

# NBS Series on Teaching Climate in Business Schools

## Additional Materials from Presenters

[Learn more about the series](#)

### En-ROADS Simulation, through the Lens of Purpose and Permanence

**Presentation on:** Including the [ENROADS Simulation](#) (workshop from Climate Interactive and MIT Sloan Sustainability Initiative) in a Product and Brand Management course. The simulation is paired with sensitization workshops on business sustainability, focusing on [Gandhian ideas of ecology](#) and the [Deep Purpose](#) continuum.

**Presenters:** [Sathyanarayanan Ramachandran](#), Sundram Fasteners Associate Professor of Marketing, IFMR Graduate School of Business, Krea University, India, and [Sai Sridhar Hogirala](#), Confederation of Indian Industry, India.

With commentary from [Krystal Noiseux](#), Associate Director for the Climate Pathways Project (En-ROADS host), MIT Sloan.

**Contacts:** Sathya: [sathyanarayanan.ram\[at\]krea.edu.in](mailto:sathyanarayanan.ram@krea.edu.in) & Sai: [saisridharh\[at\]gmail.com](mailto:saisridharh@gmail.com)

For the MIT Climate Pathways project: [Krystal.Noiseux\[at\]mit.edu](mailto:Krystal.Noiseux@mit.edu)

#### This document includes:

- Slides used during the presentation plus additional slides with guidance on implementation
- Resources and insights from the March 19 session Zoom chat

### Presentation Slides

See below or [access as Google slides here:](#)

## ENROADS Simulation in Purpose and Permanence canvas

Sathyanarayanan Ramachandran, IFMR Graduate School of Business, Krea University, India  
Sai Sridhar Hogirala, Confederation of Indian Industry, India

- **Course(s) and program(s):**
  - Product and Brand Management, a marketing elective course in the full-time, regular MBA Programme of the IFMR Graduate School of Business at Krea University, INDIA
- **Format and length**
  - 6 hours of class in two 3+3 slots
  - Collaboration with an ENROADS facilitator
- **Main learning objectives:**
  - Gandhian ideas on ecology, Deep Purpose aspect of business and the issues of Sustainability, Climate Change, SDGs and Net Zero commitments.
  - Learning the impact of climate change and how businesses should respond through the experiential learning component using the ENROADS simulator.
  - Hands-on practical emphasis to understand how critical business decisions can contribute towards mitigating the climate change.

### Sensitization Workshop Content

## Permanence

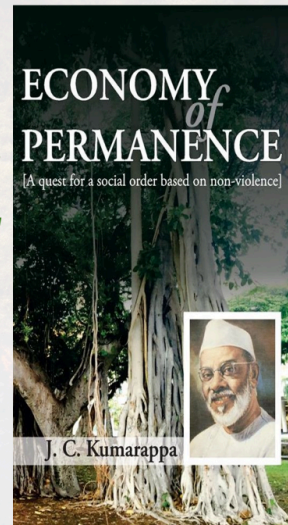
*"Nature enlists and ensures the co-operation of all its units, each working for itself and in the process helping other units to get along their own too -- the mobile helping the immobile, and the sentient the insentient. Thus all nature is dovetailed together in a common cause. Nothing exists for itself. When this works out harmoniously and violence does not break the chain, we have an economy of permanence.*

- J.C.Kumarappa

Parasitic Economy  
Predatory Economy  
Economy of Enterprise  
Economy of Gregation  
Economy of Service



SDG Illustration by: Margreet De Heer



## Sensitization Workshop Content

### Purpose

Harvard Business School Professor Ranjay Gulati has given excellent insight in his book *Deep Purpose: The Heart and Soul of High-Performance Companies*, based on a study on companies that put purpose as the operating system vs. those who keep it at the periphery.

He has defined a continuum from “Convenient Purpose” to “Deep Purpose,” where purpose becomes the DNA.

