

ENVIRONMENTAL SCIENCE

- OVERVIEW

Class-1:
1st August 2025

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Lab for Spatial Informatics

Course Content

Basics of Environmental Science and Ecosystem

Major Environmental Issues – Global and IT related

Involvement of IT to address Environmental Problems

Ecological Economics and Sustainability

Social Dimensions and legislations

Activities

Imagine a situation of “an earth without people”

List Environmental resources of your area

Describe environmental problems of your area

Are there signs of hope for solving those
problems?

10 AWESOME ENVIRONMENTAL ADS



IFAW.org Save the Elephant Campaign



8. Greenpeace “The Greatest Wonder of the Sea” Campaign





**GLOBAL WARMING
IS LEAVING MANY HOMELESS**

7. Ecoeduca Global Warming Campaign



....ecoeduca

Get more information at the 10th Climate Changes Convention of the United Nations.

6. World Wildlife Fund “Preserve Your World” Campaign



WHAT GOES
AROUND,
COMES
AROUND

5. Goias, Brazil “Fist” Environmental Awareness Campaign

GLOBAL
WARMING.
DO YOUR PART
TO CLEANSE THE EARTH.



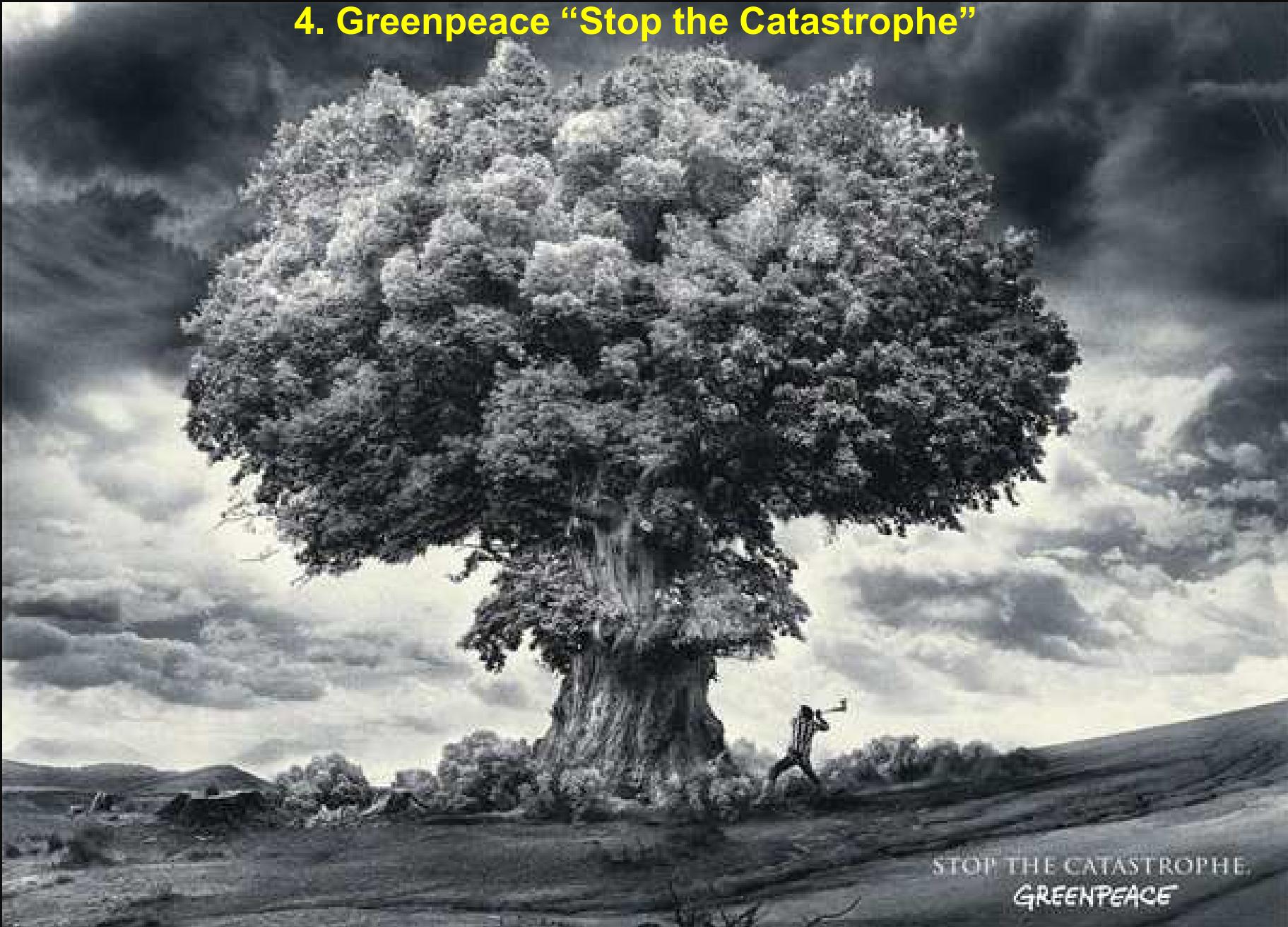
GET INFORMED AND GET PROTECTED.



