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SUNRAISE: Sustainable Natural Resource Use in Arctic and High Mountainous Areas

Report on:
**End-user Survey - International Curriculum Development
Project**



Partner number: P12

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India**

Background

As a part of the an international curriculum development project, a study was carried out on the needs and requirements of labour markets with regards to the expertise in sustainable management and governance of high mountain areas.

A semi-structured questionnaire was designed, revised and tested as per the requirements of the project. The questionnaire was executed using email and a few personal interviews with the research professionals working with government organisations, academic institutions (including colleges and university), research institutions, and non-government organisations (NGOs). While contacting the professionals, the individuals working for the mountain ecosystems in general and Indian Himalayas in specific were contacted. This was purposeful to survey and collect information specific to the Indian Himalayan needs.

Many of the questions asked were structured with predefined options but with an option to provide alternate opinions as well. The other questions were direct questions seeking the response of the interviewers as open ended options.

The questionnaire was executed in two phases without any repetition so as to gather a considerable number of respondents to provide the feedback. In total 30 respondents provided the complete information. A few of the questionnaire were half filled and hence were not considered while forming the summary. The questionnaires were circulated via email and the response was received as the reply.

In addition to circulation of the questionnaire, discussions were carried out with people working in Himalayas and or having experience of working in Himalayas. Some of the discussants were individuals hailing from Himalayas, who are frequent visitors to their respective places, but no necessarily working in the mountain ecosystem. This was purposely carried out with an assumption that one hailing from Himalayas and frequently visiting is aware of the problems and issues pertaining to mountain ecosystems and understand the frontier areas where capacity building is lacking

The following sections provide summary of answers of each of the question. No statistical tools were applied or testing was carried out. The summary is direct summary of the responses with an objective to form an overall picture on the needs of requirements of labour markets. For few of the questions, where it was possible to deduce, some conclusions are also given.

1. What tasks would you need your future employees to perform? Please, choose your answers, or offer your own:

The most of the respondents preferred to *'understand trends and character of climate change, and climate change impacts on ecosystems, biodiversity and human well-being'* (65%) followed by *'Assess biological resources / biodiversity, and develop and/ or implement biodiversity restoration activities'*; *'Develop strategies and / or action plans for local sustainability of High Mountain'*; and *'Assess environmental impacts assessment/ footprint of tourism, including impacts on individual components of environmental systems, such as biodiversity, soil cover, water resources etc.'* (~50% each).

Few of the institutions (~25%) given importance to *'understand the context and implications of natural resource management and e-governance in the areas inhabited by indigenous people or other communities with traditional life styles'*; *'generate or measure or calculate environmental impact and/or strategic environmental assessments'*; *'evaluate potential and options for the alternative energy'*.

Most of the non-government and non-profit organisations are interested to *'develop environmental risk reduction activities'*; *'identify environmental issues of the company/project or area of investment'*; *'develop measures for mitigating geo-hazards'*; *'prevent or resolve conflicts between the users of nature/environmental resources (including biological, land and water resources)'*; and *'participate or prepare in environmental audits'*.

Very few of the institutions have shown interest to *'develop enforcement mechanisms; participate or prepare in environmental audits'*; *'participate or prepare environmental appraisals'*; *'develop environmental protection activities typically required by legislation'*; and *'design interventions based on situation analysis'*.

Conclusion – 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. The connection between biological resources and the human well-being is well appreciated; interaction of tourism and resources is of importance. In the present discussions of climate change, environmental issues and mechanism to assess impact and solutions thereon are of not much interest to local institutions. Indeed, a strong connects among climate change; global environmental change and local environmental issues need to be constructed.

2. What generic skills would you expect your employees to have?

Most of the respondents preferred *'development of training and learning materials, teaching and training (the character of training and/ or awareness activities can be specified below)'*; and *'GIS development, maintenance and using'* (~60%).

Among the other preferences are *'professional communication (oral and writing) in national and foreign languages'*; *'development, maintenance and using of interactive maps and*

online applications'; 'project management and management of expertise'; 'and development and support of web sites, web pages and online databases' (~60%).

The other set of responses were *'development of relations with end-users and stakeholder groups, including public bodies'; 'presentation of assignment outcomes and outputs'; 'organisation of events (character of the events can be specified below)'; 'fund raising activities'; and 'purposeful inquiry into legislation and regulation'.*

Many of the respondents emphasised on field/Lab knowledge, material for field practitioner (preferably in local dialect), and trainings at different levels.

3. Would you employ relevant graduates with 3-5 years experiences? If so, what kind of specialist you need?

The preferred area of specializations ranged with knowledge of climate change, ecosystem assessment and forestry. Most of the respondents emphasized on computer skills, data (statistical) analysis and interpretation, geospatial tools (preferably GIS) and writing (technical) and communication skills.

4. Would you (or your colleagues) guest lecture or moderate workshops for university students? If so, what would be the topics?

