Teaching Materials for ESD

Problem Framing in Sustainability: prevention, Mitigation and Adaptation

Workshop Slides

This work was funded by the National Forum/Higher Education Authority under the Teaching and Learning Enhancement Fund.

Facilitator notes:
These example workshop slides are part of a library of open educational resources developed by Trinity College Dublin (please see last slide for full acknowledgements) that serves as a digital repository where educators can freely access, share, and adapt high-quality teaching and learning materials focused on education for sustainable development. Comprising lesson plans, multimedia resources and a variety of digital content these resources are designed to help learners understand and address complex sustainability challenges across environmental, social, and economic dimensions. For more information on the context for these slides, please visit: https://www.tcd.ie/academicpractice/resources/education-for-sustainable-development/teaching-materials-for-esd/

The material in these slides is designed to align with the Teaching Guide and Workshop Pack for 'the Problem Framing in Sustainability: prevention, Mitigation and Adaptation' theme available via https://www.tcd.ie/academicpractice/resources/education-for-sustainable-development/teaching-materials-for-esd/

Prework/preparation: MUST complete before workshop

Problem Framing in Sustainability: prevention, Mitigation and Adaptation

In preparation for today's workshop you were asked to complete **tasks related to each of three perspectives.**

They are available in folder 'Problem Framing in Sustainability: prevention, Mitigation and Adaptation'.

1.Perspective 1 Climate Migration [Immigration]: Infrastructure [housing/education/healthcare] - [LMS/VLE]
2.Perspective 2 Climate Migration [Immigration]: Social tensions [job competition, social services, and cultural integration] - [LMS/VLE]
3.Perspective 3 Climate Migration [Immigration]: Environmental Degradation [Land and water usage; and challenging waste and emissions management systems. [LMS/VLE]

Each contains questions related to development of a problem frame AND a problem statement viewed from three perspectives on the case study in turn: Infrastructure, Social tensions and Environmental degradation.

Each 'test'/survey presents prompt questions for the scenario posed. Please remember that these activities do not have 'Right' and 'Wrong' answers. They are completed individually prior to attending the workshop.

As you will need a record of your response to the prompt questions for engagement in workshop activities, please ensure that you **photograph, take a screen shot or print a record of your responses before you 'submit'**. Thank you.

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Facilitator notes:

- To accommodate a range of terminology identified amongst colleagues involved in teaching, the slide includes reference to LMS (Learning Management System) and VLE (Virtual Learning Environment) – of which Blackboard Learn is one such system.
- It is an advantage to learners that they be familiar with all three perspectives (versions of the case) for the workshop. [… including that some subliminal reflection on the case will inevitably happen between completion and attendance at the workshop!]
- Completion of activities related to review of scenarios within a three-hour workshop can be accommodated – provided the facilitator insists that there is no discussion/ each learner completes independently… before workshop group activities begin. However deeper engagement with the materials, and related learning, is likely to be achieved if scenario review is completed prior to learner attendance at the workshop

Reminder in advance of the workshop e.g. announcement, instructions on prework activities or similar:

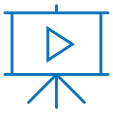
- In order to get the best from the workshop, you should reflect on the Learning outcomes and case scenarios in advance – and be prepared to engage with your group from the beginning.
- When you get to the workshop, your group will be assigned one of the

three ‘Problem Frames’ (in this case your ‘team’ is assigned one of the three folders held by the Government official) on the case.

- The group members will share their individual preparatory work– reminder that delays with sharing group member’s individual reflections will impact negatively on the group’s ability to progress in a timely fashion.

Prework/preparation: Ideally review videos before the workshop

Problem Framing in Sustainability: Prevention, Mitigation and Adaptation



Videos for this theme (also available via the webpage below with fuller video descriptions):

- Part 1: Characteristics of, and Factors Influencing, Complex Systems
- Part 2: Problem Framing and Problem Statements for Sustainability Challenges
- Part 3: Risk Management Strategies for Solution-oriented Approaches to Prevention, Mitigation and Adaption

Resources for this theme on the Centre for Academic Practice, Trinity College website

The theme of 'Problem Framing in Sustainability: Prevention, Mitigation and Adaptation' is used to introduce the concepts of problem framing and problem statements, in the context of risk mitigation and adaptation, and to explore how risk management strategies to address current and future challenges related to climate change might be developed. Housing and shelter, and income and work impacts on global equity are considered. Climate migration further to sea-level rise frames the scenarios used in the workshop.

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Facilitator notes:

- To accommodate a range of terminology identified amongst colleagues involved in teaching, the slide includes reference to the three videos aligned with the 'Problem Framing in Sustainability: Prevention, Mitigation and Adaptation' theme, available on www.tcd.ie/academicpractice/resources/education-for-sustainable-development/teaching-materials-for-esd/

- Learners will be in a better position to actively learn during the workshop if they are familiar with these videos, and the background to Kiribati and 'Country B' to which citizens of Kiribati migrate to as their 'situated learning' context, prior to the workshop. [… including that some subliminal reflection on 'Problem Framing in Sustainability: Prevention, Mitigation and Adaptation' will inevitably happen between completion and attendance at the workshop!]

- While a brief overview of the content in these videos could be accommodated at the start of a three-hour workshop– this approach would not be conducive to maximising the experiential learning approach envisaged for this workshop.

(Icons are stock PowerPoint image; remove/change if needed)

Problem Framing in Sustainability: prevention, Mitigation and Adaptation

Facilitation of Workshop

[Add facilitator's name here]

[Add facilitator's title here]

[Add module/associated course details here as needed]

[PLACEHOLDER]

The Barton and Grant – 'A health map for the local human habitat (2006)' diagram can be downloaded from https://www.researchgate.net/figure/The-health-map_fig1_6647677

(DOI:10.1177/1466424006070466) and added to this slide instead of this placeholder box (it is not available for distribution under a Creative Commons licence)

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Facilitator notes.

Adapt as appropriate to context – acknowledgements (see next slide) should always be included

Problem framing in sustainability: Prevention, Mitigation and Adaptation. [Prompts for activities/facilitation]

Theme 4 Aim(s):

- to assure that participants are able to formulate challenges to sustainability as problems, and develop approaches for preventing, mitigating, or adapting to these problems. (Trinity Graduate Attribute Focus = to Think Independently).

Learning Outcomes:

By the end of this Workshop/ session, participants will be able to:

(i) Transform complex cases into a problem to solve (i.e. write a sustainability challenge as a problem statement).

(ii) (Demonstrate the ability to) prepare a RISK management strategy to address a named sustainability problem.

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Facilitator notes (for information/suggestions – not intended to be read our verbatim:

- Welcome to the Theme/Block of "Problem framing in sustainability: Prevention, Mitigation and Adaptation.
- Outline that the primary aim is to empower you to formulate challenges to sustainability as problems, and develop approaches for preventing, mitigating, or adapting to these problems as we engage in debates surrounding how to address challenges related to sustainable development.
    - Firstly - enable and support participants in learning how to transform complex cases into a problem to solve (i.e. write a sustainability challenge as a problem statement).
    - And secondly, - To engage in discussion and debate about how to most effectively develop a RISK management strategy to address a named sustainability problem.

Learning Outcomes:
By the end of this session, participants will be able to:

(i) Transform complex cases into a problem to solve (i.e. write a sustainability challenge as a problem statement).

(ii) Prepare a RISK management strategy to address a named sustainability problem.

This workshop is designed to be an 'active space' where you will grapple with real-world scenarios, have peers challenge your assumptions, and further develop your abilities to frame problems and develop problem statements in preparation for addressing sustainability challenges.

As we explore the complexities of sustainable development, your active engagement and your willingness to consider diverse perspectives will be key.

In order to get the best from the workshop, you should reflect on the Learning outcomes and case scenarios in advance – and be prepared to engage with your group from the beginning.
when you get to the workshop, your group will be assigned one of the three 'Problem Frames' (in this case your 'team' is assigned one of the three folders held by the Government official) on the case.

