

Integrating education with consumer behaviour relevant to energy efficiency and climate change at the universities of Russia, Sri Lanka and Bangladesh (BECK)



MODULE SPECIFICATION

Originating Institution, Department	Module Co-ordinator(s)
Global Disaster Resilience Centre, School of Applied Sciences, University of Huddersfield, Huddersfield, UK	Prof. Dilanthi Amaratunga Prof. Richard Haigh

TITLE OF THE MODULE

Title of the module	Module code ¹
Climate change and disaster risk reduction nexus	

PROGRAMME(S) IN WHICH TO BE OFFERED:

PhD

LEVEL OF STUDIES²

First cycle (BSc/BA) <input type="checkbox"/>	Second cycle (MSc/MA) <input type="checkbox"/>	Third cycle (PhD) <input checked="" type="checkbox"/>
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CREDITS AND LEARNING HOURS

The proposed modules are not credit bearing and there is no formal certification. They will be incorporated within the formal research degree timeline.

Credit Value ³	ECTS Value ⁴	Indicative academic learning hours ⁵	Length (in Semesters) ⁶	Year in which to be offered
N/A				

ANNOTATION OF THE MODULE⁷

Disaster risk has come to be understood as a compound event, which lies at the intersection of hazards, exposure, and vulnerability of the exposed elements. As illustrated by climate and global environmental changes, the natural component of hazards is being transformed by anthropogenic activities, which are adversely changing the hazard susceptibility, coverage, frequency, and severity. The close connection between the trends of disaster risk and global environmental change has been identified as a critical milestone in climate change studies.

¹ To be indicated by the Institution

² According to the Framework of Qualifications for the European Higher Education Area, Annex 8: http://www.aic.lv/ace/ace_disk/Bologna/Bergen_conf/Reports/EQFreport.pdf

³ Permissible credit values as set out in Institution's Academic Regulations

⁴ European Credit Transfer System, 1 ECTS = 25-30 academic learning hours. Please refer to ECTS Users' Guide: https://ec.europa.eu/education/ects/users-guide/docs/ects-users-guide_en.pdf

⁵ 1 academic learning hour is equal to 45 minutes

⁶ Indicate 0.5, 1, 1.5 or 2

⁷ Please provide summary of the module, up to 200 words





Climate change is understood to influence disaster risks in two ways, firstly through the incremental weather conditions and climate hazards, and secondly through the increased vulnerability of communities to natural hazards, particularly caused by ecosystem degradation, reductions in water and food availability, and changes to livelihoods. Climate change is yet another stress to human habitats found with environmental degradation and rapid unplanned urban growth, leading to a reduction in their abilities to cope with hazards and disaster risk.

This PhD programme on “Climate change and disaster risk reduction nexus” will discuss the cross-disciplinary intervention between disaster risk reduction and climate change adaptation.

AIM OF THE MODULE⁸

To explore approaches in climate change adaptation to reduce disaster risk.

MOOC LEARNING AND TEACHING STRATEGIES

Learning Materials/ Activities & Assessment

Learning materials that equate to the face-to face lecture can be included the in the recording or as in a reference material, e.g., PowerPoints/documents, pre-recorded lectures/videos/podcasts/screencasts. In addition, related learning activities for students can be introduced for further reference, e.g., online discussion fora, quizzes, group work, online tutorials, and seminars. All learning materials can be made available in MOOC platform aligning to the module schedule, this will support and enable students to self-direct their own learning.

Doctoral Research Training Programme 2021

All the lectures that are developed under the BECK project will be integrated to the Global Disaster Resilience Centre, Doctoral Research Training Programme which is revised on annual basis. The research programme will cover a range of relevant issues, from research methodology to preparing for assessment milestones.

Variety of activities will be held to coincide with major international events, such as the International Day for Disaster Risk Reduction and World Tsunami Day.

Research projects will be shared that are currently being undertaken by members of the Centre, as well as that from visiting academics.

The Centre’s research training programme is designed to work alongside and complement the University’s Researcher Development Programme, which is run by the Graduate School.

Pre-recording learning materials

There are several options to create learning materials in recorded forms. These learning materials can act as reusable pieces and alternative means of delivery of face-to-face content. The following applications can be used to produce the recorded lectures considering the familiarity and convenience.