GOIÁS
GOIÁS
GOIÁS
GOIÁS



4. Greenpeace “Stop the Catastrophe”



3. Friends of the Earth, Belgium Global Warming Campaign



2. World Wildlife Fund “Rubbish”



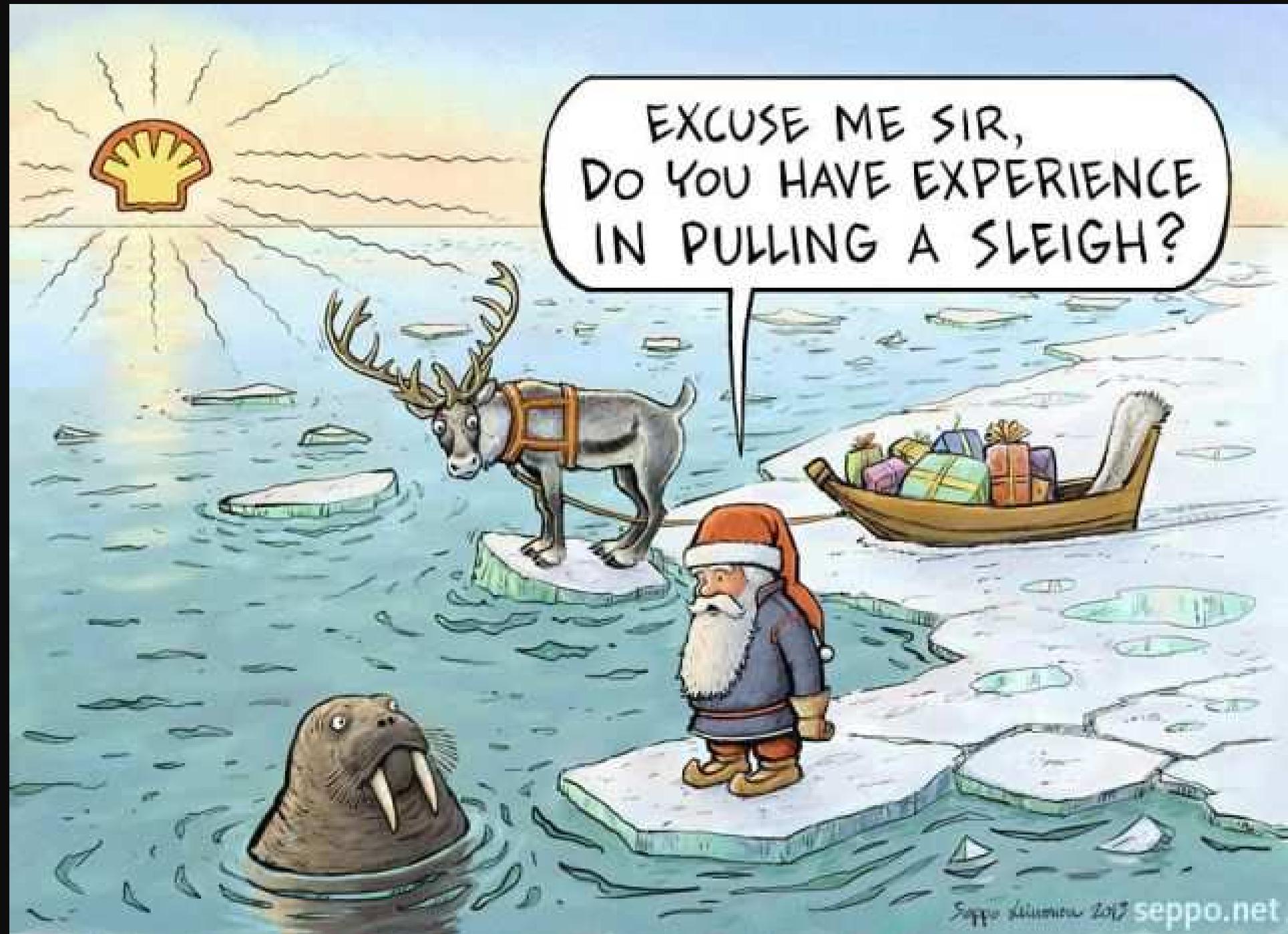
RUBBISH CAN BE RECYCLED. NATURE CANNOT.