The group members will share their individual preparatory work– reminder that delays with sharing group member's individual reflections will impact negatively on the group's ability to progress in a timely fashion.

Prework/preparation: Confirm completion prior to workshop

Problem Framing in Sustainability: prevention, Mitigation and Adaptation

In preparation for today's workshop you were asked to complete **tasks related to each of three perspectives.**

They are available in folder 'Problem Framing in Sustainability: prevention, Mitigation and Adaptation'.

1.Perspective 1 Climate Migration [Immigration]: Infrastructure [housing/education/healthcare] - [LMS/VLE]
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Each contains questions related to development of a problem frame AND a problem statement viewed from three perspectives on the case study in turn: Infrastructure, Social tensions and Environmental degradation.

Each 'test'/survey presents prompt questions for the scenario posed. Please remember that these activities do not have 'Right' and 'Wrong' answers. They are completed individually prior to attending the workshop.

As you will need a record of your response to the prompt questions for engagement in workshop activities, please ensure that you **photograph, take a screen shot or print a record of your responses before you 'submit'**. Thank you.

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Facilitator notes:

Facilitator might check whether any attendee has not completed prework – management/accommodate by adjusting allocation to groups if essential to ensure appropriate background within each group.

- To accommodate a range of terminology identified amongst colleagues involved in teaching, the slide includes reference to LMS (Learning Management System) and VLE (Virtual Learning Environment) – of which Blackboard Learn is one such system.
- It is an advantage to learners that they be familiar with all three perspectives (versions of the case) for the workshop. [… including that some subliminal reflection on the case will inevitably happen between completion and attendance at the workshop!]
- Completion of activities related to review of scenarios within a three-hour workshop can be accommodated – provided the facilitator insists that there is no discussion/ each learner completes independently… before workshop group activities begin. However deeper engagement with the materials, and related learning, is likely to be achieved if scenario review is completed prior to learner attendance at the workshop

Workshop process: Session outline/plan including timings

Workshop 4 Workshop Session Plan - prework complete three perspectives on BBL		
Block 4 Title: Problem framing in sustainability: Prevention, Mitigation and Adaptation.		
Block 4 aim(s): to assure that participants are able to formulate challenges to sustainability as problems, and develop approaches for preventing, mitigating, or adapting to these problems. (Graduate Attribute = Think Independently)		
Learning Outcomes for this session – participants will be able to: (i) Transform complex cases into a problem to solve (i.e. write a sustainability challenge as a problem statement) and (ii)Prepare a RISK management strategy to address a named sustainability problem.		**Workshop Duration: 1hr 50mins (2hr slot)**
Time	**Activity**	**students/parts**
0 to 5m	• **Organise in tables, introduce to group members etc**	5mins – intro
5-15m	• Facilitator / academic -Introduction to the workshop and allocate one perspective to each group of 5. • Assign a frame to each table, added associated challenges. Handout #1, includes group activity sheet & definitions.	5mins + 5mins
15-30m	**Task 1:** Groups (of 5) identify key challenges presented and brainstorm how the issue and its challenges might be comprehensively framed. Individual's share DRAFTs from prework.	15min
30-45m	**Task 2:** Group members work collaboratively to define the problem (problem statement) in 50 to 100 words, taking into account the identified challenges – write the problem statement clearly on **Handout #2, or use flipchart, so that other groups can read it.** Individual's share DRAFT problem statements completed during prework activities.	15mins
45-60m	• Enable three Problem frames /groups to share (on template provided) definitions of the problem (problem statements) in **order to identify gaps, repetition of effort or overlap**. • Groups may photograph for comparison purposes. • Problem statements may be revised if considered appropriate.	5mins + 10mins
60-75m	**Task 3:** Each group then p**repares a RISK management strategy to address one [named] sustainability problem** - taking account of recognised risk management processes, and the principles of mitigation and/or adaptation. [On **Handout #3** - template provided].	15mins
75-100	Each group presents their RISK management strategy for **one named sustainability problem** explaining the rationale behind their choices. ***4 x presenters – total 3 minutes, a chair and scribe. Short Q&A. Other two groups consult to agree feedback options – 2mins.*** .	25mins
100 - 110	*Facilitated discussion / Q&A*	10min

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Facilitator notes

– This provides an outline of the process used in the workshop as designed. Revert to this slide as needed during the workshop.

- Say to students that you will regularly remind them regarding timeframes – in order to ensure they complete all tasks.

Key tips for facilitators:

- Provision of handouts at appropriate times. Tip: use colour coding for handouts, especially where one Academic/Lead facilitator has several sets of 15+ learners in the room.
- Aim to assign learners to groups rather than let them self-select – group learning is increased if there's there is e.g. a gender mix in each group of 5, the facilitator disperses groups of close friends to different peer-learning groups etc
- When learners are completing activities on an individual basis (individual constructivism), ensure that there is silence in the room/ do not permit them to confer at this stage.
- Move amongst the groups during discussions to confirm that everyone is engaged/ intentionally ask questions of any learners that appears disengaged etc.

Suggested prompt questions for facilitated discussion at end of workshop
(depending on time available:

- To what extent did the government official make greater progress by 'dividing' the teams into three focussed groups?
- What would you say about the process – especially the opportunity to see what others' problem statements were, midway through the process?

Optional additional activity:
Handout #3 has an optional page 2 which can be given **to each individual student** to prepares draft feedback – depending on time available, dynamics in group etc. If used, One minute allowed between each group to write feedback.

Overview of activities in, and related to, this workshop

- Each group is assigned one of the three perspectives, with relevant activities on template. [**Handout #1**]
- Highlight if after/end of workshop requires c300word group agreed Risk Management Strategy (**Handout #5**).
- **Task 1**: Each student shares their prework i.e. individually prepared problem frame for the group's assigned perspective, and the group then collaborates to agree a defined problem frame (Handout #1).
- **Task 2**: : Each student shares their prework i.e. individually prepared problem statement for the group's assigned perspective. Groups must use their agreed problem frame to formulate a problem statement which encompasses the challenges identified i.e. Groups must define the core problem/statement in 50-100 words.
- Groups then make their problem statements visible to other 'perspectives/groups. Groups may adapt their own statement following consideration of the three problem statements in tandem. (**Handout #2**).
- **Task 3**: Each group then prepares a RISK management strategy to address one [named] sustainability problem - taking account of recognised risk management processes, and the principles of mitigation and/or adaptation. (**Handout #3**).
- **Task 4**: Each group presents their RISK management strategy for one named sustainability problem (to the government official co-ordinating the response) explaining the rationale behind their choices.
  - 4 x presenters – total 3 minutes, a chair and scribe. Short Q&A.
  - Other two groups consult to agree feedback options – 2mins.

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Facilitator notes:

Task 1: The process of first sharing their individually developed draft problem frames, and then seeking to agree a shared view, forces them to engage with alternate perspectives, and to discuss/debate/negotiate their way to group agreement. Remind them that there are no right or wrong answers, and reassure them that active engagement / a curious approach are all valuable parts of the learning experience.

Task 2: The process of first sharing their individually developed draft problem statements (prework activities) enables and drives peer interaction and debate from a variety of starting points. Facilitators should be able to observe that all students are engaging i.e. not opting out of this interaction and debate, and are prepared to share their independently prepared ideas. (Graduate attribute = to think independently, likely to be observable in this workshop)

Task 3: Groups typically find that members of the group have different priorities for inclusion in the risk management strategy. This activity forces them to engage with alternate perspectives, discuss/debate/negotiate their way to group agreement etc. It will be common that members of a peer-learning group will agree on a range of sustainability problems related to their assigned perspective, but struggle to agree on the single named sustainability problem to address in their presentation. … all

valuable aspects of the learning experience.

Template = format in which group activities to be submitted:
This (signed) page can be photographed by learners for upload to the LMS/VLE.

