long term indicators which could be achieved to the end of the project

Indicator	Implementation status	Comments
Employability		
Written requests in new employees submitted by companies and organisations (at least 35 by M36)	AT	
Progression of PhD students		
At least 80% of SUNRAISE PhD theses reported as successfully progressing after the first annual evaluation	AT	
Publication in peer-reviewed international journals		
At least 6 publications submitted and 2 accepted to international peer-reviewed journals with IF above 2	ОТ	
Number of applications from prospective students and LLLearners		

The same or growing number of applications for BSc and MSc programs in PCs (given the falling numbers of secondary	AT		
school graduates in RU)			
over 1 application/place for programs in RU in the second	AT		
application campaign (by M36);			
steadily growing number of LLLearners enrolled to MOOCs	OT		
and other-resources from M24 to M36			
Sharing and dissemination of SUNRAISE deliverables to academic communities in PCs			
Number of request for the replication of SUNRAISE courses or	AT		
use of learning materials (at least 20 by M36)			
Improved international profiles and visibility of PC partners			
At least 10 international students applying by M36 to BSc and	OT		
MSc programs, and 2 to PhD programs			
More competitive research products delivered to end-users and proactive approach of end-users			
to sustainable management of HM&A areas			
Representatives of at least 20 companies enrolled by M36 to	AT		
national SCP seminars discussing emerging policy issues and			
management innovations			
Greater engagement of employers with academia			
At least 10 companies and organisations pledged to join	AT		
SUNRAISE SCPs by M36			
At least 20 companies and organisations outside the SCPs	OT		
created profiles on the SUNRAISE www portal by M36 and			
offering placements and internships			
More sustainable natural resource use and better state of environment in HM&A areas			
At least 6 MSc and 3 PhD theses addressing innovative	AT		
management and/or policy tools and approaches for HM&A			
areas started by M36			

#### Implementation status of partner universities

#### SUNRAISE revision and upgrading the educational programs

### SUNRAISE end-user surveys

SUNRAISE curriculum development is based on end-user surveys carried out by each academic partners in Bhutan, India and Russia in cooperation with NGO partners (<u>http://sunraise.sfu-kras.ru/results/end-user</u>). These surveys gave us in-depth understanding of the needs and concerns of the key players of national and local labour markets, and helped us to adjust our curriculum offer in a manner that better fits the current and anticipated trends.

**Bhutan**. Comments on the teaching and learning approach were as follows: (1) Introduction of motivational and inspirational talks in addition to academics (inspire and motivate the students to self-learning approach; (2) Inviting guest lecturer; (3) Enhancement of presentation skills / oral skills; (4) Need to give less group assignment but more of individual assignments; (5) Students must conduct research activities related to environmental issues; (6) Practical case studies might be helpful which will assist the students to learn about actually applying their academic knowledge in the real world.

Inclusion of subjects like of "Environmental Ecology", "Waste Management", "Environmental Valuation", "Acts and Bylaws" of the country governing the environmental activities, SIA (social impact assessment) and HIA (health impact assessment), "Sustainable Land Management" to the existing modules are suggested. Modules like Energy and Environment and Disaster and Hazard Management to be taught in the early in the program. Following were the suggested new modules by the stakeholders which could be incorporated in the programme: Urban Environment Management, Waste Management, Biodiversity Conservation, Proposal writing for grants, Course on Climate and Hydrological software, EMP (environmental management plan), Sustainable land management, Gender and environment.

Stakeholders were asked to list the skills that their firms expect from the graduates they choose to recruit responded that graduated with interest in research (Be able to collect, record, analyze and interpret information, use conventions of scientific argument, judgment and deduction, generate hypothesis), and demonstrate field skills in Ecology, environmental processes, interpret scientific information, have effective communication, and with cultural and interdisciplinary diversity. Their expectation from the CNR graduates were attitude and willingness to adopt to an working environment, having Knowledge in cross-cutting areas like environment and climate change are required to understand and explain from national, regional and international perspective, Explain public on complex legislation and procedures, have the ability to analyze problems and find solutions, and have good organizational skills and can handle stress.

India. The future plans of the majority of institutions are to understand Climate Change in the Himalaya, its impacts specifically on the Biodiversity and biological resources. Many of the respondents emphasized on field/Lab knowledge, material for field practitioner (preferably in local dialect), and trainings at different levels. Most of the respondents showed

interest is delivering a few lectured and participate in the workshops for the university students. The proposed topics are in perspective of Himalayas: Climate change (adaptation and mitigation), Biodiversity (status, challenges), Forest ecology, modelling and development, Ecosystem services, Sustainable development, Vulnerability Assessment, Remote Sensing & GIS (analysis, modeling). Distance learning is seen as an effective tool for communicating and building knowledge in remote locations. The usability of this kind of education system lies largely on the active participation of the end users i.e. staffs, students or any person enrolled in such program. Most the institutions working in Himalayas desire to have exchange program with targeted training and learning. They are also interested in sharing knowledge through lecturing and workshops and hosting interns. They do acknowledge the masters and graduate programs and wishes to participate in such programs for value addition.

**Russia**. The main objectives for strategic partnership of universities and regional employers are: (1) joint development of content of education courses "Environmental design and expertise", "Waste management", and "Sustainable development of mountain territories"; (2) more active participation of employers in the implementation of compulsory and optional courses at universities; (3) more joint research projects; (4) more systematic use of the organizations-employers as bases for practical training of students

**SUNRAISE training activities**. SUNRAISE offers a broad range of training activities, most of which are also available on open call basis to learners outside the formal SUNRAISE consortium (<u>http://sunraise.sfu-kras.ru/results/training</u>). Usual formats of SUNRAISE training events are *summer schools* (large international open call training events hold annually) - 3 events during project implementation, *onsite seminars* (open call or internally disseminated training seminars on curriculum development or ICT issues organized at one of partner institutions in Bhutan, India or Russia with an involvement of several EU partners and invited experts) - 3 events, workshops in relation to study visits by EU partners (smaller scale events co-organized with one or several EU partners visiting a partner institutions) - 4 events or one-off training events addressing specific gaps in expertise spotted during the course of the project.

