

TROP ICSU: Trans-disciplinary Research Oriented Pedagogy for Improving Climate Studies and Understanding

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Report on the TROP ICSU Workshop for Teachers at the National Centre for Biological Sciences (NCBS), Bangalore, India (Host Partner)

Workshop Title: Faculty Development Program cum Workshop
CLIMATE CHANGE IN YOUR CLASSROOM: A
WORKSHOP FOR TEACHERS OF ALL
DISCIPLINES

Date: December 14th, 2024

Venue: National Centre for Biological Sciences (NCBS),
Bangalore

Facilitators from TROP ICSU team: Ms. Sanjana Singh, Mr. Sanchit Sant

Facilitating and Organising team from NCBS: Dr. L. S. Shashidhara (Director, NCBS), Krithi Nandimath and NCBS Team

Number of participants: 24

Disciplines/Subjects taught by participants: Biological Sciences, Physics, Mathematics & Statistics, Chemistry, Physics, Earth Sciences, Environmental Sciences, Humanities, Social Sciences Geography, Economics etc.

A detailed listing of the disciplines is provided in
[Annex I: Details of Participants](#)

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Summary of the Workshop

A **1-day faculty development program cum workshop** for educators from various disciplines teaching different grade levels was conducted in collaboration with the National Centre for Biological Sciences as Host Partner on the 14th of December, 2024.



Group Photo: Workshop for Teachers and Educators, NCBS, Bengaluru, India.

In this workshop, participants learnt:

1. How to integrate climate change in their everyday teaching
2. How to use inter- and trans-disciplinary teaching resources in their classroom
3. Effective teaching strategies using digital teaching tools
4. Ideating lesson plan concepts based on various topics in disciplines
5. How to teach key topics in their discipline with a climate related example in their classroom

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This workshop introduced the participants to digital teaching resources to teach topics in the Sciences, Mathematics, Social Sciences, and the Humanities disciplines using climate-related examples, case studies, and activities. In this interactive workshop, participants carried out several hands-on activities through the use of different types of digital teaching tools. Participants also discussed and ideated their own lesson plan concepts that they would use in their classroom to enhance the conceptual understanding of topics in different disciplines while increasing awareness of climate change.



Plenary sessions conducted by Ms. Sanjana Singh and Sanchit Sant at the workshop, NCBS, Bangalore, India.

Session 1 Summary

The workshop commenced with welcome remarks by Ms. Sanjana Singh, Coordinator and Senior Research Associate, CSECC FLAME University and Project Coordinator, Project TROP ICSU, followed by a few words from Dr. L. S. Shashidhara (Director, NCBS) addressing the audience of school teachers and educators teaching various disciplines at the middle school, high school and undergraduate levels for the schools and colleges across Bangalore, India. Dr.

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Shashidhara talked about the worldwide impact of climate change which is the most significant issue of our time. He encouraged teachers to be the changemakers through inculcation of educational awareness needed to tackle the issue of climate change. This was followed by a brief introduction of the participants and their institute affiliations. Then, Ms. Sanjana Singh, delivered an introductory session on the ‘Science of Climate Change’, which was followed by a detailed introduction to Project TROP ICSU, aims and objectives of the project along with highlights about the outreach of the project. After this Sanchit Sant gave a detailed platform walkthrough of the [Project TROP ICSU website](#) and an introductory Lesson Plan walkthrough which explained the structure of a Lesson Plan to the participants in detail. This was followed by the 1st Activity of the workshop: Lesson Plan Review, wherein participants browsed through the Project TROP ICSU website and chose a Lesson Plan of their teaching interest for a detailed review.

Session 2 Summary

The second session began with a group activity of ideation of Lesson Plans as per curricular topics. This activity was a carry forward from the previous session of reviewing a Lesson Plan. They were encouraged to use resources from the TROP ICSU website as well as look for new resources which might help them develop their ideas of lesson plans. This led to them finding the right resources and devising ideas for developing a Lesson Plan that they can potentially develop and use in their classroom. During this activity most participants teamed with others from the same discipline and together created content that they would like to use in their classrooms. The session ended with all participants presenting their lesson plan ideas and an open discussion on topics such as climate positivity, inclusive educational resources, and experience based learning, amongst others.

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Participant presentation of Lesson Plans at the workshop, NCBS, Bangalore, India.

Session 3 (Guest Talk Summary):

The final session of the workshop consisted of talks by two prominent figures from the field of climate education, who were invited to this workshop.

Guest Talk 1: Matthew Pye (Founder/President, "The Climate Academy" and Coordinator of Philosophy, European School Brussels II) introduced the participants to "[The Climate Academy](#)" project which offers schools and students a radically new, systems-informed approach to CLIMATE education. He explained the philosophy of the project and introduced the Climate Student Course Book developed under this project. He also explained how schools and educational institutions can potentially collaborate and onboard the offering of The Climate Academy.