Please complete the following to ensure that you have evidence of successful engagement in this workshop. For those keeping journals/ePortfolio, you may upload photos to the LMS/VLE e.g. Blackboard

Instructions:

- **Cleary print each student's name, and each student initials where indicated.**
- **Tick under each 'roleplay' demonstrated by student,**
- **Ensure that you ask the workshop facilitator to initial/ print name/date your completed groupwork summary sheet.**
- **each student photographs for upload to VLE/LMS e.g. Blackboard Forum/Journal etc as applicable**

Student Name	Student initials	Shares Individually completed (advance) frame & statement	Contributes to proposed changes to other groups drafts	Role as presenter	Role as chair, scribe or Q&A	Role in development of group's management strategy

Workshop facilitator to initial, date and 'print name':

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Facilitator notes:

- Highlight this part of the template – adapt, if required, to various contexts and/or to curriculum/programme team's preferences.
- If used as outlined above, each student is responsible for assuring that they have a photo of the completed template after it has been signed/ and they are individually responsible for uploading the photo to the VLE/LMS/Journal or ePortfolio according to curriculum/programme team requirements
- Recommendation: that this should be done before leaving the workshop OR in a defined timeframe directly thereafter.

Case/ Scenario for the workshop:

Country B is facing an unprecedented immigration crisis as some residents of the neighbouring Kiribati seek refuge due to the environmental impact of rising sea levels and extreme weather events. Despite Kiribati's best efforts to adapt to these challenges, this has been insufficient against the accelerating climate crisis. Almost half of Kiribati's population, estimated at around 130,000 people, have lost their homes, as their communities have submerged underwater. In contrast, Country B has a population of approximately 700,000 people, and has already taken in 20,000 climate migrants from Kiribati.

	Situation	Response
Kiribati https://storymaps.arcgis.com/collections/af3858d32f84488f92dfaeef068fff52?item=2]:]	Sinking coastlines, loss of arable land, and heightened vulnerability to cyclones and storm surges.	The government of Kiribati initiates a migration programme, urging citizens to relocate to Country B for their safety and a chance at a stable life.
Country B:	Country B is also an island nation, vulnerable to sea-level rise and extreme weather events and welcomes the citizens of Kiribati.	Country B understands the urgency of the situation. However, the rapid influx of migrants will place further stress on resources, infrastructure [housing/education/healthcare], and long term sustainability.

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Facilitator notes:

Emphasise that Country B is the country to which climate migrants from Kiribati are emigrating – clarify to all three perspectives

Kiribati' details have been adapted for the purpose of this teaching activity. Many people in Kiribati do not want to leave and are actively fighting to save their islands while preparing for worst-case scenarios where they may have to relocate. This scenario does not intend to misrepresent the agency and resilience of the citizens of Kiribati in their efforts to address climate challenges.

The Chief Government spokesperson in country B has three different problem frames [(i) Infrastructure, (ii) social tensions and (iii) environmental degradation], all prioritised by policy makers, which are expected to collectively address the climate migration issue for Country B. Your group, composed entirely of senior government employees, has been provided with the following instructions in relation to the Problem Frame assigned.

Task 1: [*Template for responses is provided]*

- Initial Reactions: Identify and list three different issues/ challenges to sustainability you can identify in this scenario?
- Further analysis: What are the root causes of the most concerning problem you have identified?
- Considering Perspectives: What groups should be consulted in framing the issues you have highlighted?

Problem Framing is a process that can help community members evaluate the benefits and drawbacks of a potential course of action on an issue.

- 'You' must remember that how an issue is framed influences what gets prioritised.
- Framing is a complex process that benefits from multiple perspectives, and generally requires collaboration to address the overall problem.
- A structured approach to framing helps clarifies risks and a cogent series of actions.

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Facilitator notes

•Emphasise to students that in this workshop the role-play for the three perspectives relates to the Chief Government spokesperson trying to balance the arguments/proposals put forward by three different problem frames on the same issue.

•Groups are therefore role-playing the frame during the workshop, but asked to consider their final 'advice' as a coherent piece of the challenges faced by country B.

•Highlight to students that any proposed solutions, i.e. their risk management strategies, will have to be realistic.

Challenges and Implications (Country B)- Problem Frames specified

Task: Collaboratively undertake a process of problem framing in order to formulate a problem statement which encompasses the challenges identified. [**Groups must define the core problem/statement in 50-100 words.]**

Frame 1: Infrastructure: Country B's housing, education and healthcare systems are under immense pressure due to the rapid influx of migrants. Identify issues/ challenges to sustainability **related to infrastructure [housing/ education/ healthcare]** likely to arise with an influx of migrants into the communities of Country B**.**	**Frame 2: Social Tensions:** Some segments of Country B's population express concerns about job competition, strain on social services, and cultural integration challenges. Identify issues/ challenges to sustainability **related to Social tensions [job competition/ strain on social services/ cultural integration**] that arise with an influx of migrants into the communities of Country B.	**Frame 3- Environmental Degradation:** The sudden population increase and rising sea levels also poses challenges to Country B for sustainability. The rising rates of immigration are exacerbating environmental vulnerabilities due to increased land and water usage, and challenging waste and emissions management systems. Identify issues/ challenges to sustainability **related** to **Environmental Degradation [land and water usage, waste and emissions]** that could arise with the rapid increase of population in Country B.

Problem Framing is a process that can help community members evaluate the benefits and drawbacks of a potential course of action on an issue.

- 'You' must remember that how an issue is framed influences what gets prioritised.
- Framing is a complex process that benefits from multiple perspectives, and generally requires collaboration to address the overall problem.
- A structured approach to framing helps clarifies risks and a cogent series of actions.

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Facilitator notes:

Emphasise that its role-play, and they should aim to engage as a freshman/first year student would.

These scenarios/cases are included in the slide Deck for information purposes only – **the facilitator does not need to read out in its entirety etc.**

1). Emphasise that Task #1 is to collaboratively undertake a process of problem framing in order to formulate a problem statement which encompasses the challenges identified. [**'You'/your group must define the core problem/statement in 50-100 words.]** Complete this process in the context of the information provided regarding Country B.

2). Emphasise that, regardless of the perspective assigned to the group, **Problem Framing is a process that can help community members evaluate the benefits and drawbacks of a potential course of action on an issue.**

- 'You' must remember that how an issue is framed influences what gets prioritised.
- Framing is a complex process that benefits from multiple perspectives, and generally requires collaboration to address the overall problem.
- A structured approach to framing helps clarifies risks and a cogent series of actions.

3). Attention to the focus for your group's assigned perspective, within the

allocated frame [Infrastructure, Social tensions or environmental degradation].

Group Work for Task #1 is on handout #1: Time allocated is 10 -15mins. Then move onto Task #2.

Task 1 (10 to 15 mins):
Identify challenges to sustainability, and problems **related to Environmental Degradation [land and water usage, and challenging waste and emissions management systems]** likely to arise with an influx of migrants into the communities of Country B by considering the following questions:

- Initial Reactions: Identify and list three different issues/ challenges to sustainability you can identify in this scenario?
- Further analysis: What are the root causes of the most concerning problem you have identified?
- Considering Perspectives: What groups should be consulted in framing the issues you have highlighted?

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Facilitator notes:
Holding slide which can be used while the groups work through activities related to task #1

Screenshot of templates they will use.

(Icon is a stock PowerPoint image; remove/change if needed)

The Chief Government spokesperson in country B has three different problem frames [(i) Infrastructure, (ii) social tensions and (iii) environmental degradation], all prioritised by policy makers, which are expected to collectively address the climate migration issue for Country B. Your group, composed entirely of senior government employees, has been provided with the following instructions in relation to the Problem Frame assigned.

Task 2: [*Template for responses is provided]*

(1) Referred to as a problem statement, define the core problem from your group's 'perspective' (assigned Frame) in 50-100 words based on the challenges/issues identified, and

(2) Share and compare alternate problem statements (three different perspectives), and

(3) if considered appropriate, (e.g. if comparisons identify gaps, repetition of effort or overlap) amend/adapt the draft problem statement based on further insight from comparators/ other perspectives on the 'problem'.