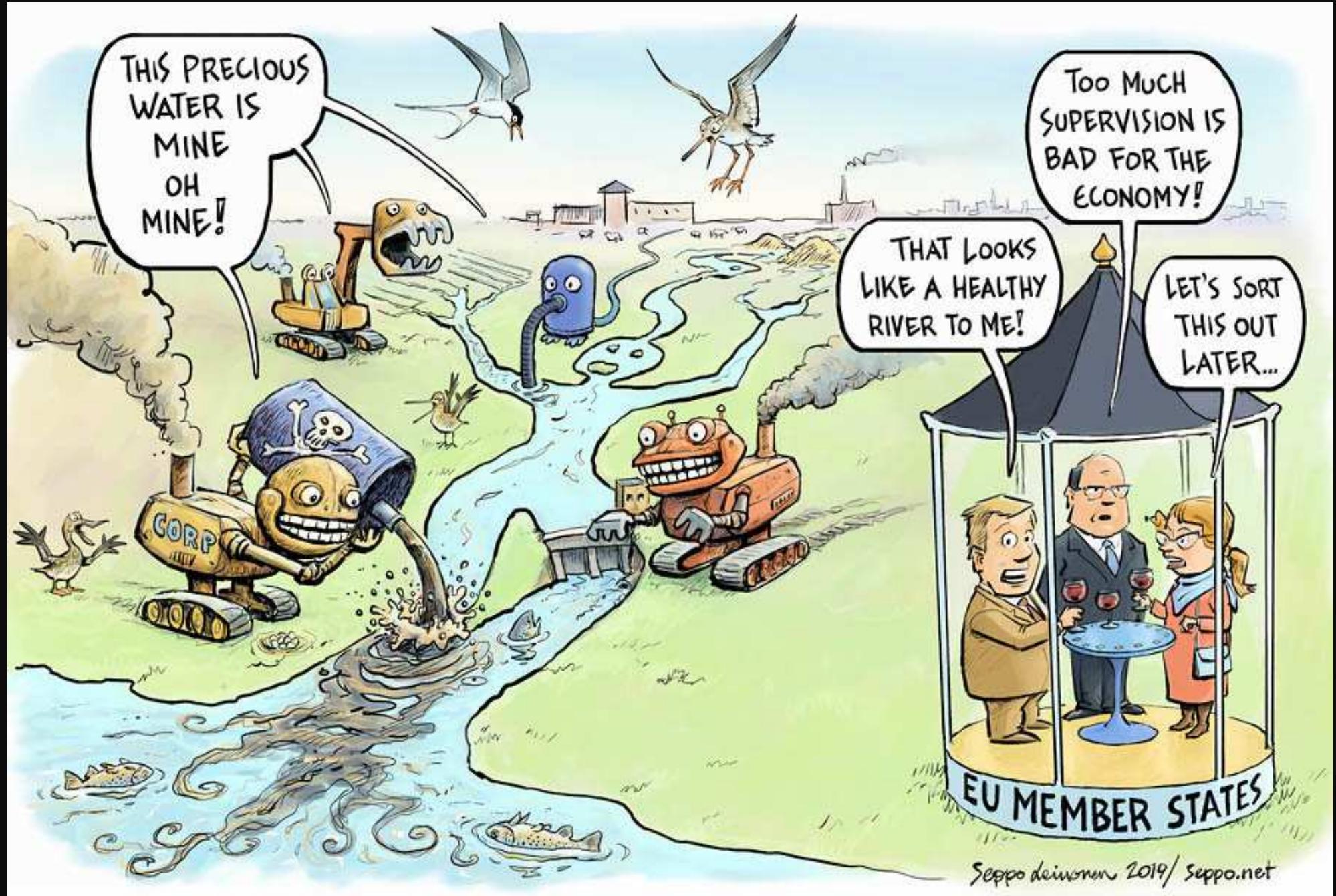


for a living planet™

**1. World Wildlife Fund
“Stop Climate Change”**







*diamonds
are forever!*

so is plastic!



