

NBS EduWORLD - Project Education Learning Unit Template - DRAFT

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Learning Unit (LU) Planning Template - High Level Overview

Name of Learning Unit (LU) Topic		NBS for Disaster Management and Resilience in Coastal Communities					
NBS Context (e.g. urban rural, coastal)	NBS keywords complete checklist at the end of the document	Other Keywords (topics other than NBS) add in Other below	Linked or complementary concepts to NBS (to assist curriculum integration)	Prior learner knowledge of NBS (high, moderate, low/none)	Prior instructor knowledge/ skills/ competences of NBS or equivalent	Key EU NBS resources used (for instructor preparation) include link	Type of LU - lecture, workshop, field trip/site visit
coastal				moderate	moderate		Lecture
Target academic subject / discipline / professional area or group	Target learners/ groups [age range of learners] if applicable	Min/ Max # of learners (if applicable)	Sector (e.g, professional, higher education, community)	Prerequisites required of learners if applicable (education)	EQF (European Qualifications Framework) level (or Irish NFQ) indicative only	Time for LU (aim is 50 minutes per learning unit)	Course delivery format (e.g. in-person, hybrid, online)
Transdisciplinary - sciences	undergraduate higher education	n/a	higher education		EQF 6 - Irish NFQ 7/8 Ordinary/H	50 minutes	Online
Overall Purpose	To showcase the role NBS can play in disaster mitigation, management and resilience of coastal communities.						
LU Summary (2-3 sentences)	This learning unit situates NBS in the context of disaster mitigation, management and the resilience of coastal communities. Learners can critically consider the role of NBS for flooding, coastal erosion and other coastal challenges due to climate change. The critical role of women in disaster mitigation, response and recovery offer a platform for analyzing these concepts.						
Learning Outcome 1	Connect NBS to elements of disaster mitigation, management and the resilience of coastal communities.						
Learning Outcome 2	Analyse how NBS positively impacts coastal communities when facing disaster scenarios, such as flooding and coastal erosion.						
Learning Outcome 3	Debate the critical role of women in supporting NBS for disaster mitigation, response and recovery.						
Learning Outcome 4							

Activities and Elements of Learning

Aim that each learning unit include at least 4 activities for an interactive learning experience

Time (duration of activity)	Aims - linked to NBS concepts or topics)	Link to Learning Outcome	Learning Activity [PPT Slide # - if applicable]	Teacher action/activity (Learner action/activity)	Confirmation of learner's learning (assessment of learning)	Link to online NBS resources (and/or academic resources with DOI as relevant)	Offline resources and materials (e.g. post-its,)
00:00 (10 minutes)	Introduction to NBS and disaster management	1	Exploring disasters and management in coastal communities	Present definitions and act as facilitator to enable learners to explore disasters in coastal communities. ASK: What coastal NBS practices are you aware of? How do they mitigate for disasters or create resilience?	Learners participate by listing and exploring examples of disasters in a large group		
00:10 (20 minutes)	Present a case study and discuss to consider disaster management and resilience of coastal communities	2		Present case study (Aarhus Denmark) related to disaster management and coastal resilience - ASK: In what ways is NBS supporting disaster management or creating coastal resilience? How? What learning did you gain from this case study? Learners discuss	Learners respond to the questions asked in break-out groups (15 minutes) and then respond back to the large class (5 minutes)		Break-out groups

00:30 (15 minutes)	Debate the critical role of women in supporting NBS for disaster mitigation, response and recovery.	3	Explore women's role in disaster mitigation	Teacher ASKS: why do you think women can play an important role in supporting NBS for disaster mitigation, response and recovery? Consider why these factors related to women emerge and link to NBS. Discuss in pairs	Break-out groups of 2 learners to discuss the questions (10 minutes) report back to the main group		Break out rooms
00:45 (5 minutes)	Reflect on key learning from this Learning Unit	1, 2,3	Learners reflect on their key learning on NBS and disaster management and resilience	ASK: What surprised you about NBS and disaster management and resilience? What new learning on NBS would you share with others?	Learners respond to the question in the chat and in an online discussion		Chat function

NBS- Application of Curriculum, Trends and Skills

Curriculum integration (how it may connect to curriculum)	
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<p><u>Teaching & Learning Trends employed</u></p> <p>Highlight all that apply</p> <p>(Source)</p>	<p>Project-based learning: e.g., students work in groups on a research project on greenhouses and the greenhouse effect, alternatives to waste management or investigate what are the views of their peers on climate change.</p>	<p>Peer learning: e.g., students work in groups, evaluate the work of their peers, or develop assessment questions to assess peers.</p>	<p>Problem-based Learning: e.g., students are introduced to a problem and challenged to find a solution together based on the information provided to them.</p>	<p>Student-centred learning: the learning scenarios are not based on classical instruction by the teacher, but they are expected to actively engage students in the lessons.</p>	
<p>21st Century Skills</p> <p>Highlight all that apply</p> <p>(Source)*</p>	<p>Creativity: e.g., students think of various solutions for promoting a better lifestyle in their communities or encourage greener solutions to their schools' issues.</p>	<p>Information/Media literacy: students explore examples of NBS, research similar solutions in other communities.</p>	<p>Collaboration: e.g., students work in groups and engage in task division to produce outputs.</p>	<p>Critical thinking: e.g., students learn that a debate on deforestation or climate change does not consist of two opposing camps only but involves many stakeholders with different perspectives.</p>	<p>Communication: e.g., students present their work to the whole class and learn to put forth strong arguments based on facts.</p>

*Gras-Velázquez, À., Mulvik, I. B., Campodonio, A., Nada, C. & Pocze, B. (2020) *Nature-Based Solutions in education - Validation report, European Commission, August 2020* [accessed on 25/03/2024 <https://files.eun.org/NBS/NBS-pilot-validation-report-final.pdf>] p.8.