The list and description of the organized activities could be found to the link: <u>http://sunraise.sfu-kras.ru/results/training</u>

### SUNRAISE teaching and learning materials (http://sunraise.sfu-kras.ru/results/TLM):

Textbook and teaching guide "Environmental Design and Expertise" (in Russian)

Lecture notes "Mountains:Definition, Classification, Significance, Vulnerability, Environmental Changes and Sustainable Development"

Lecture notes "Integrated Watershed Management: Meaning, Concept, Significance and Approaches"

Lecture notes "Waste Management" (in Russian)

Lecture notes "Ecological Aspects of Urbanization in Mountain Areas"

Lecture notes "Basics of GIS analysis"

Lecture notes "Basics of Sattelite Data Processing"

Lecture material "Remote Sensing, GIS for Emergency Management"

Lecture material "Risk, Vulnerability and Resilience: Concepts and Understanding"

Guidelines for students' independent studies "Environmental Biomonitoring"

Lecture materials for the course "Ecosystem approach for disaster risk reduction"

Textbook and teaching guide "Sustainable development of mountain areas in the context of the concept of ecosystem services"

Textbook and study guide "Environmental Biomonitoring" (in Russian)

Textbook "Sustainable Development of the Humankind" (in Russian)

# SUNRAISE open education environment Platform (SUNRAISER) and online training services of the new generation (MOOC)

Under SUNRAISE project the educational e-learning platform was developed. All elearning courses are divided into several groups in dependence on coordinators and course hosting partners (<u>http://sunraise.sfu-kras.ru/sunraiser</u>):

1) Consortium-wide (1 course - e-learning, syllabus, evaluation);

2) Siberian Federal University (6 courses - syllabus, course presentation, working curriculum (in Russian), course review by an EU partner, e-learning);

3) Russian State Hydrometeorological University (3 courses - syllabus, e-learning, working curriculum (in Russian), course review (in Russian);

4) Gorno-Altaisk State University (4 courses - syllabus, course overview presentation, working curriculum (in Russian), course review (in Russian), course review by an EU partner, internal quality assurance summary (2019), course review by stakeholders (in Russian), e-learning + enrollment instructions);

5) Kumaun University (4 courses - syllabus, course review by a stakeholder, lectures' plan, course review by an EU partner, internal student quality assurance (October 2020), internal faculty staff quality assurance (October 2020), e-learning);

6) Jawaharlal Nehru University (6 courses - syllabus, lecture materials, e-learning, course review by stakeholders, course review by an EU partner, evaluation report by students (AY 2019/20; AY2020/21), accreditation document);

7) Royal University of Bhutan (7 courses - only syllabuses).

8) Paris Lodron University of Salzburg (1 course - syllabus, lecture notes, e-learning, teaching materials, course abstract).

1) SDGs for the Arctic and High Mountains, with implications for policy, management and planning;

2) Introduction to the Arctic environment and permafrost zones, with an overview of biophysical, social and economic systems, available knowledge and science-policy interfaces (external student quality assurance);

 Sustainable development of mountain areas in the context of the concept of ecosystem services (syllabus, video introduction; course overview presentation; sign up for the course here, enrollment instructions) - course review by stakeholders (in Russian).

Under MOOC "SDGs for the Arctic and High Mountains, with implications for policy, management and planning" the seria of vebinars "ACT! ArCtic & mountain sustainability" were organized during autumn semester of 2021 (<u>http://sunraise.sfu-kras.ru/act</u>). Number of vebinars - 10.

#### SUNRAISE stakeholder-academia collaborative platforms

In order to promote stakeholder-academic collaboration over SUNRAISE topics and to ensure its sustainability, the following organisational forms (sectoral collaboration platforms) have been established under SUNRAISE (<u>http://sunraise.sfu-kras.ru/results/stakeholder</u>):

Stakeholder-academia collaboration platform for sustainable development of the mountain region of Altai and Sayany (Платформа для организации сотрудничества по содействию устойчивому развитию Алтае-Саянского экорегиона)

Platform for Cooperation for Stakeholders to Promote Sustainable Development in the Himalayan Eco-region

Stakeholder-academia collaboration platform for sustainable development of Arctic (Платформа для организации сотрудничества по содействию устойчивому развитию Арктики)

The platforms took different organisational forms following the specific geographical contexts and existing stakeholder configurations and preferences.

Stakeholder-academia collaboration platform for sustainable development of the mountain region of Altai and Sayany (Платформа для организации сотрудничества по содействию устойчивому развитию Алтае-Саянского экорегиона)

This collaborative platform was set up by Gorno-Altaisk State University (Russia) and NGO "Altai-Sayany Mountain Partnership" in December 2018. The platform was set-up as a national one for now. However, in order to ensure the sustainability of this unique bioregion, an ambition is to go international at certain point. The Platform is open to join to any interested parties. A template agreement for the parties willing to join the Platform was developed, but now the template is available only in Russian, as well as a registration form.

To the end of October, 2020 the platform was consist of Gorno-Altaisk State University, NGO Altai-Sayany Mountain Partnership, Katunsky Biosphere Reserve, Siberian Federal University (Institute for Ecology and Geography), NGO Foundation for Sustainable Development of Altai, Regional NGO Educational Cultural Center Altai Kabai Cradle of Altai, National Park Sailugemskiy, Altaiskiy State Biosphere Reserve, Sayano-Shushensky Biosphere Reserve, Union of Journalists of the Altai Republic, Branch of the Russian Geographical Society in the Altai Republic.