Ryan Gill - 2014
notmyearthnotmyproblem.com



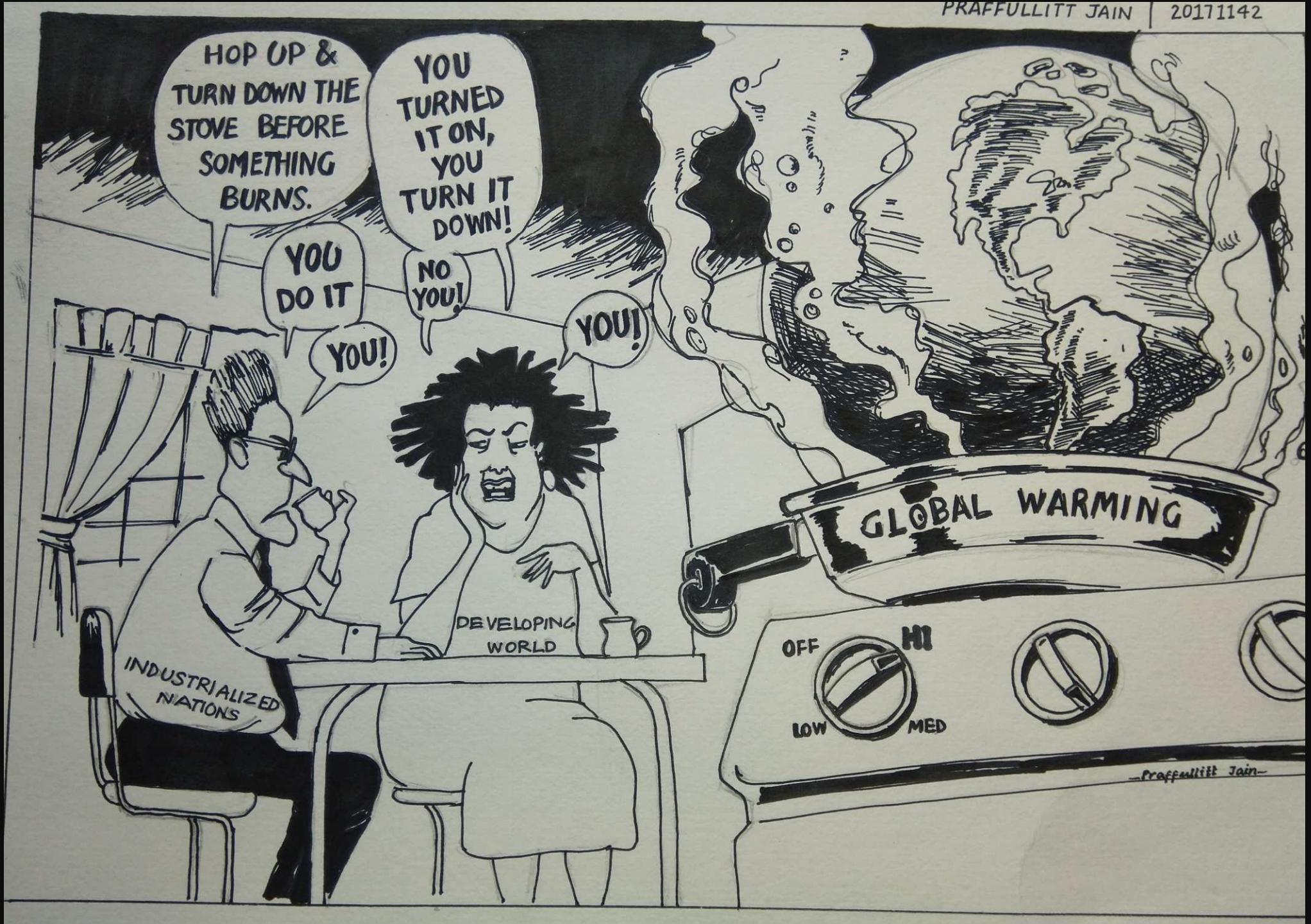
FUTURE = OVER POPULATION + SCARCITY OF RESOURCES



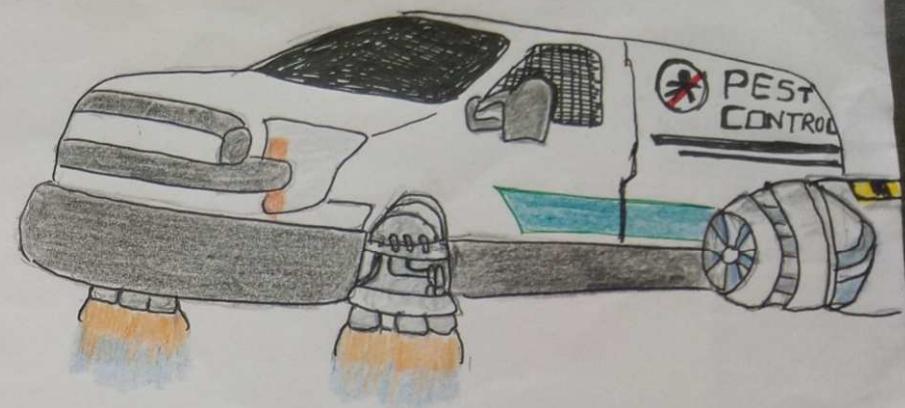
CIVILIZATION NEEDS TECHNOLOGY,
BUT BE DISCIPLINE ENOUGH AND DON'T DISTURB ECO SYSTEM
ELSE, IT WILL CHALLENGE OUR SURVIVAL.