Purpose-as-a-disguise  
Purpose-on-the-periphery

Purpose as win-win  
Deep Purpose

Numerous interesting cases can be used to highlight these concepts -- from Gotham Green, Etsy, Bühler, and Seattle Seahawks to Ovia health, Mahindra, Danone, and so on with an exciting take on commercial and social logic typology and Do-Gooder's dilemma.

## ENROADS Negotiation Challenge

1. Climate Action Simulation (the **role-playing game**) - *immersive, fun and educative*
2. **6 teams** (Clean Tech, Climate Justice Hawks, Conventional Energy, Industry and Commerce, Land, Agriculture, and Forestry, World Governments) - **min 3 teams**
3. Facilitator to team ratio: **1:3**
4. Students preparation time: **minimum 2 days**
5. Context setting and simulator demo: **40 - 60 minutes**
6. Number of rounds to play: **min 1 round, best 3 rounds** (each round will take 30 - 45 min)
7. **Tools** - Laptop, WhatsApp or any group chat, internet connectivity, projector, working tables, note pads

## ENROADS Negotiation Challenge - role play steps



Send documentation related to the challenge prior to the meeting

1



Provide the context of climate change with an aim to bring the global warming to below 2°C and aim for 1.5°C above pre-industrial levels.

2



Demonstrate usage of ENROADS simulator

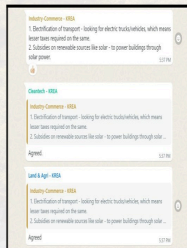
3



Let the teams decide on the actions and use simulator to check the impact of actions on global warming

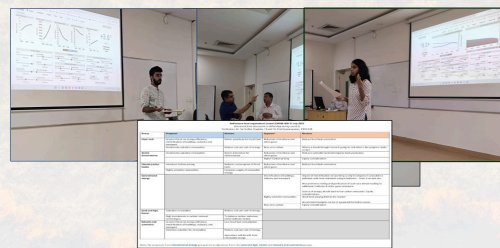
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## ENROADS Negotiation Challenge - role play steps



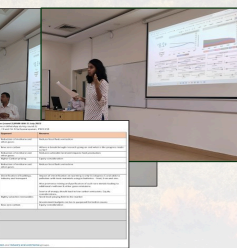
Teams connect via whatsapp chat to negotiate with each other actions, realize synergies, and experience system

5



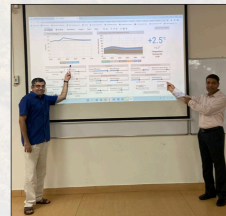
Allow the teams to present their views, fix the actions in ENROADS simulator to view the impact on global warming