Now, this platform is well-developed regional community with different activities and events. All joint activities held under the Platform can be conditionally divided into 3 categories: in-class educational activities, out-of-class educational and research activities, and scientific events. In-class educational activities have three vectors: (1) activities provided by stakeholders to university students and faculty; (2) activities provided by universities and stakeholder organizations; (3) activities jointly provided by universities and stakeholder organizations to local communities. Out-of-class educational and research activities include summer schools, events and volunteer activities at the national parks, student field practices, and etc. Scientific events include National, International and Regional conferences organized by the platform members as well as other universities.

Due to coronavirus restrictions most joint activities of the Platform members planned for 2020 and 2021 were either cancelled or held in the distance format.

# Platform for Cooperation for Stakeholders to Promote Sustainable Development in the Himalayan Eco-region

An academic platform for cooperation has been formed among Kumaun University (KU), Jawaharlal Nehru University (JNU), and the NGO Central Himalayan Environment Association (CHEA). The cooperation among these institutions was initiated in April 2018, following which the concept of platform was discussed during the meeting of 8th March, 2019. A formal agreement was established on the 5th April, 2019 between Kumaun University (KU), Jawaharlal Nehru University (JNU), and the NGO Central Himalayan Environment Association (CHEA). The Platform welcomes the participation of any interested organizations and institutions concerned with the sustainable development of the Himalayan Mountains. The following institutions and organizations have been requested to join the Collaboration Platform: Central Himalayan Rural Action Group (CHIRAG), Muteshwer, Nainital, G. B. Pant National Institute of Himalayan Environment and Sustainable Development, Almora, AAROHI (NGO), Peora District Nainital Uttarakhand, Wadia Institute of Himalayan Geology, Dehradun, Uttarakhand, International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.

The main aim of this agreement was to coordinate the quality training of future specialist who will work on sustainable development and natural resource management in the region. This platform is intent to identify the needs of the employers in the region who invest in development of sustainable management of natural resources. The involved institutions are actively engaged in carrying out knowledge transfer programs like seminars, summer school, round-table discussions and as well as field activities which exposes partners to on ground conditions of the region. Another coordinated activity is the joint development of teaching material, which incorporates the sustainable development and management strategies of natural resources in the region.

# Stakeholder-academia collaboration platform for sustainable development of Arctic (Платформа для организации сотрудничества по содействию устойчивому развитию Арктики)

Russian State Hydrometeorological University was among the founders of the National Arctic Research and Education Consortium (NANOK), which Siberian Federal

University later joined. Officially registered in November 2017, NANOK currently unites 33 universities, research organizations, industrial associations and NGOs. The consortium is focused on the creation of a common scientific and educational space that provides highquality information and analytical support for the development projects of the Russian Arctic, including the coordination of scientific and educational activities.

RSHU and SFU participate in NANOK meetings, and contribute to implementation of the roadmap developed by the association. NANOK sessions were attended by SUNRAISE participants from RSHU and SFU during the VIII International Forum "Arctic: Today and the Future" (St Petersburg, 5-7 December 2018) and the International Arctic Forum 2019 "Territory of Dialogue" that took place in St Petersburg on 9-10 April 2019.

While NANOK is becoming a powerful network in Arctic research and education, RSHU is also considers bilateral agreements with some Arctic actors to implement targeted and time-bound activities, or strengthen cooperation that already exists. One of them was signed on 21 November 2018 with the Russian Centre of Arctic Exploration registered in Salekhard, aimed at fostering information exchange on outcomes and perspectives of Arctic research and exploration; and in support of collaborative platform between educational institutions and labour market actors aimed at targeted capacity building and training in Polar regions. Another development of 2018 was the "Startup-Barents" platform (http://www.rshu.ru/barents/) which was not supported financially through Presidential grants. Plans exist to establish bilateral agreements with Tomsk State University BioClimL and Center, an interdisciplinary research cluster working in the field of life and earth sciences; Perm State University and their Polar Ural research station.

### SUNRAISE research activities

During project the research framework was established and research profiles of the partner universities were developed (<u>http://sunraise.sfu-</u> <u>kras.ru/results/research\_framework /profiles</u>):

### P5: RUSSIAN STATE HYDROMETEOROLOGICAL UNIVERSITY

#### SUNRAISE-relevant research topics:

1. Methods and means of satellite monitoring of sea ice in the Arctic;

2. Influence of global dynamic processes on the composition and structure of the Arctic stratosphere;

3. Construction of the "sea ice-ocean-atmosphere" system in the Arctic;

4. Variability of the gas composition of the Arctic in a changing climate;

5. Urbanisation of the indigenous people of the Arctic and sustainable development of the social environment;

6. Gender research in the Arctic region.

<u>Research ambitions in relation to SUNRAISE</u> (1) Implementation of research activities and provision of consulting services in the field of satellite oceanology, hydrometeorology, environmental management, and environmental safety for the Arctic zone; (2) Improvement of the system for training specialists and outreach; (3) Setting up the Centre of Arctic and Climate Research at the institution; (4) Development of a Microplastic Lab and an Arctic Lab in the institution.

P6: SIBERIAN FEDERAL UNIVERSITY

SUNRAISE-relevant research topics:

1. Social, economic and engineering support of northern regions, including:

- Methodological approaches and partnership models for implementation of strategic tasks in economic development and building of transport and energy infrastructure in northern areas;

- Methodological approaches to formation of principles of horizontal interaction in resource development integrated projects in northern areas;

- New resource efficient and environmentally safe technologies in the context of green economy in northern areas;

- Methodological proposals for models of comfortable life and working conditions formation in northern areas;

2. Modern educational technologies and continuous lifetime learning aiming at development of multicultural education and tolerance in Russia;

3. Preservation and regeneration of the traditional culture of indigenous peoples of the North;

4. Ecology, including: Comprehensive usage and preservation of water bodies; Reindeer migration monitoring in the Arctic zone as a tool for the management of indigenous peoples' traditional activities; Preservation and efficient use of wild reindeer.