Write the problem statement clearly on a flipchart OR [**Handout #2**] as provided so that other groups can read / photograph.

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Facilitator notes

•Emphasise to students that in this workshop the role-play for the three perspectives relates to the Chief Government spokesperson trying to balance the arguments/proposals put forward by three different problem frames on the same issue.

•Groups are therefore role-playing the frame during the workshop, but asked to consider their final 'advice' as a coherent piece of the challenges faced by country B.

•Highlight to students that any proposed solutions, i.e. their risk management strategies, will have to be realistic.

Group Work for Task #2 is on handout #2: Time allocated is 25 - 30mins. Then move onto Task #3.

Task #2: Problem statement development **[Handout #2**, P1]

Please complete all sections during the workshop. Ensure that the facilitator signs the completed worksheet for the group, and each member photographs it, before you leave the workshop.

First version of group's Problem statement – as shared with 2 other groups (max circa 50 words)

Final version of group' problem statement – i.e. the group has an option to update after viewing other groups' problem statements (max circa 50 words)

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Facilitator notes:
Holding slide which can be used while the groups work through activities related to task #2

Screenshot of templates they will use.

(Icon is a stock PowerPoint image; remove/change if needed)

Task #3 (a)

Group **prepares a RISK management strategy to address one [named] challenge from their problem frame.**

Take account of recognised risk management processes, and the principles of mitigation and/or adaptation.
[**Handout #3**] 15mins

Step 1- Risk Identification/ Define Risks – as indicated in Problem Statement (who/what/when or where/why) e.g.:

- Identify the key challenge(s)/issue(s) that Country B [your group's assigned frame] is facing as a result of immigration.
- **Who** is most at risk in the wake of the immigration crisis [your group's assigned frame]?
- **What** is most at risk in the wake of the immigration crisis [your group's assigned frame]?

Step 2- Risk Evaluation/ 'estimation' (Rank Risks) e.g.:

- Propose three likely 'root causes' of the key challenge(s)/issue(s) identified in Step 1.
- Identify the potential consequences/impact if the challenge(s) you identified arise in Country B.

Step 3- Adaptation Measures/ risk controls (also referred to as Solutions) e.g.:

- Identify/briefly outline up to three strategies to address your top ranked challenge/issue.
- Choose one strategy and justify your choice of strategy e.g. based on costs/ benefits.

Step 4- Action and Monitoring (Implement Solutions and check impact/effect):

- Develop a plan to implement the selected strategy (template or flipchart).
- Ideally at least one member of those presenting indicates how your group would monitor progress and effectiveness of implemented solutions, and note this on the template shared with other groups.

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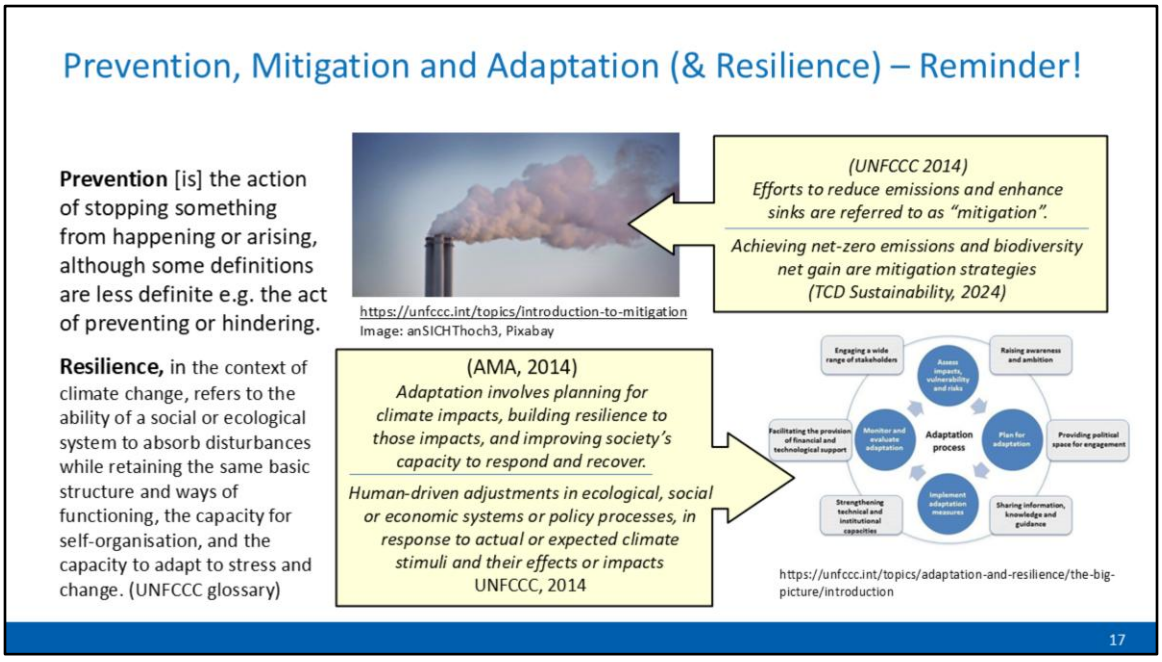
Facilitator notes:

Emphasise that there must be 4 presenters, total max is 3 minutes and that others in the group need to identify as handling Q&A/other tasks

Steps 1 to 4 are from handout #3 in the workshop pack – on this slide for the facilitator's convenience



Facilitator notes:

Reminder that the concepts of mitigation and/or adaptation will feature on most risk management strategies – so please do review your notes from previous sessions and/or access the resources available to you on Blackboard.

Now that you understand framing, you will recognise that depending on the source of resources, their 'frame' may differ – even when describing these commonly used terms. E.g. TCD sustainability strategy, United Nations (UNFCCC = United Nations Framework Convention on Climate Change) and the world meteorological association… to name but a few.
Even amongst your own groups, it is likely that students will identify with different 'definitions and descriptions of these, and other, terms.

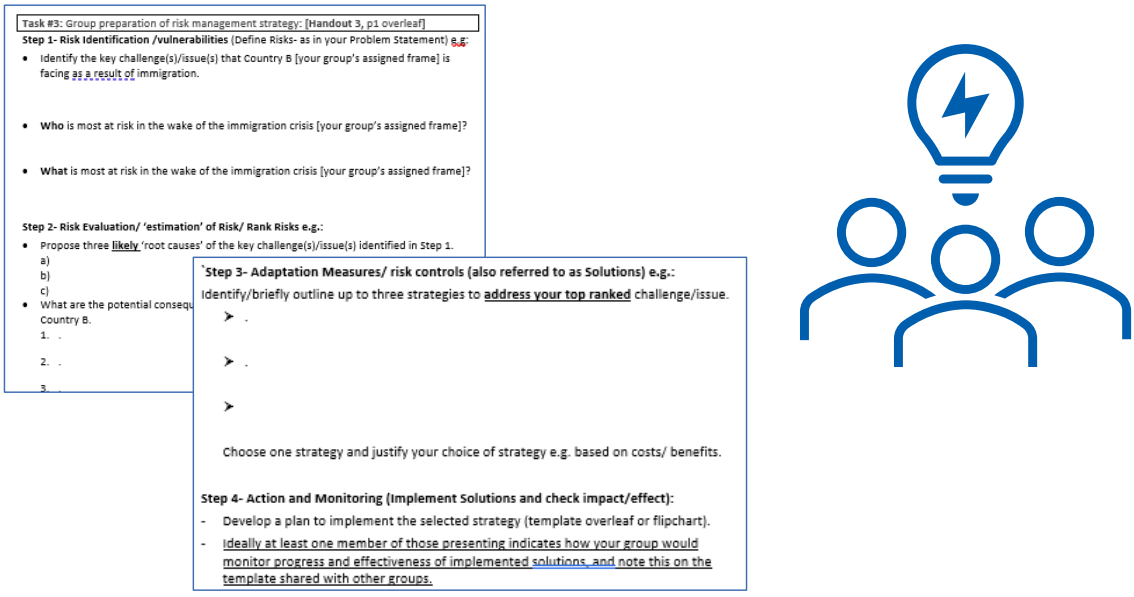
****
Additional background for speakers …. You may choose to spotlight some of the content e.g.

