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Strengthening Skills in Research Methods in Higher Education Institutions to Improve Societal Resilience to Disasters

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Abstract

This paper provides a strategic approach to strengthening research methods skills in Higher Education Institutions (HEIs) to improve disaster resilience (DR). The findings are based on an initial assessment of the nature, scale and beneficiaries of the research methods training program developed as a part of an ERAMUS+ project called ASCENT (Advancing Skill Creation to ENhance Transformation). This project aims at addressing Research and Innovation (R&I) capacity strengthening for the societal DR. The paper examines what research methods skills are needed to be improved in HEIs in three countries, i.e. Bangladesh, Sri Lanka and Thailand. This was examined mainly with the use of an online survey questionnaire that was sent to 08 HEIs from these three countries. Altogether 530 responses were received from both the academic and research staff in these institutions. The responses were analysed using version SPSS 23.0 with several analysis techniques such as Mann-Witney U-test, Kruskal-Wallis test, and Principal Component Analysis. The research findings revealed that both academic and research staff lack capacity in research methods such as elite interviews, observations, document studies (e.g. secondary data analysis), probabilistic method, interdisciplinary thinking, field experiments, sampling techniques and Delphi studies. The strategic approach to strengthening research methods skills, therefore, focuses on developing a comprehensive and structured research methods training programme encompassing the aforementioned research methods. In addition, several modes of training such as face-to-face, and online training were incorporated in this strategic approach to suit the nature, scale and beneficiaries of the research method training program.

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1. Introduction

Over the last two decades, the Asian region has experienced several natural disasters (e.g., tsunami, hurricane, and earthquake), and this region is expected to continue experiencing similar or more frequency of disasters [1,2,3]. Tackling the challenges associated with disaster resilience (DR) requires increasing response capacity of communities [2]. According to the Hyogo Framework for Action, different stakeholders, including governments and non-governmental organisations, researchers, academia, and practitioners, private sector and public sector, individuals and collectives, need to participate and contribute [4,5,6,7] to the process of increasing level of DR. Thus, developing societal resilience to disaster is rapidly gaining attention from academics and industry partners alike.

Given the urgency to address global challenges and boost knowledge-driven economies through research and innovation (R&I), several local, national and international level institutions are collaborating in addressing these challenges. For example, European Union (EU) has recognised the need for international linkages with Asian countries and assist with their rapidly growing R&I capacities for DR, the Association of Southeast Asian Nations (ASEAN) Agreement on Disaster Management and Emergency Response (2005) [8] is making efforts to increase DR in the region. For examples, the Eleventh National Economic and Social Development Plan (2012-2016) of Thailand also clearly recognises the need to developing R&I as a driving force for sustained and inclusive growth of the country including dealing with natural disasters and emergencies; the Sri Lankan Higher Education Institutions (HEIs) have given a high priority to developing strategies influencing improvement in R&I capacity [9].

The ASCENT (Advancing Skill Creation to ENhance Transformation) project is an international research collaboration aimed at addressing R&I capacity strengthening for the development of societal resilience to disasters. Initial study carried out by the lead partner of ASCENT revealed that improving R&I capacity remains a main challenge when considering the need to enhance this capacity for the rapid development of the country. The involvement of the targeted countries mentioned above in the project could help these countries to increase R&I capacity to help them accomplish integrating priorities influencing DR as well as wider development strategies leading to more inclusive and sustained growth [10]. Herein, the focus will be on HEIs because educational level plays a significant role in delivering safety, addressing emergency and disaster management [11, 12]. Decent level of continuous education and training becomes vital for administrators and related stakeholders in disaster response and resilience [13]. Consequently, the role of higher education becomes central in improving DR of citizens as well as public administrations including developing and implementing appropriate measures related disaster resilience [14]. Therefore, there is a need to explore the current R&I capacity among the HEIs in the target countries of Asia at addressing the risks posed by disasters and improving the level of DR.

An initial baseline survey has gathered detailed data on current R&I capacity needs identified by academics and researchers in three selected countries (i.e. Sri Lanka, Bangladesh and Thailand) in the target region of Asia. The goal of the survey was to assess these capacity needs before the development of ASCENT training program to the target audience. Within this paper, findings will be presented on capacity needs particularly in 'research methods'. Given the imperative to enhance transformation to capacity building for DR related activities, adequate R&I capacity is vital to the future success. For this, research methods skills and competencies are essential for effective understanding and conduct of research and subsequently for innovation in evidence-based decision-making, where communities and stakeholders are involved. A widely accepted strategic resilience framework uses five dimensions and a range of indicators to analysing and measuring disaster resilience [15]. 'Education and training' and 'Learning and research' are significant indicators allowing measuring 'knowledge and education', 'risk management' and vulnerability reduction' and 'disaster preparedness and response'. Also, 'scientific and technical capacities and innovation' is an important indicator for 'risk assessment'. Having considered these aspects, strengthening skills in research methods become highly important to increase the scientific and technical capacities and innovation impacting on DR. Research Methods Skills enhancement can serve as a capacity building activity not only in universities, but also in research units, ministries and in think-thanks working on DR. Knowledge, understanding and experience of research methods provide a solid foundation to R&I activities as it can help in designing and executing research projects effectively [16].

		Academics (A)				Researchers (R)				
					Total for A				**Total for R**	
	Qualitative software, software modelling, GIS, etc.	4(TH1*); 2(TH2*)		5(SL1*); 2(SL2*)		2(TH1); 1(TH2)				
			7(BA1*); 2(BA2)				1(BA1); 3(BA2)			
			7(BA1); 1(BA2)				3(BA1); 1(BA2)			
			1(BA2); 1(BA3*)							
	Climate Modelling, statistical program, program website design, G remote sensing, b informatics, etc.									
			2(BA3); 9(BA1)							
			5(BA1); 1(BA2)				3(BA1); 1(BA2)			
			2(BA1); 2(BA2)				1(BA1); 2(BA2)			
	Probabilistic method (Math modelling)									
						2(TH1); 3(TH2)				
Total		-			90	-			**81**	**171**

Notes:

Research Methods	**Likert Scale 1 – 4 (1 – Yes; 2 – To some extent; 3 – Not at all; 4 Research)**
Grounded theory	
Sampling techniques and issues.	
Delphi Studies	
Interviews (unstructured or semi-structured)	
Case studies	
Observations	
Focus groups and elite interviews	
Software modelling (e.g. GIS Tools)	
Coding, generating themes and content analysis	
Questionnaire survey	
Structured Interviews	
Field experiments	
Probabilistic method	
Lab research method	
Interdisciplinary thinking	
Any other, please specify ……	

Research Methods		Factor loadings				Level of Knowledge (K – Knowledgeable; LK – Less Knowledgeable)			
	Questionnaire survey	.892		-.107		K			
	Interviews (unstructured or semi structured)								
	Structured Interviews	.851			.164	K			
	Focus groups	.819			.105	K			
	Case studies	.792	.128	.141	-.159	K			
	Elite interviews	.650			.279	**LK**			
	Observations	.637	.125	.271	-.107	**LK**			
	Coding, generating themes and content analysis								
	Software modelling (e.g. GIS Tools)	-.158	.700	.197			K		
	Document studies (e.g. Secondary data analysis)								
	Probabilistic method	.109	.521	.213	.204		**LK**		
erim tal	Lab research method	-.299		.814				K	
	interdisciplinary thinking	.168	.131	.528	.159			**LK**	
	Field experiments	.437	-.112	.492				**LK**	
	Sampling techniques	.374		.439	.224			**LK**	
ixe th	Grounded theory								
	Delphi Studies								