<u>Research ambitions in relation to SUNRAISE</u>: Developing further research activities on Environmental study in the Arctic and Study of mountain ecosystems.

P7: GORNO-ALTAISK STATE UNIVERSITY

SUNRAISE-relevant research topics:

1. Studying, conserving, and reviving tangible and intangible heritage of peoples of Altai and its neighbouring territories

2. Influence of climate change, manifestation of adverse natural conditions, and human impact on socio-, bio-, and geosystems of Altai, including the study of (among others):

- The dynamics of climate change and manifestations of adverse natural phenomena
- The anthropogenic pressure on geosystems of Altai
- The ecological condition in the region
- The hydrological regime and water quality of mountain rivers
- The response of geotechnical systems to influences of various origin

3. Sustainable wildlife management and biodiversity conservation

4. Assisting in the social and economic prosperity of the Greater Altai region through sustainable development of agriculture, alternative energy, and ecological tourism

5. Assisting in the development of ecological education in the Altai Republic

<u>Research ambitions in relation to SUNRAISE</u>: Improvement of the university's system of training specialists in accordance with the demands of local employers and other stakeholders. Among others, this concerns the training in the fields of: Environmental management; Biodiversity conservation; Preservation and revival of traditional knowledge and cultures; Sustainable development of mountain areas.

### P9: ROYAL UNIVERSITY OF BHUTAN

SUNRAISE-relevant research topics:

1. Impacts of climate change and resilience building for the adaptation capacity of stakeholders (especially farmers);

2. Natural resources management in mountain areas, with a special focus on water and soil management;

Human's role in biodiversity conservation and their impacts on ecosystems;

4. Smart agriculture and its linkage to forests and water management and livestock rearing for rural development;

5. Agribusiness promotion as a way to reduce youth unemployment and rural urban migration.

Research ambitions in relation to SUNRAISE: Becoming a centre of excellence in sustainable natural resources management and sustainable development. This wants to be achieved by offering improved higher education programmes that meet the needs of the country and promoting research, technology and innovation on natural resources management and sustainable development in the country. Developing further research activities on: Climate change; Food and nutrition; Water resources management; Sustainable management of land and forest; Waste management. Serving as a centre for high quality professional and advisory services. Fostering the academic culture infused with the Gross National Happiness values.

<u>SUNRAISE-relevant research topics</u>: Sustainable natural resource management in Himalayan mountains.

<u>Research ambitions in relation to SUNRAISE</u>: (1) Development of further research activities in globally and locally high priority areas; (2) Moving ahead in education in globally and locally high priority areas.

P12: JAWAHARLAL NEHRU UNIVERSITY

SUNRAISE-relevant research topics:

1. Research in the different ecosystems of the Indian Himalayan Region ranging from: Above and below-ground biodiversity management; Glacier monitoring and mapping; Forest resource assessment; Agricultural management; Soil management; Challenges and possibilities of urbanization;

 Sustainable landscape management in the Himalaya from a socio-ecological perspective, including: Development of traditional communities' areas; Role and needs of human component in influencing the structure and function of landscape;

3. Vulnerability and risk assessment/ multi-hazard mapping and evaluations in the Himalaya.

<u>Research ambitions in relation to SUNRAISE</u>: Development of further research activities in the Indian Himalaya to help in the attainment of the Sustainable Development Goals (SDGs) in the region.

During project the practice of join supervising of PhD students was established. Profiles of PhD supervisors available in the SUNRAISE partnership could be found at the web-page <u>http://sunraise.sfu-kras.ru/results/research\_framework</u>. Now the list of supervisors includes 15 persons. Number of SUNRAISE PhD students is 22 persons (<u>http://sunraise.sfu-kras.ru/results/PhD\_students</u>).

In order to create added networking value during and after the project lifetime, SUNRAISE partners have agreed on arrangements for sharing research equipment and experimental facilities within the partnership, so students and researchers would continuously benefit from a partnership-wide research capacities and burst their research on mountain and Arctic sustainability. The list and description of equipment presents at the project web-page: <u>http://sunraise.sfu-kras.ru/community/equipment\_facilities</u>.

At the web-page the information about PhD programs is available (<u>http://sunraise.sfu-kras.ru/PhD-studies</u>).

### SUNRAISE dissemination

SUNRAISE dissemination is organised according to its Dissemination and Exploitation strategy that was developed and agreed by project partners. The key target groups - the academia within and outside the formal partnership, stakeholders representing the world of profession and students (current and future ones) are reached through publications in corporate and regular media, consultations, workshops, conferences and training events.

The world of profession and broader stakeholder circles are further addressed by SUNRAISE Stakeholder-academia collaboration platforms set up in different SUNRAISE regions and focusing on training and capacity building needs specific to these regions.

In order to consolidate stakeholders and academia concerned with the sustainable future of the Arctic and SUNRAISE mountain regions, a series of international SUNRAISE academia-praxis conferences were organized:

25-28 November 2019 - Transboundary Regions under the Global Change - challenges and development trajectories (Gorno-Altaisk, Russia)

18-20 March 2020 - ADAPT! Adaptive Natural Resource Management for Climate Change Adaptation Mainstreaming and Environmental Governance (Nainital, India)

19-20 April 2021 - Workshop and roundtable "Green and Blue Urban Infrastructure Innovation for Northern Eurasia. Transfer, Regionalisation, Planning Strategies and Development Directions" (St. Petersburg, Russia)

26-27 July 2021 - Workshop and roundtable "Environmental governance systems in transboundary contexts" (Pskov, Russia)

9 September 2021 - Workshop and webinar "Himalaya Diwas 2021" (online - Jawaharlal Nehru University and Ministry of Environment, Forest & Climate Change of the Government of India)

### SUNRAISE sustainability long-term cooperation

SUNRAISE is aiming at a long-term cooperation, both in terms of academic collaboration (academic mobility, research exchanges, joint supervision of masters' and PhD students, joint research and use of equipment and experimental facilities etc), and also interactions between stakeholders engaged into sustainable management of natural resources in the Arctic and high mountains, and their environmental protection.