Resilience in the context of climate change refers to the ability of a social or

ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change. (UNFCCC glossary)

UN carbon ‘offset’ calculator: https://offset.climateneutralnow.org/footprintcalc

Group Work for Task #3 is on handout #3: Time allocated is 15mins. Groups must be prepared to present after 15minutes.



Task #3: Group preparation of risk management strategy: [Handout 3, p1 overleaf]

Step 1- Risk Identification /vulnerabilities (Define Risks- as in your Problem Statement) e.g:

- Identify the key challenge(s)/issue(s) that Country B [your group's assigned frame] is facing as a result of immigration.
- **Who** is most at risk in the wake of the immigration crisis [your group's assigned frame]?
- **What** is most at risk in the wake of the immigration crisis [your group's assigned frame]?

Step 2- Risk Evaluation/ 'estimation' of Risk/ Rank Risks e.g.:

- Propose three **likely** 'root causes' of the key challenge(s)/issue(s) identified in Step 1.
  a)
  b)
  c)
- What are the potential consequ
  Country B.
  1. .
  2. .
  3. .

`Step 3- Adaptation Measures/ risk controls (also referred to as Solutions) e.g.:

Identify/briefly outline up to three strategies to **address your top ranked** challenge/issue.

- .
- .
-

Choose one strategy and justify your choice of strategy e.g. based on costs/ benefits.

Step 4- Action and Monitoring (Implement Solutions and check impact/effect):

- Develop a plan to implement the selected strategy (template overleaf or flipchart).
- Ideally at least one member of those presenting indicates how your group would monitor progress and effectiveness of implemented solutions, and note this on the template shared with other groups.

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Facilitator notes:

Holding slide which can be used while the groups work through activities related to task #3 – preparation of presentation… 15 minutes.

Screenshots of templates they will use.

A total of 25minutes is allocated for presentations by all three groups – 3 minutes for 4x presenters.

(Icon is a stock PowerPoint image; remove/change if needed)

Template for presentations is on handout #4:
Time allocated is max 8 mins per group. 4 speakers share 3 mins.

Task #4: Optional Template group management strategy 'presentations'. [**Handout #3**, P.2]

[Prepare this template so that other groups can photograph it & can 'see' when you 'present'.
Ideally the group should include an indication of how they would monitor progress of the plan and effectiveness of implemented solutions].

Group Problem frame (please circle number 1, 2 or 3) =
1. Infrastructure [housing/education/healthcare],
2. Social tensions [job competition, social services, and cultural integration] or
3. Environmental degradation [land and water usage, and challenging waste and emissions management systems]

1	
2	
3	
4	

Q	*e.g. insert your perspective's/group's response to Question posed here*

Presentations review (i.e. Infrastructure, Social tensions or Environmental degradation)	**Presentation 'perspective' the group is reviewing=**	**Presentation 'perspective' the group is reviewing=**
After each presentation, your group collaborates (max 2mins) to agree proposal related to a change to the other strategy (ies) that would increase the likelihood of alignment with the other two strategies.	Proposed change to the management strategy:	Proposed change to the management strategy:

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Facilitator notes:

Holding slide which can be used while the presentations are completed.

A total of 25minutes is allocated for presentations by all three groups

Emphasise that there must be 4 presenters, total max is 3 minutes and that others in the group need to identify as handling Q&A/other tasks, otherwise some behaviours not likely to have been demonstrated by individual learners for relevant part(s) of the facilitator checklist.

- The groups learn much from having to identify an agreed question and its answer – the collaborative nature of workshop design drives groups to ask a question that spotlights gaps and/or repetition across the collective three perspectives/management plans.

- If the workshop runs short of time, groups can ask their questions so the Government official and other groups can hear them, even if time does not permit presenting groups to answer at that time. In such cases facilitators/curriculum might require that the group includes the response they would have made in the group submission after the workshop.

(Icon is a stock PowerPoint image; remove/change if needed)

Slides (4) aligned with Theme's Videos & Workshop pack

-aligned with Videos by Dr John Gallagher, 2024 and/or Theme Workshop pack, available at: www.tcd.ie/academicpractice/resources/education-for-sustainable-development/teaching-materials-for-esd/

- Guidance notes for learners
  - Raworth's Housing & Shelter, and Income & Work.
  - Problem Framing, Problem Statements and Risk Management.
- Selection of definitions for Mitigation
- Selection of definitions for Adaptation
- Significance of Climate migration further to sea-level rise as a case study.
- Facilitator checklist (Assessment process)
- The Final section = wrap-up and prompts for reflection (3 slides)

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Facilitator notes:

This slide is to remind facilitator that extracts/summaries from the workshop pack/videos are included on the following slides as follows:

- Guidance notes for learners – aligned with specific inclusions on Videos by Dr John Gallagher, 2024.
- Mitigation and adaptation
- Facilitator checklist (Assessment process)
- Wrap-up and prompts for reflection – end of workshop if time enabled.
- Tangier Island also has potential as prework and/or post-workshop activity.

Term/ ESD concept	Guidance for learners [Further detail in Videos Dr John Gallagher. [2024]
Housing (Shelter) **Video 1 [2:54]** ***Characteristics of, and factors influencing, complex systems.*** **Doughnut economics Lab.**	The concept of housing aims to ensure availability of sustainable and resilient homes that support creation of thriving communities and reduce the risk of natural disasters and climate change. Adequate drinking water and sanitation are essential components, and existing infrastructure can be challenged if flooding occurs and/or in times of greatly increased population.
Income and work **Video 1 [3:33]** ***Characteristics of, and factors influencing, complex systems.*** **Doughnut economics Lab.**	Work that is safe, meaningful and fairly paid provides essential income for households to meet core needs. Income and work shortfalls exist for more than 2 billion people globally and for many of those fortunate to have work, many must work in dangerous or exploitative conditions. This dimension explores what is decent and adequate with respect to income and work.
Problem framing **Video 2 [1:52]** ***Problem Framing and Problem Statements for sustainability challenges.***	The goal of Problem framing is to produce a problem statement and the process can be supported by use of a Matrix that evaluates the problem (a)from simple to complex, and (b) from well-structured to ill-structured. Framing is a composite of (i) where we place emphasis, (ii) how we explain a problem and (iii) what we fail to mention. Bias can have a negative impact.
Problem statements **Video 2 [2:53/ 11:39]** ***Problem Framing and Problem Statements for sustainability challenges.***	Problem statements clearly summarise how to address the: **who** has the problem, **what** is the problem, **when/where** does the problem occur, and **why** is it important to address for the (**who**) – for sustainability problems, the **why** generally includes concepts related to responsibility and advocacy.
Risk management **Video 3 [6:11]** ***Risk Management Strategies for Solutions-oriented Approaches to Prevention, Mitigation, and Adaptation.***	Risk management is a form of analysing complex systems as a structured process, with the aim of ensuring that the problem statement at hand is addressed without negative outcomes. Steps of a risk management process include risk identification including root cause analysis, assessment and evaluation of each of the risks identified for e.g. probability/impact. Risk management can take the form of prevention, mitigation and/or adaptation.

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Facilitator notes:

Concepts that have been introduced in lectures/videos and activities – reproduced here as reminders when preparing for the workshop. Links to discussions and references are provided as supports to those who are interested in further background.