⁸ Aim of the module must correspond to the BECK Capacity Building Framework





1. ZOOM
2. MS Teams
3. Panopto (Facilitate by the University of Huddersfield – Preferred)

INTENDED LEARNING OUTCOMES AND ASSESSMENT

<i>Learning Outcomes of the course⁹</i>	<i>Methods of studies</i>	<i>Assessment methods of student achievements¹⁰</i>	<i>Assessment criteria of student achievements by assessment levels</i>
Demonstrate knowledge and understanding in different theoretical approaches, practical problems and an appreciation of the diversity of polices at international and national levels, related to CCA and DRR.	<ul style="list-style-type: none"> • Background study • Literature review • Refer to primary & secondary data sources 	<ul style="list-style-type: none"> • Supervision monitoring • Proposal submission 	<ul style="list-style-type: none"> • Supervisor review. Recommend submit / submitting after revisions • Recommend training & skill development programmes
Demonstrate the ability to identify and formulate researchable issues with reference to the current risks assisted by the disaster risk reduction and future risks associated with climate change.	<ul style="list-style-type: none"> • Literature synthesis • Problem framing • Formulating aims & objectives 	<ul style="list-style-type: none"> • Supervision monitoring • Progress monitoring – 1 (Report & Viva) 	<ul style="list-style-type: none"> • Supervisor review. Recommend submit / submitting after revisions • Examiners review. Approve for the next stage Resub. of report Resub. of report & viva Transfer to M.Phil. Fail
Demonstrate competence in scholarly analysis, case studies and synthesis to apply CCA strategies and DRR interventions in identified research areas.	Identification of. <ul style="list-style-type: none"> • Research approach • Research strategies • Research choice 	<ul style="list-style-type: none"> • Supervision monitoring 	<ul style="list-style-type: none"> • Supervisor review. Recommend submit / submitting after revisions • Recommend training & skill development programmes
Evaluate the findings to design, conduct and communicate the approaches for CCA and DRR.	Research techniques for. <ul style="list-style-type: none"> • Data collection • Data analysis 	<ul style="list-style-type: none"> • Supervision monitoring • Progress monitoring – 2 (Report & Viva) 	<ul style="list-style-type: none"> • Supervisor review. Recommend submit / submitting after revisions • Examiners review. Approve for the next stage Resub. of report

⁹ Learning outcomes are specified in three categories – as **knowledge, skills, and competence**. This signals that qualifications – in different combinations – capture a broad scope of learning outcomes, including theoretical knowledge, practical and technical skills, and social competences where the ability to work with others will be crucial. Please refer to Cedefop (2017). Defining, writing, and applying learning outcomes: a European handbook. Luxembourg: Publications Office of the European Union. https://www.cedefop.europa.eu/files/4156_en.pdf. Learning outcomes of the module must correspond to the BECK Capacity Building Framework.

¹⁰ Please select from the list. Additional assessment methods may be added.



			Resub. of report & viva Transfer to M.Phil. Fail
Provide solutions to complex problems / contribute original knowledge including academic and professional/transferable skills of disaster risk reduction and climate change adaptation, along with implications and limitations of research findings on this subject.	Methods of. • Data collection • Data analysis	• Supervision monitoring • Final report submission and viva	• Supervisor review. Recommend submit / submitting after revisions • Examiners review: Accepted (Ph.D. offered / editorial changes / resub. minor changes up to 3 months / resub. major changes up to 6-12 months) Transfer to M.Phil. Fail

- Apart from the mentioned assessment criteria a minimum recommended number of conference proceedings and journal publications must be processed in due course of programme undertaken.

MODULE MARK CALCULATION¹¹:

- The proposed modules are not credit bearing and there is no formal certification. They will be incorporated within the formal research degree timeline.
- Within 3 months FT / 6 PT of commencing a research degree, all students must complete a research support plan and skills audit:
 - Final research proposal
 - Initial ethical review
 - Review key competencies
 - Identify research skills and training needs
 - This includes broad and specialist subject knowledge that are addressed by these MOOCs

Assessment components (in chronological order of submission/examination date)				
Type of assessment ¹²	Weighting, %	Due submission (No of months/ Full time)	Word count (if essay or similar):	Component pass required ¹³
Proposal submission	100%	3	3,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Progression monitoring - 1	100%	9 - 12	6,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Progression monitoring - 2	100%	21 - 24	6,000 & Literature Synthesis Chapter	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Final report submission and viva	100%	36 - 48	80,000	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Total:	N/A			

¹¹ Please list all components, sum must be equal to 100%. Note that successful course completion should be recognised as indicating worthwhile educational achievement.