Sustainability of collaboration with stakeholders. Strong stakeholder partnership is a guiding principle of SUNRAISE that was secured on the implementation stage of the project through the incorporation of strong network partners - Central Himalayan Environment Association (CHEA), Altai-Sayan Mountain Partnership (ASMP) as well as a number of associate partners. To keep and reinforce cooperation ties with these and external partners, SURANSE have developed stakeholder-academia collaboirative platforms. Beyond the platforms, SUNRAISE academic partners from Russia had established dozens of

cooperation agreements with labour market partners that operated in the regions outside those covered by stakeholder collaborative platforms.

Sustainability of cooperation arrangements between SUNRAISE partners. To ensure the longevity of the SUNRAISE collaboration, the partners are preparing strategic cooperation agreements addressing a broad range of arrangements for keeping the partnership alive, and recognising the continous cooperation as an important priorities. The agreements are still pending. To the October, 2021 the following agreements were signed: Cooperation Agreement between Siberian Federal University and Gorno-Altaisk State University; Cooperation Agreement between Russian State Hydrometeorological University and Gorno-Altaisk State University; Cooperation Agreement between Kumaun University and Gorno-Altaisk State University; Cooperation Agreement between Siberian Federal University and Russian State Hydrometeorological University; Cooperation letter of intent between Jawaharlal Nehru University and Gorno-Altaisk State University; Cooperation letter of intent between Royal University of Bhutan and Gorno-Altaisk State University; Cooperation Agreement on Apprenticeship between RSHU and an associated partner -Katunskiy Biosphere Reserve.

In addition to the bilateral agreements, SUNRAISE academic partners have put forward arrangements for mutual sharing of their research equipment and experimental facilities, and prepared overviews of potential masters' and PhD supervisors, who are also available for joint supervision and informal advice.

Facilitation of academic mobility in Russia. Following up the new national regulation, all the universities in Russia had to develop their own policies based on the new Federal requrienments. SUNRAISE teams at partner universities played an important role in the new developments and provided all the input summarising relevant discussions in project working groups. As a result, three Russian partner universities adopted internal regulation adhering to the new Federal requrienments as well as SUNRAISE objectives

### Results of monitoring of website

Website of project has been developed http://sunraise.sfu-kras.ru/. The website includes several tabs: Home; About; Events; Results; Contacts; Dissemination materials; ACT! webinar series; Impact; SUNRAISE community; SUNRAISE conferences.



A LINESCO Chair will be established at Gorne Altaisk State

All partners universities have links on this website. The main page of the website represents the following information: objectives of the project, project partners and links with other international programs or projects, and operation information (project management and quality assurance).



At the tab "Events" you could find information about project meetings, training events, monitoring visits, dissemination events and SUNRAISE webinar series.



It should be noted, that information about every event very detail and represent all full and deep information about project activities.

At the tabs "SUNRAISE in media" you could find information about project activities in mass-media social networks and etc. This information is constantly updated and supplemented.

Some information is in national languages, some in English. At this page you could find detailed description of SUNRAISER learning & training platform, SUNRAISE training activities, SUNRAISE teaching and learning materials, SUNRAISE stakeholder-academia collaborative platforms, doctoral school, duties and obligations of all partner universities, list of the involved academic staff, results of the project implementation, developed curriculum, ways of information dissemination among students of partner and other universities, developed syllabuses, description of equipment and experimental facilities, research themes etc.

Main results of the project were divided into following blocks: SUNRAISE End-user Surveys; SUNRAISER learning & training platform; SUNRAISE training activities; SUNRAISE teaching and learning materials; SUNRAISE research framework; SUNRAISE stakeholder-academia collaborative platforms; SUNRAISE dissemination; SUNRAISE sustainability and long-term cooperation; SUNRAISE management and Quality Assurance; SUNRAISE PhD students; SUNRAISE equipment; SUNRAISE webinar series ACT!; SUNRAISE achievements and impact.

Analysis of project web-site shown the transparency, availability, accountability (partly) of the project implementation. Site represents quite fully all project activities and all deliverables achieved trough project period. The web-site is the project strength and provide extremely important opportunity for project sustainability.

### Sustainability plan

### SWOT-analysis

Strength	Weakness
Good co-operation between partner	Links between national universities stronger
universities;	than between project consortium partners;
Developed the project web-site and e-learning	Not all educational materials are presented in
platform;	English;
Developed educational materials including -e-	The lack of lecturers able to teach in English;
materials and MOOC courses;	The lack of students (from countries of partner
Approved SUNRAISE and national agreements	universities) able to study in English;
of cooperation and the development of	Lack of financing promoting materials and other
stakeholder-academic collaboration platform;	measures of Dissemination strategy;
Established national stakeholder-academic	Different state (national) obligatory
collaboration platforms;	requirements for Master and PhD educational
Organized labs with co-sharing equipment;	programs;
Established academic community for co-	Strong competition for students and resources
supervising of Master and PhD thesis and	at national and even international levels;
scientific research;	Lack of financial instruments for co-supervising
Established scientific conferences, expertise for	Master and PhD thesis
Summer school and other educational events	Significant remoteness of partners from each
organization;	other
Published promoting project materials	
Opportunities	Threats
Further strengthening of cooperation between	Continuing pandemic of Covid-19, lockdowns
partner universities;	and bans for travelling and off-line
Open collaboration platforms for other	communications;
universities at the national and international	Political situation in- and out- boarders of
levels;	partner countries;
Further development of e-learning education;	Change of the rules and regulations from
Supporting conferences and Summer schools	national educational Ministries;
in the future;	The low attractiveness of SUNRAISE
Enroll students from other universities whish do	collaboration platforms for external partners and
not have the accredited Master and PhD	students;
educational programs;	Lack of financing International educational
Implementation the Dissemination strategy;	programs;
Financing new project and initiatives from	Established by national Ministries of education
national and international Funds	assigned number of Master and PhD students;