6



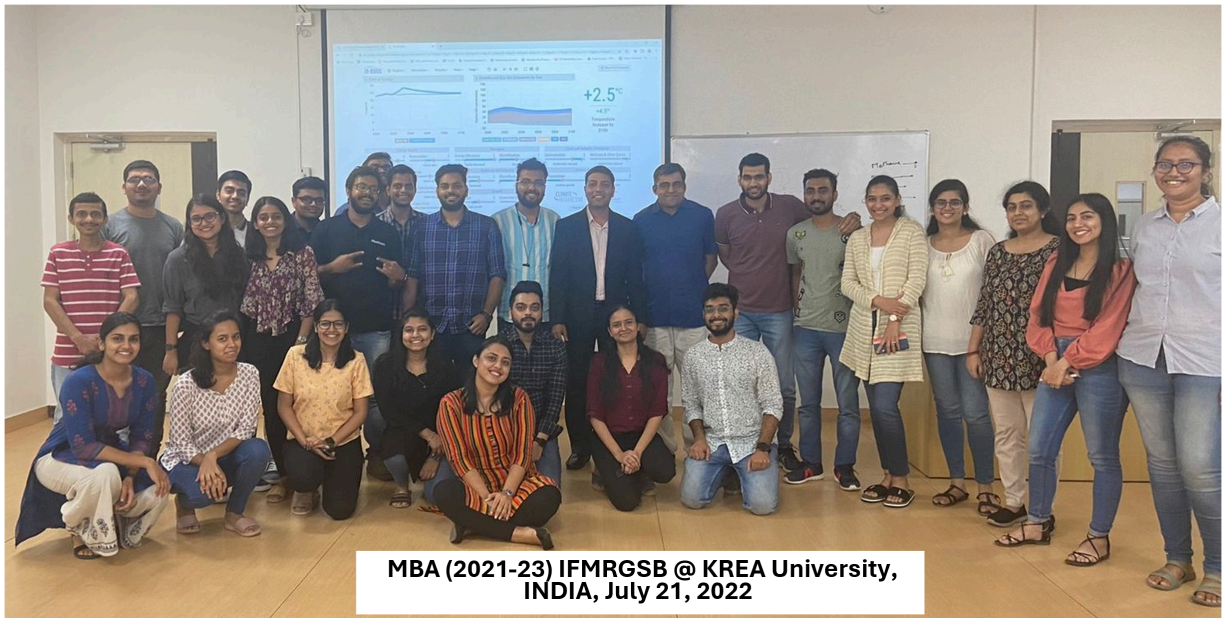
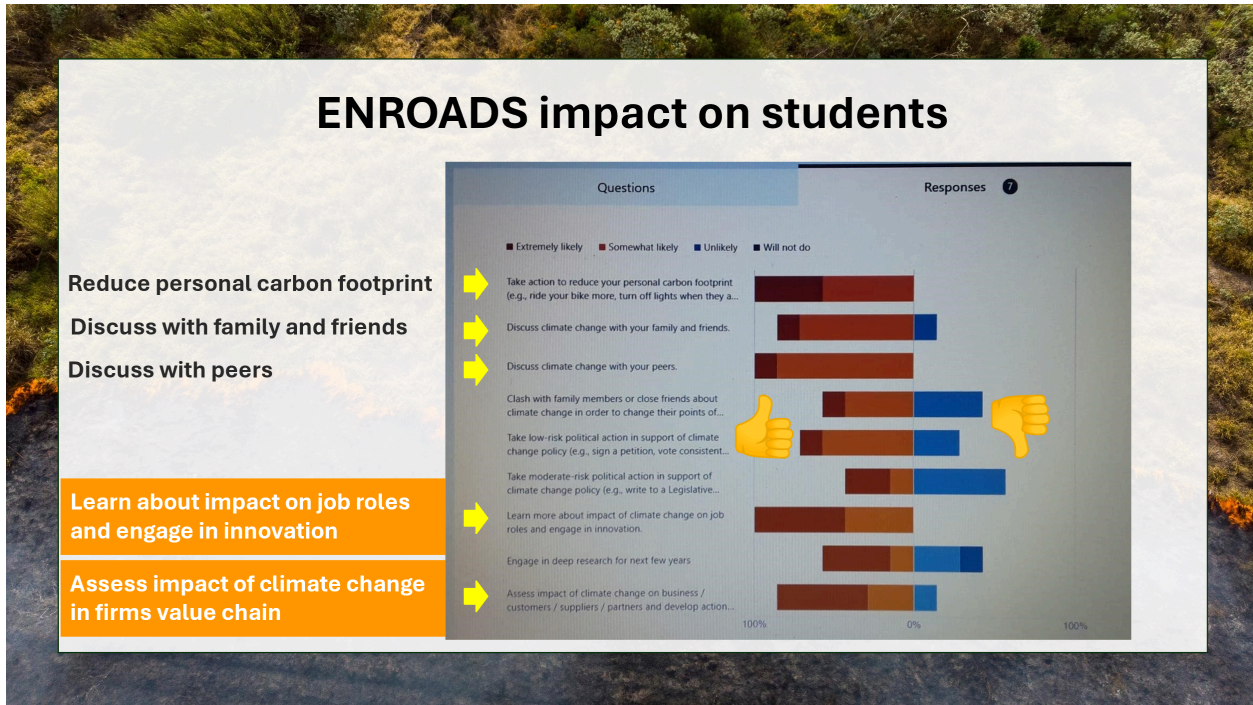
Discuss on actions, challenges and business-product-consumer-climate link

7



Round 1 achievement - 2.5 degrees C (by year 2100) above the pre-industrial levels (mid-1800).