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)

5. What kind of re-training your employees might require. Should this be limited to language, software skills or others?

- Data (Statistics) analysis and interpretation (hands-on)
- Geospatial (remote sensing and GIS) tools (hand-on)
- Climate modeling
- Communication and presentation skills
- Programming skills for modeling

6. What kind of re-training would you like for yourself? Should this be limited to language, software skills or others?

Most of the respondents showed interest in self-re-training. The proposed topics are in perspective of Himalayas:

- Geospatial (remote sensing and GIS) analysis
- Advanced data analysis (multivariate statistics)
- Environmental Issues and Policy Making
- Project Management and leadership skills
- Quantitative ecology and assessment techniques

7. What is your understanding on distant learning in terms of the utility, usability and preferences?

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.

It is a great advancement in the contemporary learning environment however there are significant costs associated with it in terms of lacking interpersonal communications, which I believe is an important component of the pedagogy. In addition network and infrastructure is a big challenge when it comes to remote areas/ especially in the mountain regions for successful implementation of such tools. It is of limited use when it comes to Hands on training sessions. Thus, many of the respondents didn't appreciate it

8. Would you (or your colleagues) have any experience in distance learning? If so, could you please reflect on this?

Most of the respondents had no experience of distance learning. They find it useful only when the face-to-face attendance of classes is not feasible. The preference to contact classes over the distance learning is primarily due to level of interaction.

However, people were aware of edx, coursera and MOOCs. India has multiple platforms for the distance learning and one of the dedicated universities, the Indira Gandhi National Open University known as IGNOU, is a Central University which offers distance learning course, thus people were aware of that. Apart from the Edu-sat (satellite based learning program) and lectures offered by the Television (Doordarshan) are also familiar among most of the respondent.

9. Would you have in your organisation any colleagues you would recommend to enrol to master's and/or PhD studies? If so, in what fields?

Most (~100%) of the respondents replied 'Yes' to this. The fields were the most demanded while responding to this question,

- Climate Change & Impacts on Social and Biological Systems
- Carbon sequestration and mitigation
- Ecology –Fire, Functional, Landscape, Phenology, Biodiversity
- Disaster Management
- Geospatial tools – Remote Sensing, GIS

10. How many of your colleagues (c.a. %) have good commands on foreign languages (sufficient for professional purposes)?

The response to this question ranged between 5% and 100%. When English is considered as a foreign language, the average response is ~80%, however if one considers foreign language other than English, the average response is ~5%. But most of the institutions while responding to this question referred 'Nil' having considered foreign languages other than English.

Conclusion – The English is considered as the foreign language, thus most of the colleagues (~80%) understand and use it. However, usage foreign language other than English is almost negligible. A few selected organizations have very few people having command on such languages but the usage is minimal.

11. Would your employees need foreign language courses? What conditions would be acceptable / desired? (Learning / training formats, level, schedule, size of the course and the group etc.)

Most of the organizations working at local scale consider English as the foreign language. Very few of the intuitions/organizations having international linkages do consider German, Spanish, French and Arabic as foreign language. These languages being used in the United Nations, many of the aspiring work-force working in intuitions/organizations of international linkages looks forward to learn these.

The response to this question ranged between 'may be' to 'no'. And if needed the learning time spans over a week to month time-period.

Some of the respondent said, "I don't think language would be a barrier working in any socio-cultural setting, however if re-quired it can be basic knowledge of the language that could be given to a group of 20 people" and "Our team's main language is English. We hire local research assistants for fieldwork and multiple members of our team speak local lan-

guages in our study areas as well (Nepali, Hindi, Dzongkha – as well as some local dialects)".

Conclusion – The response to need of foreign language courses is not much encouraging. This is as most of the organizations either use English or Hindi (preferably) for regular working. However, while interactions with the local communities their hire people having knowledge of local dialects/language.

12. Why would your colleagues need understanding of foreign languages? (please, prioritise):

Though English in official language in most the institutions in India, still it is considered as a foreign language. This is because most the non-government and non-profit organisations working in mountains use Hindi as the working language. Moreover many of the institutions though have teaching at higher level (graduate and masters program), but use Hindi most often in discussions and otherwise.

Thus the response for the need of understanding of foreign languages is for '*international publications (scholarly and popular)*'; '*studies or /training abroad*'; and '*routine collaborative work with international partners (joint projects, tenders, research etc.)*'.

The need of foreign language is also sought for '*reading for professional purposes (papers, legislations, conference proceedings, textbooks, policy briefs, technical guidelines etc.)*'; '*participation in international events*'; '*development of presentation materials*'; '*extra-curricular communications when abroad*'; '*servoing clients / guests of your company or organisation*'; and '*organisation of international events by your company*'.

It may be noted the Hindi is the common language for all kind of working. When it comes to presentation and documentation for presentation, English is generally used for representation but the oral communications and discussions remain in Hindi.

One of the respondent said, "*Our program is based in English. Local languages for field-work, reading original, location-based research, local events, and preparation of outreach materials would be useful but not essential for all team members as we do have multiple team members who speak and write local languages/dialects*".