### Goals of Sustainability plan

Overall, sustainability of the SUNRAISE project means achieving and ensuring:

- an efficient and effective set of activities for boosting the number of enrolled Master and PhD students;
- continuous improvement and extensions of the educational content, e-learning tools and services taking into consideration their competitive environment and technological advancements;
- intensified interest as well as boosted motivation of the participating organisations to use, promote and further improve SUNRAISE stakeholder-academia collaborative platforms and their governance.

Hence, the sustainability planning of the SUNRAISE project results will be performed at two parallel and complementary levels:

- Internally in the consortium organizations, i.e. through ensuring that all consortium participants will continue to use and expand the educational platform, e-learning materials and MOOC courses, co-sharing laboratory equipment, co-supervising Master and PhD students following the end of the project. To this end, all consortium partners that will act as end-users of the SUNRAISE project results intend to gradually involve more users in the SUNRAISE consortium.
- Externally through attracting and engaging third parties in the SUNRAISE SUNRAISE stakeholder-academia collaborative platforms and educational programs. Such an engagement will be also part of the project's plans for the wider implementation of the SUNRAISE educational programs and e-platform.

Two approaches are considered for the SUNRAISE sustainability strategy: (a) viability at a mid-term level and (b) sustainability at a long-term level.

### Strategy for SUNRAISE project sustainability

A key aspect of the sustainability strategy involves the actions to be made for attracting and engaging Master and PhD students. The initial sustainability plan will include the following ones:

1. Strong involvement of students within the Consortium. The partner universities will comprise the initial pool of Master and PhD students for the SUNRAISE educational programs. Each one of partner universities has committed to disseminate the e-learning platform within their context and engage Master and PhD students during the project's lifetime. The successful enrolling students and use of the e-learning platform along with the internal dissemination activities to be held via presentations MOOC courses and e-learning educational materials under Doctoral program and information at the university's website and e-mail campaigns among others will further attract students. Partner universities will save the link to SUNRAISE web-page.

Opportunities for Sustainability:		
Involvement of students within the Consortium		
Action steps	Who will implement	Timeline:
Selection of laboratories, and educational programs to be initially targeted for students and researchers who could involve into SUNRAISE educational programs	P5, P6, P7, P9, P11, P12	Months 1-3 of project duration; Annual revision at September-October
Announcement of SUNRAISE educational programs and e-learning platform at the university websites and through the university mailing lists	P5, P6, P7, P9, P11, P12	1 <sup>st</sup> year of project duration; Revision and updating information annually in April-May
Publishing of promoting materials (leaflets) and regular distribution among students at partner universities	P5, P6, P7, P9, P11, P12	2 <sup>nd</sup> year of project duration; Revision and updating information annually in March-April
Presentation of SUNRAISE educational programsl and e-learning platform for Bachelor students of targeted educational programs	P5, P6, P7, P9, P11, P12	Annually in April
Regular communication with partner universities for announcing project progress and SUNRAISE activities	P5, P6, P7, P9, P11, P12	Constantly during project implementation
Enroll Bachelor students into scientific researches, SUNRAISE activities (conferences, workshops, Summer schools and etc.)	P5, P6, P7, P9, P11, P12	Constantly
Collection of feedback from students, academic staff, and partners	P5, P6, P7, P9, P11, P12	Constantly

2. Involvement of "external" Master and PhD students, expansion of the Consortium. The Consortium will exploit their scientific networks in order to disseminate the information about educational programs, e-learning platform and stakeholder-academia collaboration platforms and attract more Master and PhD students and organizations. Initially, partners universities will attempt to attract students from their research networks. Gradually, the next plans will include broad dissemination activities held by the partners individually and the Consortium as a whole in order to increase awareness about educational programs, elearning platform and stakeholder-academia collaboration platforms and attract more students? Universities and other organizations. This step is highly dependent on the dissemination and project activities and its success is strongly affected by their positive outcome. More specifically, the project activities will thoroughly present the targeted students' group within the current and near future context. The dissemination activities will involve the preparation of a dissemination plan which will include the selection of the dissemination methods, the determination of the dissemination material to be prepared taking into consideration the targeted audiences, the selection of the events (conferences, workshops, etc.) to use for the dissemination purposes, etc. As the researchers and lecturers in the SUNRAISE Consortium are highly reputed scientists in their field of expertise, each one of them will be acting as research community leader in their domain. Hence, they will be actively participating in the project activities, including conferences, summer school and e-learning. With the effect of an influencer in their fields, their high activity/involvement is expected to trigger students into educational programs and other universities and organizations - into stakeholder-academia collaborative platforms.