<p>GreenComp - European Sustainability Competency Framework <u>Highlight all that apply</u></p> <p>(Source) 1- Embodying Sustainability Values and 2 - Embracing Complexity in Sustainability (see pp.13-14)</p>	<p>1.1 Valuing Sustainability: To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values</p>	<p>1.2 Support Fairness: To support equity and justice for current and future generations and learn from previous generations for sustainability</p>	<p>1.3 Promoting Nature: To acknowledge that humans are part of nature; and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems</p>	<p>2.1 Systems Thinking: To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems.</p>	<p>2.2 Critical Thinking: To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.</p>	<p>2.3 Problem Solving: To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to identify suitable approaches to anticipating and preventing problems, and to mitigating and adapting to already existing problems</p>
<p>GreenComp - European Sustainability Competency Framework <u>Highlight all that apply</u></p> <p>(Source) 3- Envisioning sustainable futures and 4 - Acting for Sustainability (see pp.13-14)</p>	<p>3.1 Futures Literacy: To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future.</p>	<p>3.2 Adaptability: To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk. generations and learn from previous generations for sustainability</p>	<p>3.3 Exploratory Thinking: To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods.</p>	<p>4.1 Political Agency: To navigate the political system, identify political responsibility and accountability for unsustainable behaviour, and demand effective policies for sustainability.</p>	<p>4.2 Collective Action: To act for change in collaboration with others.</p>	<p>4.3 Individual Initiative: To identify own potential for sustainability and to actively contribute to improving prospects for the community and the planet</p>

Author and organisation to credit when using the LU	
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Teacher Resources (If 'Notes' are used in the related PowerPoint presentation please indicate here)	Learner Resources (e.g. academic articles or links) for advanced reading or review (citation in individual cells)
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NBS Keywords Checklist (tick here below)

	<i>Forest Preservation</i>
	<i>Forest Restoration</i>
	<i>Forest enhanced management for woodfuel harvest</i>
	<i>Forest Production</i>
	<i>Grassland Preservation</i>
	<i>Grassland Restoration</i>
	<i>Grassland grazing management</i>
	<i>Coastal Preservation</i>
x	<i>Coastal Restoration</i>
x	<i>Coastal maintenance of slope vegetation</i>
x	<i>Maintenance of coastal, floodplain and riverine vegetation</i>
	<i>Agroforestry</i>
	<i>Reduce tillage and carbon restoration practices</i>
	<i>Agricultural intensification</i>
	<i>Urban forests and green spaces</i>
	<i>Urban green roofs</i>
	<i>Climate-change adaptation and mitigation</i>
	<i>Sustainable cities/ sustainable communities</i>
	<i>Re-naturing cities/ re-naturing communities</i>
	<i>Urban regeneration</i>
x	<i>Coastal resilience</i>

<https://op.europa.eu/en/publicat>

<https://files.wri.org/d8/s3fs-publ>

IUCN (2022)

Nature-based Solutions

Višće

<https://www.naturebasedsolutio>

x	Multi-functional watershed management
	Enhancing the insurance value of ecosystems
	Sustainability of the use of matter and energy
	Sustainable development
	Innovating with nature
	Biodiversity
	Nature-based enterprises
	Nature-based entrepreneurship
	NBS and new business and investment models
	Citizen participation, stakeholder/community consultation
x	Disaster risk reduction
x	Risk management and resilience
	NBS policy development and implementation
	NBS research
	Green infrastructure
	Green finance / sustainable finance
	Ecosystem services and ecosystem-based approaches
	Rural municipal/local authority/government planning
	Coastal municipal/local authority/government planning
	Urban municipal/local authority/government planning
	Improving well-being and quality of life
	NBS and new business and investment models
	NBS and CCAM (Connected, Cooperative and Automated Mobility)
	Other 1: (Please specify)
	Other 2: (Please specify)
	Other 3: (Please specify)

Keywords Source 1: United Nations Environment Programme (2020). *The Economics of Nature-based Solutions: Current Status and Future Priorities*. United Nations Environment Programme Nairobi., p.5. (keywords above in italics)

Keywords Source 2: Faivre N, Fritz M, Freitas T, de Boissezon B, Vandewoestijne S. (2017)'Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges.' *Environ Res.* 2017 Nov;159:509-518. doi: 10.1016/j.envres.2017.08.032. Epub 2017 Sep 8. PMID: 28886502.

Keywords Source 3: European Commission (2015). *Towards an EU Research and Innovation policy agenda for Nature-Based Solutions & Re-Naturing Cities: Final Report of the Horizon 2020 Expert Group on 'Nature-Based Solutions and Re-Naturing Cities' Full Version*. Luxembourg: Publications Office.

ic/2023-07/enabling-rural-women-key-actors-nature-based-solutions.pdf?VersionId=MzTSxu_C2szl1eAmctz3fS66VkfTuwN