8



## Additional Resources and Discussion from Participants (Zoom Chat)

### Resources

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- A paper regarding on “parasite logic” in economics (shared by Fernanda Carreira, FGV): Gasparin, M., et al. 2020. The business school in the Anthropocene: Parasite logic and pataphysical reasoning for a working earth. *Academy of Management Learning & Education*. <https://doi.org/10.5465/amle.2019.0199>
- Resource review on En-ROADS (shared by Anjali Chaudhry, Dominican University): Chaudhry, A. 2023. The power of simulation for climate action: En-ROADS. *Academy of Management Learning and Education*. 9: 507–519.. <https://doi.org/10.5465/amle.2023.0187>
- From Krystal Noiseaux, MIT Climate Pathways Project:
  - Project for using EN-ROADS with practitioners from MIT: <https://mitsloan.mit.edu/centers-initiatives/sustainability-initiative/mit-climate-pathways-project>
  - Professor using it extensively outside of the classroom with leaders in the public and private sector  
>> <https://mitsloan.mit.edu/centers-initiatives/sustainability-initiative/beyond-ivory-tower-professor-who-shows-en-roads-to-everyone>

## Q&A

The session recording has additional Q&A with presenters. Participants also shared, in Zoom chat, their experience of teaching En-ROADS :

- Q: How many class periods/hours do you take for these activities in En-ROADS?
  - A: 3 hours for the sensitization workshop and 3 hours for ENROADS simulation.
- Q: Can this scale to a much larger group size?
  - A: For 300 students-- I might use it as a homework assignment. I have one day in class where I teach it and they get to interact with it, and then a graded team homework (Shared by Lisa Ellram)
  - Here’s an example (albeit, with C-ROADS!) where the EUI added a bunch of additional characters to help with a very large group >>  
<https://mitsloan.mit.edu/centers-initiatives/sustainability-initiative/making-progress-under-pressure-ii-how-c-roads-can-train-better-negotiators> (Shared by Kyrstal Noiseaux, MIT)

## Opportunities for Collaboration (from MIT Sloan)

Krystal Noiseaux wrote:

- If you have embedded En-ROADS (and/or C-ROADS) into the curriculum of any of your courses, we’d love to learn about it via this survey! (if you are an En-ROADS Climate Ambassador you may have already filled this out recently!) >> <https://forms.gle/SxNqsxUUENXUh4KR8>
- Become an En-ROADS Climate Ambassador:  
<https://www.climateinteractive.org/en-roads-ambassador-program/>

## An exchange on addressing economic inequality with En-Roads

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*Lisa Ellram (Miami University) wrote:* Thanks to the whole team at MIT & Climate Interactive for your AMAZING work, and continuous updates and improvement... The fact that it is free and has so many support videos is amazing. Greatly appreciated! My only frustration is there seems to be little that we can do about economic equity in the simulation...

*Krystal Noiseaux (MIT Sloan):* Thank you so much! Three features in En-ROADS that can help a bit here are (1) the revenue graph (under financial) that you can use to generate discussion about how to equitably implement policies that make energy more expensive, (2) World GDP graph, which now defaults to show the impacts of climate on the world's economy, based on a assumed damage function (which you can adjust as the user!), and (3) the User Guide (under the "i" button) that provides equity considerations you can raise with different policies, including some related to economic equity.

*Lisa:* Thanks. I will check these out. I have never seen an outcome where the developing nations come out equal or better than US and or China and Europe in terms of econ growth-- it seems like all possibilities hurt equity-- some are just worse than others...

It is an amazing way to help students understand many issues and trade-offs. There are definitely surprises in terms of the impact of changes-- what has a big impact, what does not, and the way that different policies interact.