- These are included in the slide Deck for information purposes only – **the facilitator does not need to read these out in their entirety etc.**

Mitigation: selection of definitions (Workshop pack **Handout #2, p2**)

United Nations Framework Convention on Climate Change (UNFCCC)
What is mitigation? As there is a direct relation between global average temperatures and the concentration of greenhouse gases in the atmosphere, the key for the solution to the climate change problem rests in decreasing the amount of emissions released into the atmosphere and in reducing the current concentration of carbon dioxide (CO2) by enhancing sinks (e.g. increasing the area of forests). Efforts to reduce emissions and enhance sinks are referred to as "mitigation". [*additional detail on handout/resource*]
Available at: https://unfccc.int/topics/introduction-to-mitigation

Trinity Sustainability Strategy, 2023-2030 (page 18).
Reducing climate change – this involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases (for example, the burning of fossil fuels for electricity, heat, or transport) or enhancing the sinks that accumulate and store these gases (such as the oceans, forests, and soil). The goal of mitigation is to avoid significant human interference with Earth's climate, stabilise GHG levels and allow ecosystems to adapt naturally to climate change, whist ensuring a sustainable food supply and economic development. Achieving net-zero emissions and biodiversity net gain are mitigation strategies. Available at: https://www.tcd.ie/media/tcd/provost/pdfs/sustainability/Trinity-Sustainability-Strategy-2023-2030.pdf

American Meteorological Society (Climate Change Risk management, 2014) (p.vi)
By reducing emissions, mitigation reduces society's future contributions to greenhouse gas concentrations in the atmosphere. Ultimately, this can help reduce the amount that climate will change and thereby increase the potential that societal impacts will remain manageable. Approaches to reducing emissions fall into several categories. These include 1) regulation; 2) research, development, and deployment of new technologies; 3) conservation; 4) efforts to increase public awareness; 5) positive incentives to encourage choices that lower emissions; and 6) adding a price to greenhouse gas emissions, which creates incentives to reduce emissions broadly. Available at: https://www.ametsoc.org/ams/assets/File/Climate_Policy_Study_final.pdf

22

Facilitator notes

Alert learners to the variation i.e. multiple versions, from reputable sources, can lead to additional debate etc.

For background information only Not intended to be read out in its entirety.

Facilitator's may choose to have a printed copy for each group… i.e. if the workshop policy is in-person/not using devices. See page 2, Handout #2, in the workshop pack.

UNFCCC truncated – see below for extended text:

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Mitigation – United Nations Framework Convention on Climate Change (UNFCCC)

What is mitigation? As there is a direct relation between global average temperatures and the concentration of greenhouse gases in the atmosphere, the key for the solution to the climate change problem rests in decreasing the amount of emissions released into the atmosphere and in reducing the current concentration of carbon dioxide (CO2) by enhancing sinks (e.g. increasing the area of forests). Efforts to reduce

emissions and enhance sinks are referred to as “mitigation”.
The Convention requires all Parties, keeping in mind their responsibilities and capabilities, to formulate and implement programmes containing measures to mitigate climate change. Such programmes target economic activity with an aim to incentivize actions that are cleaner or disincentive those that result in large amounts of GHGs. They include policies, incentives schemes and investment programmes which address all sectors, including energy generation and use, transport, buildings, industry, agriculture, forestry and other land use, and waste management.
Mitigation measures are translated in, for example, an increased use of renewable energy, the application of new technologies such as electric cars, or changes in practices or behaviours, such as driving less or changing one’s diet. Further, they include expanding forests and other sinks to remove greater amounts of CO2 from the atmosphere, or simply making improvements to a cookstove design.
Mitigation - Trinity Sustainability Strategy, 2023-2030 (page 18).
Reducing climate change – this involves reducing the flow of heat-trapping greenhouse gases into the atmosphere, either by reducing sources of these gases (for example, the burning of fossil fuels for electricity, heat, or transport) or enhancing the sinks that accumulate and store these gases (such as the oceans, forests, and soil). The goal of mitigation is to avoid significant human interference with Earth’s climate, stabilise GHG levels and allow ecosystems to adapt naturally to climate change, whist ensuring a sustainable food supply and economic development. Achieving net-zero emissions and biodiversity net gain are mitigation strategies.
Mitigation - American Meteorological Society (Climate Change Risk management, 2014) (p.vi)
By reducing emissions, mitigation reduces society’s future contributions to greenhouse gas concentrations in the atmosphere. Ultimately, this can help reduce the amount that climate will change and thereby increase the potential that societal impacts will remain manageable. Approaches to reducing emissions fall into several categories. These include 1) regulation; 2) research, development, and deployment of new technologies; 3) conservation; 4) efforts to increase public awareness; 5) positive incentives to encourage choices that lower emissions; and 6) adding a price to greenhouse gas emissions, which creates incentives to reduce emissions broadly.
Available at: https://unfccc.int/topics/introduction-to-mitigation
Available at: https://www.tcd.ie/media/tcd/provost/pdfs/sustainability/Trinity-Sustainability-Strategy-2023-2030.pdf
Available at:
https://www.ametsoc.org/ams/assets/File/Climate_Policy_Study_final.pdf

Adaptation : selection of definitions (Workshop pack **Handout #2, p2)**

United Nations Framework Convention on Climate Change (UNFCCC)
Adaptation: Human-driven adjustments in ecological, social or economic systems or policy processes, in response to actual or expected climate stimuli and their effects or impacts (LEG, 2011). Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (IPCC Fourth Assessment Report (AR4), 2007). **Adaptation benefits** The avoided damage costs or the accrued benefits following the adoption and implementation of adaptation measures (IPCC AR4, 2007)
Available at: https://unfccc.int/topics/introduction-to-mitigation ;
Additional Fact sheet on adaptation at https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_adaptation.pdf].

Trinity Sustainability Strategy, 2023-2030 (page 18).
Adapting to life in a changing climate – this involves adjusting to actual or expected future climate. The goal is to reduce risks from the harmful effects of climate change (like sea-level rise, more intense extreme-weather events, or food insecurity). It also includes making the most of any potential beneficial opportunities associated with climate change (for example, increased diversity of Irish-produced food, or increased ability to attract students). Available at: https://www.tcd.ie/media/tcd/provost/pdfs/sustainability/Trinity-Sustainability-Strategy-2023-2030.pdf

American Meteorological Society (Climate Change Risk management, 2014) (p.vi)
Adaptation involves planning for climate impacts, building resilience to those impacts, and improving society's capacity to respond and recover. This can help reduce damages and disruptions associated with climate change. Adaptation policy can include regulation to decrease vulnerability (e.g., through land-use planning and building codes); response planning; disaster recovery; impact assessment for critical systems and resources (e.g., water, health, biological systems, agriculture, and infrastructure); observations and monitoring; and efforts to minimize compounding stresses such as traditional air pollution, habitat loss and degradation, invasive species, and nitrogen deposition. Available at: https://www.ametsoc.org/ams/assets/File/Climate_Policy_Study_final.pdf

23

Facilitator notes

Alert learners to the variation i.e. multiple versions, from reputable sources, can lead to additional debate etc.

For background information only Not intended to be read out in its entirety.

Facilitator's may choose to have a printed copy for each group… i.e. if the workshop policy is in-person/not using devices. See page 2, Handout #2, in the workshop pack.

UNFCCC truncated – see below also includes definitions for **Adaptation benefits, Adaptation costs, Adaptive capacity, Maladaptation** and **Resilience.**

****

Adaptation – United Nations Framework Convention on Climate Change (unfccc.int)

- **Adaptation**: Human-driven adjustments in

ecological, social or economic systems or policy processes, in response to actual or expected climate stimuli and their effects or impacts (LEG, 2011). Various types of adaptation can be distinguished, including anticipatory and reactive adaptation, private and public adaptation, and autonomous and planned adaptation (IPCC Fourth Assessment Report (AR4), 2007).

- **Adaptation benefits** The avoided damage costs or the accrued benefits following the adoption and implementation of adaptation measures (IPCC AR4, 2007). [Fact sheet on adaptation at https://unfccc.int/files/press/backgrounders/application/pdf/press_factsh_adaptation.pdf].
- **Adaptation costs** Costs of planning, preparing for, facilitating and implementing adaptation measures (IPCC AR4, 2007).
- **Adaptive capacity** (in relation to climate change impacts). The ability of a system to adjust to climate change (including climate variability and extremes) in order to moderate potential damages, to take advantage of opportunities or to cope with the consequences (IPCC AR4, 2007).
- **Maladaptation** Any changes in natural or human systems that inadvertently increase vulnerability to climatic stimuli; an adaptation that does not succeed

in reducing vulnerability but increases it instead (IPCC Third Assessment Report, 2001).