Moreover, the SUNRAISE experts (researchers and lecturers) will be sending personalized emails to their research or university community members and collaborators throughout the project's lifetime, notifying them about the project's activities, the educational programs status and about stakeholder-academia collaborative platforms. Given that the purpose of the dissemination activities will be not only to raise awareness about SUNRAISE but also promote the project's outputs and results to interested stakeholders and engage the research and university community, particular focus should be given on the preparation of e-learning materials visualizing the project results and their expected benefits for students and academic staff. The latter could take place either through guided use of the e-learning platform and by inviting researchers and universities to join the SUNRAISE stakeholder-academia collaborative platforms and use laboratory equipment and e-learning platform for a specific period of time. The different regular forms of communication will allow for the incorporation of the group participants' feedback and ideas into the project's activities and implementation outcome and, hence, increase their commitment to cooperate with SUNRAISE Consortium. In order to maximize the sustainability potential of the SUNRAISE project and the outcome of the related activities, the SUNRAISE communication will be used for identifying the major influencers in a specific scientific area or field, so that the communication efforts are targeted and effective.

Opportunities for Sustainability		
Involvement of external students and expansion of the stakeholder-academia collaborative		
natforms		
Action steps	Who will implement	Timeline:
Determination of specific scientific fields, potential partners (universities and research groups, NGOs) to initially target at	P5, P6, P7, P8, P9, P10, P11, P12	Months 1-3 of project duration; Annual revision at September-October
Preparation of a list of researchers, research groups, potential partner universities and organizations they will contact with based on the above fields	P5, P6, P7, P8, P9, P10, P11, P12	Months 1-3 of project duration; Annual revision at September-October
Preparation of a list of stakeholders for each role in the SUNRAISE project who could serve as potential participants.	P5, P6, P7, P8, P9, P10, P11, P12	Months 1-3 of project duration; Annual revision at September-October
Identify the major influencers in each one of the specific scientific fields and stakeholder group	P5, P6, P7, P8, P9, P10, P11, P12	Months 1-3 of project duration; Annual revision at September-October
Decision for the communication channels to be used for contacting the external students, researchers and universities	P5, P6, P7, P8, P9, P10, P11, P12	1 <sup>st</sup> year of project duration; Revision and updating information annually in March-April
Development of the dissemination strategy	P5, P6, P7, P8, P9, P10, P11, P12	2 <sup>nd</sup> year of project duration; Revision and updating information annually in March-April
Preparation of a template e-mail for the communication with the potential partners	P5, P6, P7, P8, P9, P10, P11, P12	1 <sup>st</sup> year of project duration; Revision and updating information annually in March-April
Each partner contacts the potential users they have identified as well as the influencers in their specific scientific field	P5, P6, P7, P8, P9, P10, P11, P12	Constantly
Personalized communication with the potential partners	P5, P6, P7, P8, P9, P10, P11, P12	Constantly
Presentation of the SUNRAISE educational programs and stakeholder-academia collaborative platforms to the external universities and potential partners	P5, P6, P7, P8, P9, P10, P11, P12	During joint events
Inclusion of new partner universities and organizations into stakeholder-academia collaborative platforms based on Agreement	P5, P6, P7, P8, P9, P10, P11, P12	As an interested university emerges
Inclusion of the SUNRAISE link at web- sites of other potential participants of open stakeholder-academia collaborative platforms	P5, P6, P7, P8, P9, P10, P11, P12	Constantly
Regular communication with potential partners for announcing project /	P5, P6, P7, P8, P9, P10, P11, P12	Constantly

stakeholder-academia collaborative platforms activities and e-learning platform updating		
Distribution of project leaflets and brochures	P5, P6, P7, P8, P9, P10, P11, P12	Constantly
Collection of feedback	P5, P6, P7, P8, P9, P10, P11, P12	After join events
News announcements, invitations to join to events, distribution of the promoting materials based on the feedback submitted	P5, P6, P7, P8, P9, P10, P11, P12	Constantly

3. Continuous improvement of the educational content. SUNRAISE consortium will continue to improve developed educational programs through the development of the educational materials in English, uploading presentations, textbooks, reading and other supporting materials to the e-learning platform: following development of the MOOC courses and other tools for digital education. Partner universities will organize annual scientific conference and at least one summer school for Master and PhD students with participation of the Consortium members and other research groups and universities. The established practice of scientific co-supervising will be used for increasing quality of students' research and publishing its results. In order to maximize the sustainability potential of the SUNRAISE project and the outcome of the related activities, the laboratory equipment will be used for collaborative research of Master and PhD students.

In order to ensure the financial viability of the SUNRAISE doctoral school and its continuous enhancement for purpose of competitiveness, the partners universities will be investigating different potential funding sources, including regional, national or EU programs, sponsorships by interested stakeholders, etc.

Opportunities for Sustainability		
Improvement of the educational content of the educational programs		
Action steps	Who will implement	Timeline:
Regular revision and upgrading educational programs (including doctoral school program)	P5, P6, P7, P9, P11, P12	1 <sup>st</sup> year of project duration; Revision and updating information annually in March-April
Regular revision and upgrading laboratory equipment	P5, P6, P7, P9, P11, P12	1 <sup>st</sup> year of project duration; Revision and updating information annually in November-December
Improving language skills of the academic staff involved (directly or potentially) into SUNRAISE doctoral school	P5, P6, P7, P9, P11, P12	Annually, 1 time during educational year
Supporting close scientific cooperation with partner universities through collaborative research, conferences and workshops	P5, P6, P7, P9, P11, P12	Constantly
Supporting co-supervising of Ms and PhD students	P5, P6, P7, P9, P11, P12	Constantly
Regular organization of conference and Summer school	P5, P6, P7, P9, P11, P12	Annually, 1 conference and 1 Summer school at one of the member of Consortium