¹² Please indicate in chronological order of submission date each assessment component by type, e.g. examination, homework, coursework, project

¹³ Indicate Yes to specify the assessment component(s) to be passed to pass the module





SYLLABUS OUTLINE

No.	Topic ¹⁴	Number of hours ¹⁵
1.	Disaster Risk Reduction (DRR) and the convergence agendas	N/A
2.	Enablers and barriers for Climate Change Adaptation (CCA)	
3.	Governance in CCA and DRR	
4.	Accountability in CCA and DRR	
5.	Transfer of scientific knowledge into CCA and DRR policy formulation	
6.	Case studies	
Total:		

LEARNING MATERIALS¹⁶

Core materials (up to 5 references):

1. UNDRR, Global Assessment Report on Disaster Risk Reduction. 2019, Geneva, Switzerland: United Nations Office for Disaster Risk Reduction (UNDRR), ISBN: 978-92-1-004180-5, Available from: https://gar.undrr.org/sites/default/files/reports/2019-05/full_gar_report.pdf.
2. WEF, The Global Risks Report 2019. 14 ed. 2019, Geneva: World Economic Forum, ISBN: 978-1-944835-15-6, Available from: http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf.
3. IFRC, World Disasters Report. 2018, Geneva: International Federation of Red Cross and Red Crescent Societies, ISBN: 978-2-9701289-0-8, Available from: <https://media.ifrc.org/ifrc/wp-content/uploads/sites/5/2018/10/B-WDR-2018-EN-LR.pdf>.
4. UNDRR, Sendai Framework for Disaster Risk Reduction 2015-2030. Third UN World Conference on Disaster Risk Reduction. 2015, Sendai, Japan: United Nations Office for Disaster Risk Reduction (UNDRR). 32, Available from: https://www.preventionweb.net/files/43291_sendaiframeworkfordren.pdf.
5. UNISDR, Progress and Challenges in Disaster Risk Reduction: A contribution towards the development of policy indicators for the Post- 2015 Framework on Disaster Risk Reduction. 2014, Geneva, Switzerland: The United Nations Office for Disaster Risk Reduction (UNISDR), Available from: https://www.unisdr.org/files/40967_40967progressandchallengesindisaste.pdf.

Supplementary materials (up to 10 references):

1. IPCC, Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, ed. C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.). 2014, NY, USA: Cambridge University Press, Cambridge, United Kingdom and New York, ISBN: 978-1-107-05807-1, Available from: https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-PartA_FINAL.pdf.
2. UNISDR, National disaster risk assessment. Words into Action. 2017: United Nations Office for Disaster Risk Reduction (UNISDR), Available from: <https://www.shareweb.ch/site/DRR/Documents/Types%20of%20activity/Risk%20Assessments/UNISDR-NationalDisasterRiskAssessment-2017.pdf>.
3. IPCC, Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change ed. O. Edenhofer, R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.). 2014, NY, USA: Cambridge University Press, Cambridge, United Kingdom and New York, ISBN: 978-1-107-05821-7, Available from: https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_full.pdf.
4. UN-Habitat, Prosperity of cities. The state of the world's cities. 2013, New York, NY: Routledge [u.a.], 184, ISBN: 978-0-415-83888-7, Available from: <https://unhabitat.org/sites/default/files/download-manager-files/State%20of%20the%20World%27s%20Cities%2020122013.pdf>.
5. UN-Habitat, Urbanization, and development: emerging futures. World cities report. 2016, Nairobi, Kenya: UN-Habitat. 247, ISBN: 978-92-1-132708-3 978-92-1-133395-4, Available from: <http://wcr.unhabitat.org/wp-content/uploads/2017/02/WCR-2016-Full-Report.pdf>.
6. IPCC, Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation, Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change, ed. C.B. Field, V. Barros, T.F. Stocker, D. Qin, D.J. Dokken, K.L. Ebi, M.D. Mastrandrea, K.J. Mach, G.-K. Plattner, S.K. Allen, M. Tignor, and P.M. Midgley (eds.). 2012, Cambridge, UK, and New York, NY,

¹⁴ Please add as many topics as needed

¹⁵ Includes self-learning, on-line conferences, and consultations

¹⁶ Courses should provide high quality materials to enable an independent learner to progress through self-study. Materials should make best use of online affordances (interactivity, communication, collaboration) as well as rich media (video and audio) to engage students with their learning.