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Guest Talk 2: Dr. Apurva Barve, PhD (Science Educator and Teacher Trainer) shared her views on the importance of conversations regarding climate change. She emphasized the small changes in the day to day lives of common citizens due to the changing weather patterns and how climate change as an issue is at the doorstep of humanity, waiting to be addressed on a large scale.



Guest plenary session during the workshop, NCBS, Bangalore, India..

Details of Workshop

Schedule and Agenda

- Welcome remarks by Project TROP ICSU
- Welcome Remarks by the National Centre for Biological Sciences (Host Partner)
- Introduction of Participants (Name, Level of teaching, Subject)
- A Simple Introduction to the Science of Climate Change and Related Teaching Resources
- An Introduction to Project TROP ICSU
- Detailed Platform walkthrough and Introductory Lesson Plan walkthrough
- Activity 1: Lesson Plan Review
- Activity 2: Ideation of Lesson Plans as per curricular topics
- Presentations of lesson plan ideas designed by the participants
- Guest Talk 1: Matthew Pye (Founder/President, "The Climate Academy" and Coordinator of Philosophy, European School Brussels II)
- Guest Talk 2: Dr. Apurva Barve, PhD (Science Educator and Teacher Trainer)

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Participant Feedbacks and Suggestions on Existing Teaching Resources

Summary of the feedback received on the Lesson Plans curated on the TROP ICSU website

- **Effectiveness of the lesson plan in explaining the topic in discipline: 89.5%** of the responses from the participants stated that the key topic(s) in the discipline(s) covered by the lesson plan were relevant to their classroom teaching.
- **Effectiveness of the lesson plan in integrating the discipline topic(s) with climate science: 89.6%** of the responses from the participants indicated that they could find a relevance between climate examples and topic(s) from their syllabus for classroom teaching.
- **Using TROP ICSU Lesson Plans for students: 100%** of the responses from the participants stated that they would use the lesson plans curated by TROP ICSU with/without modifications in their classroom teaching.

Ideas for New Lesson Plans

6 lesson plan ideas were submitted to the TROP ICSU team by 6 groups of participants (3-4 participants in each group). There were some culturally and geographically relevant lesson plans while others were discipline-specific such as:

- Understanding biodiversity in urban Bangalore
- Waste Management
- Understanding weather and climate
- Bird Migration and Climate Change
- Polymers and Profits: Balancing Business Strategies and Climate Sustainability
- The Silent Crisis: “The Psychological Impact of a Changing Planet”

Key Takeaways and Learnings from the Workshop

- Key Learning for team TROP ICSU: we learnt how we can populate certain disciplines with more relevant content for middle school and high school teachers.
- Key learning for the participants: they were introduced to how climate change can be integrated into their lesson plans and everyday teaching without needing to veer away from the topic in discipline.

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- Participants had limited knowledge about the science of climate change and hence having a session on what is natural and anthropogenic climate change was one of the most useful sessions for them.
- Participants found group activities to be the most effective interactive session.
- Peer discussions in groups helped in the exchange of ideas and enhanced participants' learning.
- School teachers were introduced to the method that TROP ICSU uses to create lesson plans on its platform
- School teachers had an opportunity to express themselves creatively yet scientifically relevant, which gave them insights into how they can make modifications in their current classroom teaching

Next Steps

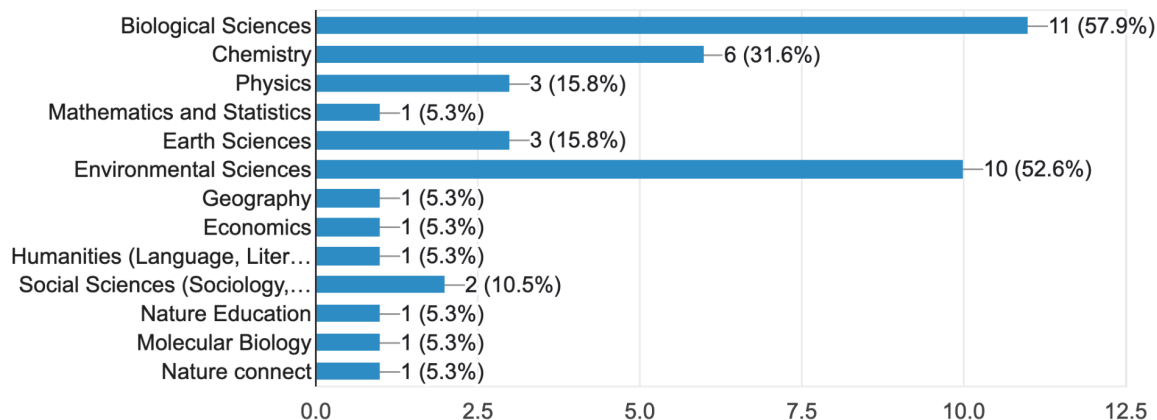
- Addition of new resources across disciplines as per suggestions for new lesson plan ideas.
- Addition of new resources keeping middle school and high school teachers in focus.
- Mapping of existing resources to Indian Education Boards and syllabi as per suggestion.
- Engagement of participants for a Level 2 workshop focusing on content creation.