Conversion of the research results into scientific papers and published them	P5, P6, P7, P9, P11, P12	Constantly
Development e-learning educational materials (including new MOOC courses) and uploading them into e-platform	P5, P6, P7, P9, P11, P12	Constantly
Development of the online educational programs	P5, P6, P7, P9, P11, P12	During 2022-2023
Supporting access to e-learning platform for internal and external users	P5, P6, P7, P9, P11, P12	Constantly
Monitoring of each user's activity in the e- platform (how often, for how long, which services)	P5, P6, P7, P9, P11, P12	Constantly
Communication with the users based on their activity in the platform, announcements for new features to be included in the e-learning platform, etc.).	P5, P6, P7, P9, P11, P12	Constantly
Development and use of the pool digital activities on the base of e-platform for further cooperation between partner universities and implementation of doctoral school	P5, P6, P7, P9, P11, P12	Constantly
Investigating different potential funding sources for further supporting of doctoral school	P5, P6, P7, P9, P11, P12	Constantly

### Regional focus of SUNRAISE project sustainability

Stakeholder-academia collaboration platform for sustainable development of the mountain region of Altai and Sayany (Платформа для организации сотрудничества по содействию устойчивому развитию Алтае-Саянского экорегиона)

Participants of this platform have long-standing and strong ties with each other, and now they are a close-knit consortium with constant joint activities and collaborative research and teaching. All information about platform is available at the university web-sites, at the separate web-page, as well as at the web-pages of NGOs. Detail information is in Russian, and for attracting the international participants it is necessary to present information in English too. Universities and NGOs are going to upload description, rules and conditions for join and participation in the platform in English in the closest time. Universities and organizations are going to make information about SUNRAISE stakeholder-academia collaboration platform more visible and well-presented at their web-sites. Now all events of the platforms involve external participants, including international organizations from neighboring countries.

Platform participants have already done a lot of efforts for expansion of the consortium. Expansion of the Consortium will give possibilities for better cooperation between universities and other organizations in the region involving into sustainable development of the mountain areas. It should be noted that platform participants have very strong personal tires. It allowed, from one hand, to extend platform, but from other hand to strength the sustainability through involving researcher and professors from other organizations and universities.

There are more than 30 e-courses (in the sum) were developed by partner universities under SUNRAISE project. All of them were uploaded to e-learning platform. Some of these e-courses are in English, some - in Russian. For attracting international students to SUNRAISE educational programs universities are going to add educational materials in English (step by step, depending on the lecturers' language skills). Different seminars and educational workshops for improving language skills will be helpful. In the 2022 universities are going to organize 1 "teaching" workshop on the syllabi development and improving language skills. Platform participants have plans to continue joint events and are going to organize 1 joint scientific conference per year from 2022 and 2 vebinars.

Co-supervising PhD student will be organized on "hourly basis" from universities budget. This strong interest to co-operate among researches will be supported by personal tires and collaborative work of established small "author" / research groups. Universities started the discussion on the future project proposal, the implementation of which could indirectly support SUNRAISE activities. Very likely, it will be Erasmus+ project.

## Platform for Cooperation for Stakeholders to Promote Sustainable Development in the Himalayan Eco-region

In the future partner universities will regular update, upload and distribute promoting materials among stakeholders. In the next 2022- and 2023-years universities are going to organize research seminar and vebinar. Research seminar will be held one time per month during the educational year. In the 2022 universities have plan to organize the Summer school. The practice of joint supervision of Master and PhD students as well as joint research will be continued. Universities continue to develop MOOCs and other e-courses, improve their content, and add all teaching and supporting materials to INTENCE e-learning platform. In this and next educational years 2 seminars for academic staff will be organized. These seminars have goal to improve language skills of the lecturers and help them to develop teaching materials in English. There are few opportunities for expansion of established stakeholder platform. In the future, it will be possible to involve other scientific and educational organizations from neighbor countries. For SUNRAISE sustainability universities are going to receive additional financial support from national and international funds.

# Stakeholder-academia collaboration platform for sustainable development of Arctic (Платформа для организации сотрудничества по содействию устойчивому развитию Арктики)

Platform partners started to work together under project and in the future need in more close cooperation and coordination within stakeholder platform. Should be noted that number of joint events should be increased as well as their variety. In 2021-2022 universities are going to held 1 webinar and 1 scientific conference. The universities look at this conference as an opportunity to promote SUNRAISE project and involve more participants into stakeholder platform. For better results, the promoting material of SUNRAISE project should be clear and visible presented at the conference, and universities should write down the list of potential partners (as universities as personalities) and plan communications with each of them during conference. The work for expansion of Consortium should be organized not only during conference, but also on the everyday "routine" base. Universities should develop the template of the invitation list with information about SUNRAISE project and benefits for platform participants.

Universities took part in the development of MOOCs courses and e-learning materials. They are going to continue this work in collaboration with other SUNRAISE partner universities. Due to strict lockdown requirement due to Covid-19, universities are looking for opportunities for the development of the online educational programs. Such program could involve to SUNRAISE project different stakeholder organizations from Russian North.

### Conclusions

A sustainability / business plan is, in essence, a road map that lays a foundation for planning and action. It defines and illustrates an organizational philosophy toward sustainability through an established vision, goals, strategies, and metrics to improve educational programs and stakeholder-academia platform and their governance at the partner universities.

This Plan integrates strategies and practices that can provide near-term benefits for SUNRAISE educational programs and stakeholder platforms as well as tools for continual and long-term progress toward sustainability. The Plan provides a shared decision-making and problem-solving framework for sustainability of the SUNRAISE educational programs and stakeholder platforms at the partner universities. It is the logical first step for the partner universities that are serious about tangible and measurable long-term sustainability practices. The Plan was developed using a collaborative process of interviewing and surveying university staff and studying of the visible deliverables of SUNRAISE project. This process was designed to build off a platform of existing Consortium practices and work toward continuous improvement with regard to effectively managing educational programs, use of laboratory equipment, development and support e-learning platform, develop strong cooperation through stakeholder-academia platform and other practices to achieve sustainability of SUNRAISE project.