USA: Cambridge University Press, ISBN: 978-1-107-02506-6, Available from:

https://www.ipcc.ch/site/assets/uploads/2018/03/SREX_Full_Report-1.pdf.

7. UNHCR, UNHCR and climate change, disasters, and displacement. 2017, Switzerland: The United Nations High Commissioner for Refugees, Available from: <https://www.unhcr.org/afr/596f25467.pdf>.
8. IDMC, Global Report on Internal Displacement 2020, J. Lennard, Editor. 2020, Internal Displacement Monitoring Centre (IDMC): Switzerland.
9. UNHCR, International protection in the context of nexus dynamics between conflict or violence and disaster or climate change, in Legal and protection policy research series. 2018, UNHCR: Switzerland.
10. UNDP, Strengthening Disaster Risk Governance. 2015, New York: UNDP Support during the HFA Implementation Period 2005-2015, Available from: <https://www.undp.org/content/dam/undp/library/crisis%20prevention/disaster/Strengthening%20Disaster%20Risk%20Governance-Full-Report.pdf>.

On-line resources¹⁷:

1. Gu, D., Exposure and vulnerability to natural disasters for world's cities. Vol. Technical Paper No. 4. 2019: United Nations, Department of Economics and Social Affairs, Population Division, Available from: <https://www.un.org/en/development/desa/population/publications/pdf/technical/TP2019-4.pdf>.
2. De Sherbinin, A., A. Schiller, and A. Pulsipher, The vulnerability of global cities to climate hazards. Environment and Urbanization, 2007. 19(1): p. 39-64, DOI: <https://doi.org/10.1177%2F0956247807076725>.
3. UNISDR, Report of the Open-ended Intergovernmental Expert Working Group on Indicators and Terminology Relating to Disaster Risk Reduction. 2016, United Nations Office for Disaster Risk Reduction p. 22.
4. World_Bank, Understanding risk in an evolving world. 2014, Washington, DC: World Bank Group, Available from: <http://documents.worldbank.org/curated/en/203551468184136582/Understanding-risk-in-an-evolving-world>.
5. GFDRR, The making of a riskier future: How our decisions are shaping future disaster risk. 2016, Washington, USA: Global Facility for Disaster Reduction and Recovery (GFDRR), Available from: <https://www.gfdr.org/sites/default/files/publication/Riskier%20Future.pdf>.
6. UNISDR, United Nations Office for Disaster Risk Reduction 2019 Annual Report. 2019, Geneva, Switzerland: United Nations Office for Disaster Risk Reduction (UNISDR), Available from: <https://www.undrr.org/media/47138/download>.
7. Nations, U., D.o.E.a.S. Affairs, and P. Division, World urbanization prospects: the 2018 revision. 2019, New York: United Nations, ISBN: 978-92-1-148319-2, Available from: <https://population.un.org/wup/Publications/Files/WUP2018-Report.pdf>.
8. Usamah, M., et al., Can the vulnerable be resilient? Co-existence of vulnerability and disaster resilience: Informal settlements in the Philippines. International Journal of Disaster Risk Reduction, 2014. 10: p. 178-189, DOI: <http://dx.doi.org/10.1016/j.ijdrr.2014.08.007>.
9. UNISDR, Making Development Sustainable: The Future of Disaster Risk Management. Global Assessment Report on Disaster Risk Reduction. 2015, Geneva, Switzerland: United Nations Office for Disaster Risk Reduction (UNISDR), ISBN: 978-92-1-132042-8, Available from: https://www.preventionweb.net/english/hyogo/gar/2015/en/gar-pdf/GAR2015_EN.pdf.
10. GOVAU, Understanding the drivers of disaster: the case for developing an Australian Vulnerability Profile. 2017, Australia: Emergency Management Australia, Australian Government, ISBN: 978-1-920838-16-4, Available from: <https://semc.wa.gov.au/capability-and-preparedness/reports-and-reviews/Documents/UnderstandingDriversofDisasterThecasefordevelopinganAustralianVulnerabilityProfile.pdf>.
11. Birkmann, J., et al., Adaptive urban governance: new challenges for the second generation of urban adaptation strategies to climate change. Sustainability Science, 2010. 5(2): p. 185-206, DOI: <https://doi.org/10.1007/s11625-010-0111-3>.
12. OECD, Environment working papers No. 1 Ranking port cities with high exposure and vulnerability to climate extremes exposure estimates, in OECD Environment working papers, S.H. R.J. Nicholls, C. Herweijer, N. Patmore, S. Hallegatte, J. Corfee-Morlot, J. Château, R. Muir-Wood, Editor. 2007, Organisation for Economic Co-operation and Development.
13. Tanner, T., et al., Urban Governance for Adaptation: Assessing Climate Change Resilience in Ten Asian Cities. IDS Working Paper 315. 2009, Brighton, UK: Institute of Development Studies, ISBN: 978 1 85864 559, Available from: https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.2040-0209.2009.00315_2.x.
14. Aylett, A., Institutionalizing the urban governance of climate change adaptation: Results of an international survey. Urban Climate, 2015. 14: p. 4-16, DOI: <http://dx.doi.org/10.1016/j.uclim.2015.06.005>.
15. Avis, W.R., Urban Governance. 2016, Birmingham, UK: GSDRC, University of Birmingham, Available from: https://gsdrc.org/wp-content/uploads/2016/11/UrbanGov_GSDRC.pdf.
16. Munasinghe, M. and R. Swart, Primer on Climate Change and Sustainable Development: Facts, Policy Analysis, and Applications. 2005, Cambridge: Cambridge University Press, ISBN: 9780521008884, Available from: <https://www.cambridge.org/core/books/primer-on-climate-change-and-sustainable-development/8E3298699947A59FFF7DF2B9C95ABD9A>.
17. Storch, I., et al., Evaluating the effectiveness of retention forestry to enhance biodiversity in production forests of Central Europe using an interdisciplinary, multi-scale approach. Ecol Evol, 2020. 10(3): p. 1489-1509, DOI: <http://doi.org/10.1002/ece3.6003>.