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Annex I: Details of Participants

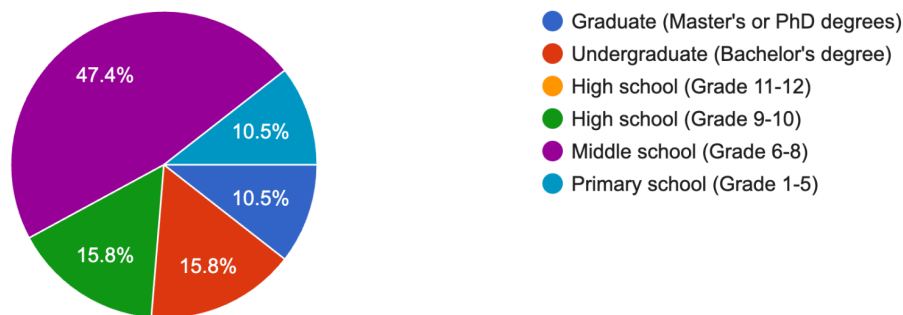
5. What is the main subject that you teach? Select the most relevant option

19 responses



6. What grade level do you teach? Select the most relevant option

19 responses

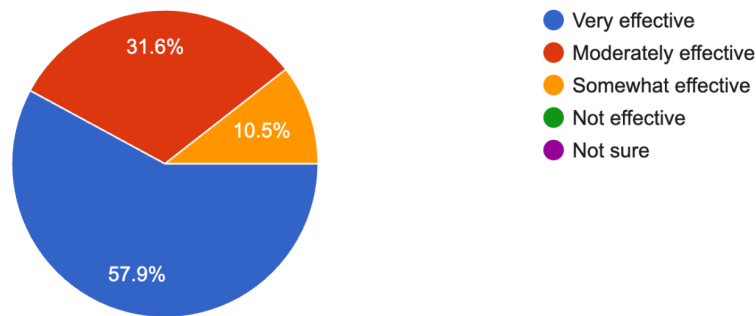


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Annex II: Review of Lesson Plans by Participants

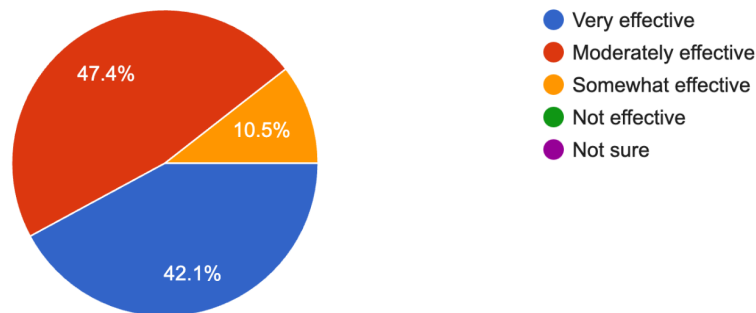
2. In your opinion, how effective is this lesson plan in explaining the topic(s) in the discipline?

19 responses



3. In your opinion, how effective is this lesson plan in integrating the discipline topic(s) with climate science?

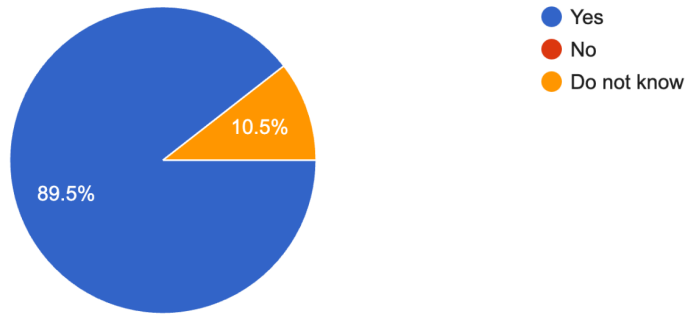
19 responses



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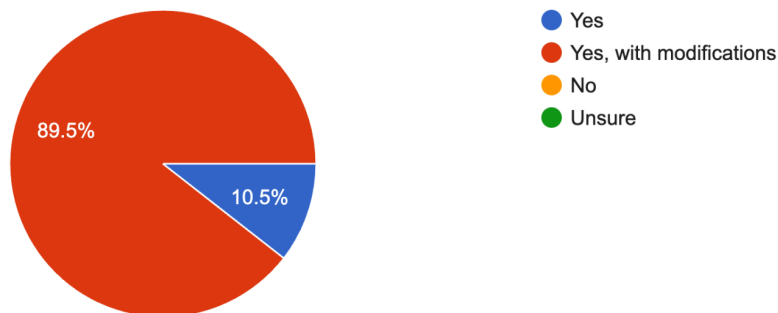
6. Do you think that your students will become more aware of climate change if you use this lesson plan in your classroom?

19 responses



7. Would you use this lesson plan in your classroom for your students?

19 responses



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