- **Resilience** The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization and the capacity to adapt to stress and change (IPCC AR4, 2007).

Adaptation -Trinity Sustainability Strategy, 2023-2030 (page 18).

Adapting to life in a changing climate – this involves adjusting to actual or expected future climate. The goal is to reduce risks from the harmful effects of climate change (like sea-level rise, more intense extreme-weather events, or food insecurity). It also includes making the most of any potential beneficial opportunities associated with climate change (for example, increased diversity of Irish-produced food, or increased ability to attract students).

Adaptation - American Meteorological Society (2014) (p.iv)

Adaptation involves planning for climate impacts, building resilience to those impacts, and improving society's capacity to respond and recover. This can help reduce damages and disruptions associated with climate change. Adaptation policy can include regulation to

decrease vulnerability (e.g., through land-use planning and building codes); response planning; disaster recovery; impact assessment for critical systems and resources (e.g., water, health, biological systems, agriculture, and infrastructure); observations and monitoring; and efforts to minimize compounding stresses such as traditional air pollution, habitat loss and degradation, invasive species, and nitrogen deposition.

Available at:
https://www4.unfccc.int/sites/NAPC/Pages/glossary.aspx
UNFCC links Adaptation and Resilience:
https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/introduction
Available at:
https://www.tcd.ie/media/tcd/provost/pdfs/sustainability/Trinity-Sustainability-Strategy-2023-2030.pdf
Available at:
https://www.ametsoc.org/ams/assets/File/Climate_Policy_Study_final.pdf)

Workshop activities: arrive prepared to participate in group's completion of 'tasks'

Instructions on your group assignment templates – *if module co-Ordinator requires*

First version of group's Problem statement – as shared with 2 other groups (max circa 50 words)

_____

Final version of group' problem statement – i.e. the group has an option to update after viewing other groups' problem statements (max circa 50 words)

Please provide a short explanation as to what prompted any change(s):

Please complete the following to ensure that you have evidence of successful engagement in this workshop. For those keeping journals/ePortfolios, you may upload photos to BBL/other.

Instructions:

- Cleary print each student's name, and each student initials where indicated
- tick under each 'roleplay' demonstrated by student,
- Ensure that you ask the workshop facilitator to initial/ print name/date your completed groupwork summary sheet.
- each student photographs for upload to Blackboard Forum/Journal etc as applicable

Student Name	**Student initials**	Individually completes handout #2 **during** presentations	Contributes to proposed amendment to other groups	Role as pitch presenter?	Role as chair, scribe or Q&A	Role in development of group's management strategy

Workshop facilitator to initial, date and 'print name':

You are responsible for ensuring that you have a copy of the completed group template (photo it!) - to upload to Blackboard/the VLE or as your module co-ordinator directs.

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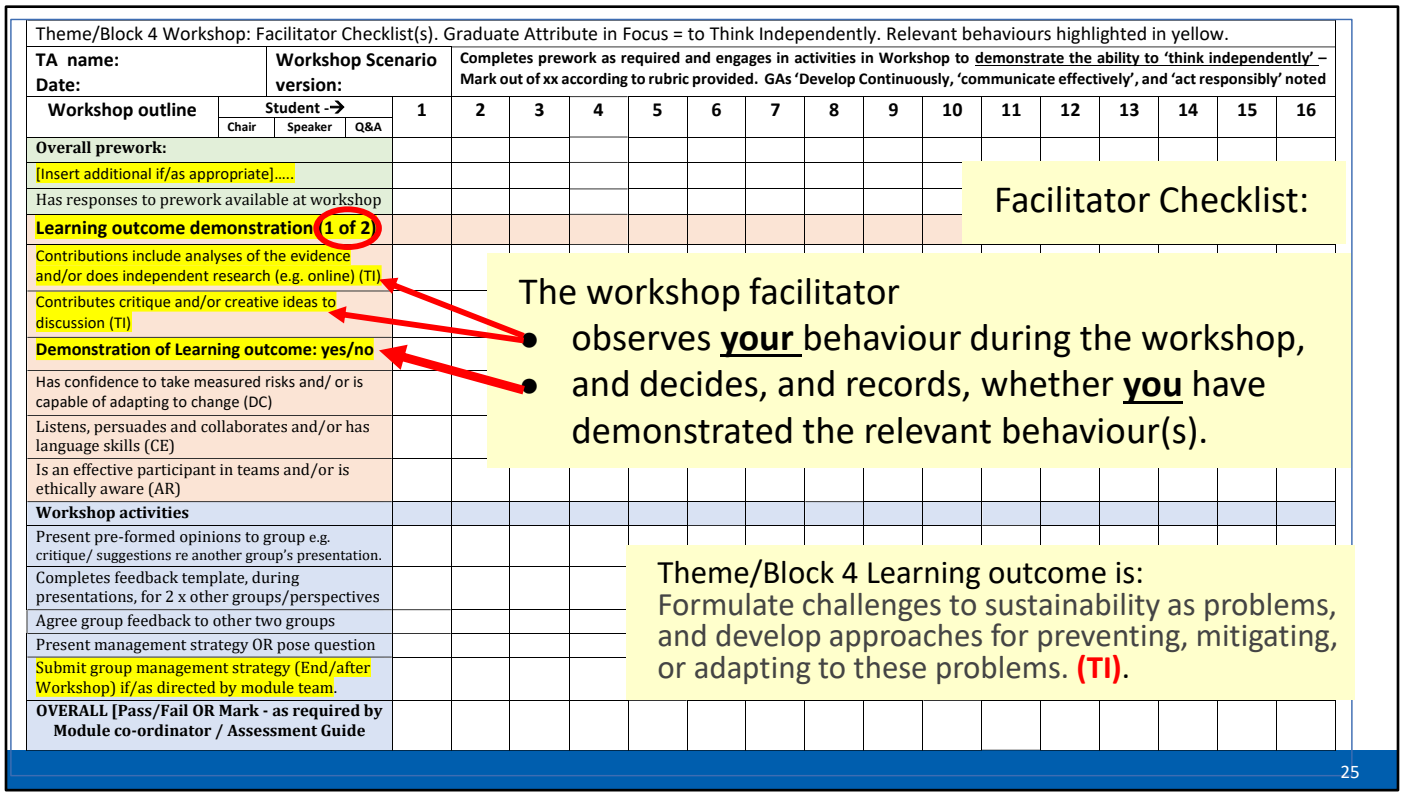
Speaker/facilitator notes:

As we find that students appreciate being able to prepare for activities at workshops, this slide give you an indication of the format of group assignment templates that will be provided at the workshop.

As in previous workshops in this module, the template include a means for students to evidence their engagement, even where students are together only for this module … remember to ensure you get a photo of the completed template so that you have evidence of your work, and you can upload to Blackboard or as your module co-ordinator/school etc directs.

Your workshop facilitator will, of course, guide you through activities, and provide these templates at the workshop.



Facilitator notes:

This template

a) Aims to provide support/a process where each individual learners must be evidenced as having demonstrated behaviours relevant to the learning outcome(s) targeted – notably behaviours relevant to the targeted attributes, at the level of novice (freshman/first year).
b) Adapted for Institution-specific graduate attributes as relevant.