¹⁷ Please provide links





18. Nations, U., Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, in Advanced United Version 2019, United Nations
19. Economides, G., et al., The economics of climate change. 2018, ISBN: 9789607032867 9789607032850.
20. Tacoli, C., et al., Urbanisation, rural-urban migration and urban poverty. 2015, ISBN: 9781784311377.
21. Hallegatte, S., et al., From Poverty to Disaster and Back: a Review of the Literature. Economics of Disasters and Climate Change, 2020. 4(1): p. 223-247, DOI: <https://doi.org/10.1007/s41885-020-00060-5>.
22. Winsemius, H.C., et al., Disaster risk, climate change, and poverty: assessing the global exposure of poor people to floods and droughts. Environment and Development Economics, 2018. 23(3): p. 328-348, DOI: <https://doi.org/10.1017/S1355770X17000444>.
23. Okada, N., I. Chabay, and O. Renn, Participatory Risk Governance for Reducing Disaster and Societal Risks: Collaborative Knowledge Production and Implementation. International Journal of Disaster Risk Science, 2018. 9(4): p. 429-433, DOI: <https://doi.org/10.1007/s13753-018-0201-x>.
24. Walker, G., F. Tweed, and R. Whittle, A framework for profiling the characteristics of risk governance in natural hazard contexts. Natural Hazards and Earth System Sciences, 2014. 14(1): p. 155-164, DOI: <http://dx.doi.org/10.5194/nhess-14-155-2014>.
25. Amaratunga, D., Malalgoda, C., Haigh, R., & De Silva, A., How do we Organise for DRR and Resilience? A Study on Disaster Reduction and Management Governance Profile of Sri Lanka. 2020, University of Huddersfield, UK., ISBN: 978-1-86218-171-7, Available from: <https://huddersfield.app.box.com/s/zwtx3jrn78gmobm62zcxqob8o875qvw>.
26. UNDRR, Accountability in the Context of Disaster Risk Governance. 2019, ISBN: 978-1-86218-170-0, Available from: <https://reliefweb.int/sites/reliefweb.int/files/resources/Accountability%20in%20the%20context%20of%20disaster%20risk%20governance.pdf>.
27. UN, The Paris Agreement. 2015: UN Framework Convention on Climate Change (UNFCCC), Available from: https://sustainabledevelopment.un.org/content/documents/17853paris_agreement.pdf.
28. UN, The sustainable development goals report 2019. 2019, New York: United Nations, ISBN: 9789211014037 9789210478878, Available from: <https://unstats.un.org/sdgs/report/2019>.
29. UN, Aligning Regional and Global Disaster Risk Reduction Agendas. 2011, Geneva, Switzerland: United Nations, Available from: https://www.preventionweb.net/files/19957_199572011globalplatformv12a.pdf.
30. UN, United Nations Plan of Action on Disaster Risk Reduction for Resilience. 2017: United Nations, Available from: https://www.preventionweb.net/files/49076_unplanofaction.pdf.
31. T., N., Literature review on aligning climate change adaptation (CCA) and disaster risk reduction (DRR). 2019, Geneva: IFRC, UCC, Available from: https://ifrcgo.org/africa/img/disaster-law/resources/20191208_CCA_DRR_Review_.pdf.
32. Adapting to Climate Change, Lessons from Natural Hazards Planning. 2014, New York & London: Springer, ISBN: 978-94-017-8631-7.
33. Lauta, K.C., et al., ESPREsSO Enhancing Risk Management Capabilities Guidelines. 2018, ISBN: 978-88-943902-0-9, Available from: www.espressoproject.eu.