Conclusion – The usage of English as a foreign language is mostly for preparing presentations and documentation. Majorly Hindi and/or the local language and local dialects are used for most of the communications. Most the text for distribution among the local masses is prepared in Hindi in the Himalayas region. In some of the regions bilingual and English texts are also prepared. The languages both spoken and written vary across the Himalayas.

13. What cooperation with universities you deem the most relevant / useful / important?

Almost all (~80%) the respondents emphasized on the requirement of 'exchange programme' as the cooperation with the universities. This was followed by the 'targeted training or learning on the topics of your interest'; 'involvement of your employees to the educational process (lecturing, workshop moderation, course work supervision, etc.)'; and 'hosting internship' (around 60%). A few of the respondents recognised the importance of 'master classes for university students and / or teachers'; and 'suggesting topics for graduate theses / projects'; and 'review of graduate theses / projects; involvement to theses grading' (~45%). Very few choose the option 'review of Master and Ph.D thesis/project'.

Conclusion – 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.

Copy of Questionnaire

Dear employer,

As a part of an international curriculum development project, we are studying needs and requirements of labour markets with regards to the expertise in sustainable management and governance of high mountainous areas

1. What tasks would you need your future employees to perform? Please, choose your answers, or offer your own:

- identify environmental issues of the company/project or area of investment;
- assess biological resources/biodiversity, and develop and/or implement biodiversity restoration activities;
- Generate or measure or calculate environmental impact and/or strategic environmental assessments;
- Assess environmental impacts assessment/footprint of tourism, including impacts on individual components of environmental systems, such as biodiversity, soil cover, water resources etc. (You can suggest your options in the blank fields below);
- evaluate potential and options for the alternative energy;
- develop strategies and / or action plans for local sustainability of high mountain areas such as Himalaya;
- participate or prepare in environmental audits;
- participate or prepare an environmental appraisals;
- develop enforcement mechanisms;
- develop environmental protection activities typically required by legislation;
- develop environmental risk reduction activities;
- develop measures for mitigating geo-hazards;
- prevent or resolve conflicts between the users of nature/environmental resources (including biological, land and water resources);
- understand trends and character of climate change, and climate change impacts on ecosystems, biodiversity and human well-being;
- understand the context and implications of natural resource management and e-governance in the areas inhabited by indigenous people or other communities with traditional life styles;

Other, your options

2. What generic skills would you expect your employees to have?

- GIS development, maintenance and using;
- development, maintenance and using of interactive maps and online applications;
- development and support of web sites, web pages and online databases;
- purposeful inquiry into legislation and regulation;



- organisation of events (character of the events can be specified below);
- development of training and learning materials, teaching and training (the character of training and/or awareness activities can be specified below);
- work under pressure and in irregular working settings;
- development of relations with end-users and stakeholder groups, including public bodies;
- presentation of assignment outcomes and outputs;
- project management and management of expertise;
- professional communication (oral and writing) in national and foreign languages (can be specified below);
- fundraising activities;

Other, your options

3. Would you employ relevant graduates with 3-5 years experiences? If so, what kind of specialist you need?

4. Would you (or your colleagues) guest lecture or moderate workshops for university students? If so, what would be the topics?

5. What kind of re-training your employees might require. Should this be limited to language, software skills or others?

6. What kind of re-training would you like for yourself? Should this be limited to language, software skills or others?



7. What is your understanding on distant learning in terms of the utility, usability and preferences?

8. Would you (or your colleagues) have any experience in distance learning? If so, could you please reflect on this?

9. Would you have in your organisation any colleagues you would recommend to enrol to master's and/or PhD studies? If so, in what fields?

10. How many of your colleagues (c.a. %) have good commands on foreign languages (sufficient for professional purposes)?

11. Would your employees need foreign language courses? What conditions would be acceptable / desired? (Learning / training formats, level, schedule, size of the course and the group etc.)

12. Why would your colleagues need understanding of foreign languages? (please, prioritise):

- reading for professional purposes (papers, legislations, conference proceedings, textbooks, policy briefs, technical guidelines etc.);
- international publications (scholarly and popular);
- development of presentation materials;
- participation in international events;
- organisation of international events by your company;
- routine collaborative work with international partners (joint projects, tenders, re-search etc.);
- serving clients / guests of your company or organisation;
- studies or retraining abroad;
- extra-curricular communications when abroad;

Other, your options

13. What cooperation with universities you deem the most relevant / useful / important?

- targeted training or learning on the topics of your interest;
- involvement of your employees to the educational process (lecturing, workshop moderation, course work supervision, etc.);
- hosting internships;
- exchange programmes;
- suggesting topics for graduate theses / projects;
- review of graduate theses / projects; involvement to theses grading
- master classes for university students and / or teachers;

Other, your options

Thank you for your participation!

* The survey is conducted under the EU Erasmus+ project SUNRAISE: Sustainable Natural Resource Use in Arctic and High Mountainous Areas