Wrapup and discussion

- Significance of Climate migration (from Kiribati) following Sea-level rise as a case study.
- Prompts for further reflection

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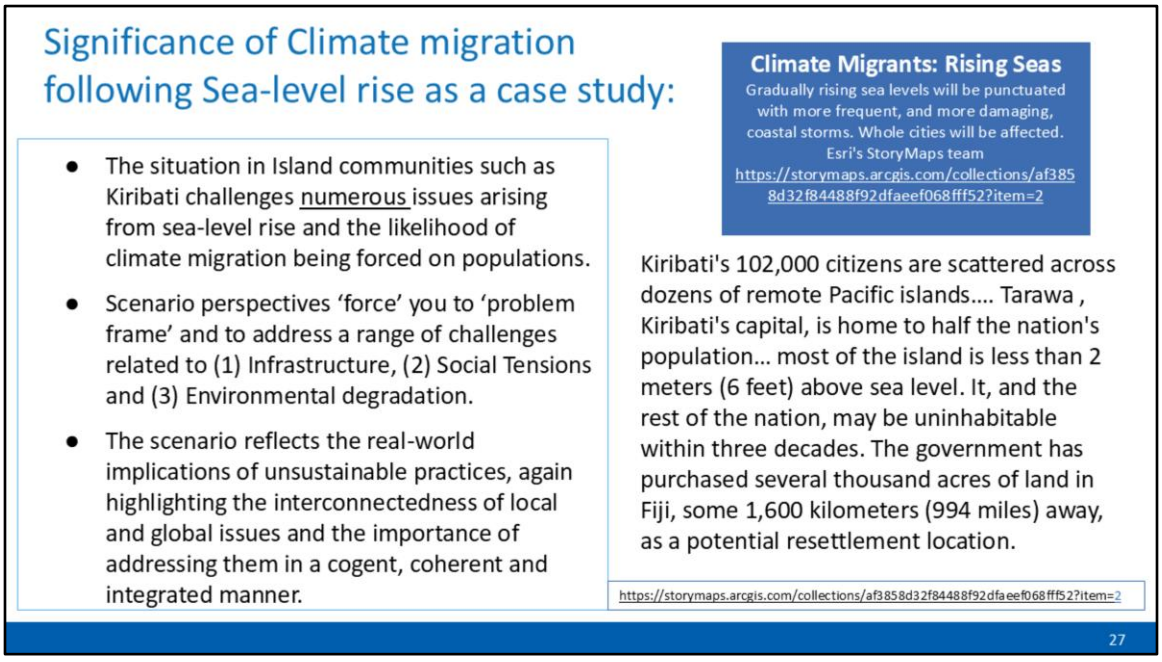
Facilitator notes:

(Icon is a stock PowerPoint image; remove/change if needed)



Facilitator notes:

Background information for facilitators – not intended to be read out in its entirety to workshop attendees

- The situation in Island communities such as Kiribati challenges numerous issues arising from sea-level rise and the likelihood of climate migration being forced on populations.

- The workshop scenario 'forces' you to 'problem frame' and collaborate with colleagues to develop appropriate risk management strategies/plans to address a range of challenges related to (1) Infrastructure, (2) Social Tensions and (3) Environmental degradation.

- You will continue to also consider Doughnut dimensions related to Housing, and Income & Work.

- The scenario reflects the real-world implications of unsustainable practices, again highlighting the interconnectedness of local and global issues and the importance of addressing them in a cogent, coherent and integrated manner.

Kiribati is a named example in the scenario that is used for the workshop– but the resources on climate migration include a range of examples

****

Additional information for speaker: gives facilitator some further context – optional as to use.

An impending example of climate-induced migration is unfolding in Kiribati. The nation, comprising 102,000 citizens spread across numerous remote Pacific islands, faces an existential threat from rising sea levels attributed to climate change.

Tarawa, the capital housing half of the nation's population, is particularly vulnerable, with most of the island resting at less than 2 meters (6 feet) above sea level. Within the next three decades, it, along with the rest of the nation, may become uninhabitable. In anticipation, the Kiribati government has secured several thousand acres of land in Fiji, approximately 1,600 kilometers (994 miles) away, as a potential resettlement site.

For those unfamiliar with climate migration, these resources (as provided in advance of the workshop) will have provide some background – more generally for climate migration due to heat, water and conflict, and also more specifically within each of the three.

The link is available in the **in the prework folder on Blackboard etc. … also add to the resources folder**

******

There are many contributing factors to climate migration.
One of them is when a **loss of livelihood occurs**. Changes in climate patterns often disrupt traditional livelihoods, especially in agriculture-dependent regions. Crop failures, water scarcity, and altered ecosystems contribute to economic instability, pushing communities to seek new opportunities elsewhere.

Another one is the increase in extreme weather events. Climate change leads to more intense storms, floods, and droughts, making it difficult for communities to recover. These disasters can destroy homes, infrastructure, and even entire economies, forcing people to move to safer areas.

Overall, climate migration can lead to large-scale displacement, creating urgent humanitarian needs for shelter, food, clean water, and healthcare. But

climate migrants are sometimes forgotten among the various flows of people seeking asylum, which is one of the reasons why we chose this as a case study.

Workshop wrap-up session – prompts for reflection

- **What did you learn from today's group discussion/activities?**
- **What surprised you?**
- **Did any of the discussion/debate make you uncomfortable about choices you had made in earlier stages of the process?**
- **How will what you learned prepare you for 'enacting' education for sustainable development / advocating for sustainability issues?**

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Facilitator notes:

Facilitators are reminded to think back on when 'they' were students in this workshop / session – key issues include that:

a) Learners/participants (need to) become more comfortable with ambiguity and the notion that there is 'no ideal 'answer' for many of challenges facing ESD/sustainability
b) Learners/participants (need to) become more comfortable with having to reconsider previously articulated 'opinions' in light of alternate perspectives presented – in order to come to group agreed outcomes.
c) Development of empathy for others' views and approaches is a critical step in the process of achieving a globally coherent response to challenges of e.g. biodiversity and climate change.

Reflection: Should we save Tangier Island? (Leichenko & O'Brien, 2019) [Ch9:172]

Leichenko & O'Brien (2019) Climate and Society: Transforming the Future (1st Edition)

Tangier Island, Virginia, is one location that is considered to be on the front line when it comes to experiencing the impacts of climate change. Homes, businesses, and infrastructure on this low-lying island located in the Chesapeake Bay are already experiencing significant damage as a result of sea-level rise and other factors (Gertner 2016). The immediate costs of adaptations such as pumping in new sand, adding breakwaters, and planting new vegetation are estimated to be on the order of US$20–30 million (Schulte, Dridge, and Hudgins 2015). While some residents want to leave the island, others would prefer to remain. This is not an easy decision for residents of Tangier Island, and it also raises broader questions about adaptation to climate change and the limits to adaptation.

- If you lived on an island threatened by sea-level rise, would you prefer to stay or leave?
- If you wanted to stay, do you think others should help pay the costs of adaptation measures? If so, why?
- If you would rather leave, do you think others should help pay for you and your family or community to relocate?
- Now imagine that you live on the mainland. Do you think residents of the mainland should help pay the costs of helping island residents to either adapt or relocate? Why or why not?

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Facilitator notes:

This case/scenario is an optional additional resource available in Leichenko & O'Brien's 2019 book titled: 'Climate and Society: Transforming the Future (1st Edition).

Learners might be prompted to consider this case in advance of the workshop, in which case it could prime them for engagement in the workshop

OR the case might be presented during synchronous activities (workshop or tutorial), in which case it has the potential to provide additional prompts for peer discussion and reflection.

Questions?

[Reminder to use discussion Forums on the LMS/VLE for Q&A with teachers/facilitators.]

[Add facilitator contact details here]

Facilitator notes:

Adapt as appropriate to your context

(Icon is a stock PowerPoint image; remove/change if needed)

Acknowledgements

- These materials are derived from development of a module, Enacting Education for Sustainable Development, co-developed by members of Trinity College Dublin's academic staff, Carlos Rocha, Cicely Roche, Clare Kelly, Felix Mezzanotte, John Gallagher and Sarah-Jane Cullinane as part of their roles as Fellows in Education for Sustainable Development in 2023-2024 – and Trinity College Dublin students Freddie Fallon, Maryam Yabo, Tom Hegarty and William Reynolds as part of their roles as Education for Sustainable Development Interns in 2023-2024.
- This work was funded by the National Forum/Higher Education Authority under the Strategic Alignment of Teaching and Learning Enhancement Fund.

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Facilitator notes:

Adapt as appropriate to context - acknowledgements should always be included.