34. Auzzir, Z., R. Haigh, and D. Amaratunga, Impacts of Disaster to SMEs in Malaysia. Procedia Engineering, 2018. 212: p. 1131-1138, DOI: <https://doi.org/10.1016/j.proeng.2018.01.146>.
35. Amaratunga, D., Sridarran, P., Haigh, R., Bhatia, S., & Pruksapong, M. M., Reducing risks and building resilience at the local level: A global review of local DRR strategies, in Global Assessment Report on Disaster Risk Reduction (GAR 2019). 2019, UNITED NATIONS OFFICE FOR DISASTER RISK REDUCTION (UNDRR). p. 1-19, Available from: <https://www.preventionweb.net/publications/view/66299>.
36. Haigh, R., et al., The upstream-downstream interface of Sri Lanka's tsunami early warning system. International Journal of Disaster Resilience in the Built Environment, 2020. 11(2): p. 219-240, DOI: <http://dx.doi.org/10.1108/IJDRBE-07-2019-0051>.
37. Tanwattana, P., Systematizing Community-Based Disaster Risk Management (CBDRM): Case of urban flood-prone community in Thailand upstream area. International Journal of Disaster Risk Reduction, 2018. 28: p. 798-812, DOI: <https://doi.org/10.1016/j.ijdr.2018.02.010>.
38. Huck, A., J. Monstadt, and P. Driessen, Building urban and infrastructure resilience through connectivity: An institutional perspective on disaster risk management in Christchurch, New Zealand. Cities, 2020. 98, DOI: <https://doi.org/10.1016/j.cities.2019.102573>.
39. Carreño, M.L., et al., Holistic Disaster Risk Evaluation for the Urban Risk Management Plan of Manizales, Colombia. International Journal of Disaster Risk Science, 2017. 8(3): p. 258-269, DOI: <https://doi.org/10.1007/s13753-017-0136-7>.
40. Reducing disaster risk by managing urban land use: guidance notes for planners. 2016, Mandaluyong City, Metro Manila, Philippines: Asian Development Bank. 98, ISBN: 9789292574758, Available from: <https://www.adb.org/sites/default/files/publication/185415/disaster-risk-urban-land.pdf>.
41. Gupta, A.K., Mani, N., Sarkar, B.B., Singh, S., Katyay, S., Developing Disaster Risk Resilient Cities. 2019, India: Gorakhpur Environmental Action Group (GEAG), Gorakhpur (UP), National Institute of Disaster Management, New Delhi, India and United Nations Children's Fund (UNICEF), ISBN: 978-81-933285-3-8, Available from: https://reliefweb.int/sites/reliefweb.int/files/resources/capres_DDRRC.pdf.
42. LIM, M.B.B., Building urban resilience through disaster risk reduction in Asia and Pacific priorities, good practices and lessons learnt. 2015: World Vision, Available from: <https://www.wvi.org/asia-pacific/publication/urban-resilience-disaster-risk-reduction-asia-pacific>.
43. Building Urban Resilience, Managing the Risks of Disasters in East Asia and the Pacific, ed. WorldBank. 2012, USA: The World Bank, Available from: https://www.gfdrr.org/sites/default/files/publication/EAP_handbook_principles_tools_practice_web.pdf.





Other materials:

REQUIRED IT RESOURCES¹⁸

No.	Software, manufacturer
1.	MS Word
2.	MS Excel
3.	MS Power Point
4.	Statistical analysis software (NVivo, SPSS etc)
5.	Online Learning Management Systems

Date of completion of this version of Module Specification

Date of approval by the Faculty:

¹⁸ Please add as many software as needed for the course