Papa, what is ENVIRONMENT?



"WHAT IF SOMEONE, SOME OUTER BEING OWNED THE EARTH, AND CALLED THE 'INTERGALACTIC PEST CONTROL' SEEING THE CONDITION OF THE PLANET..."





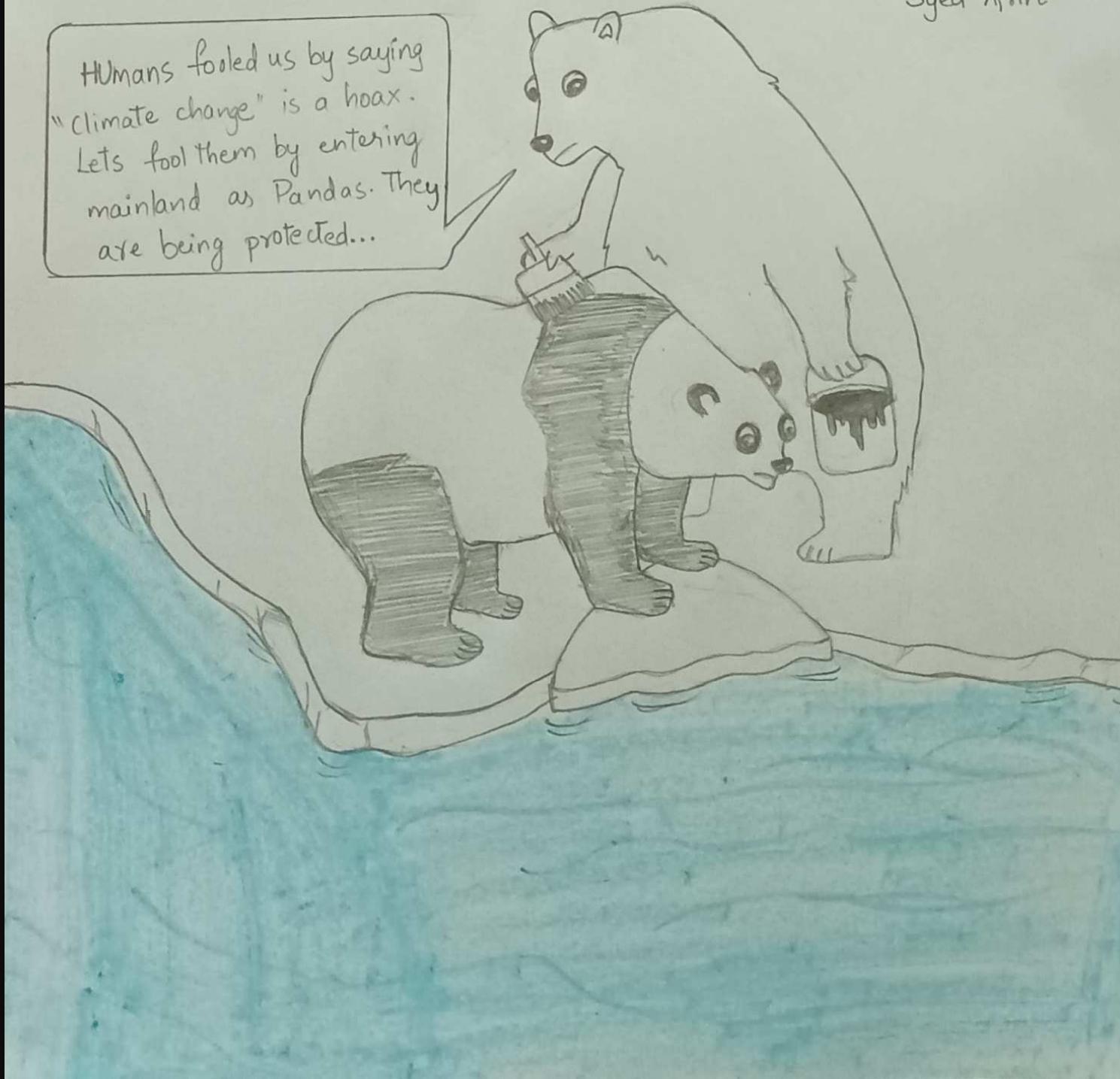


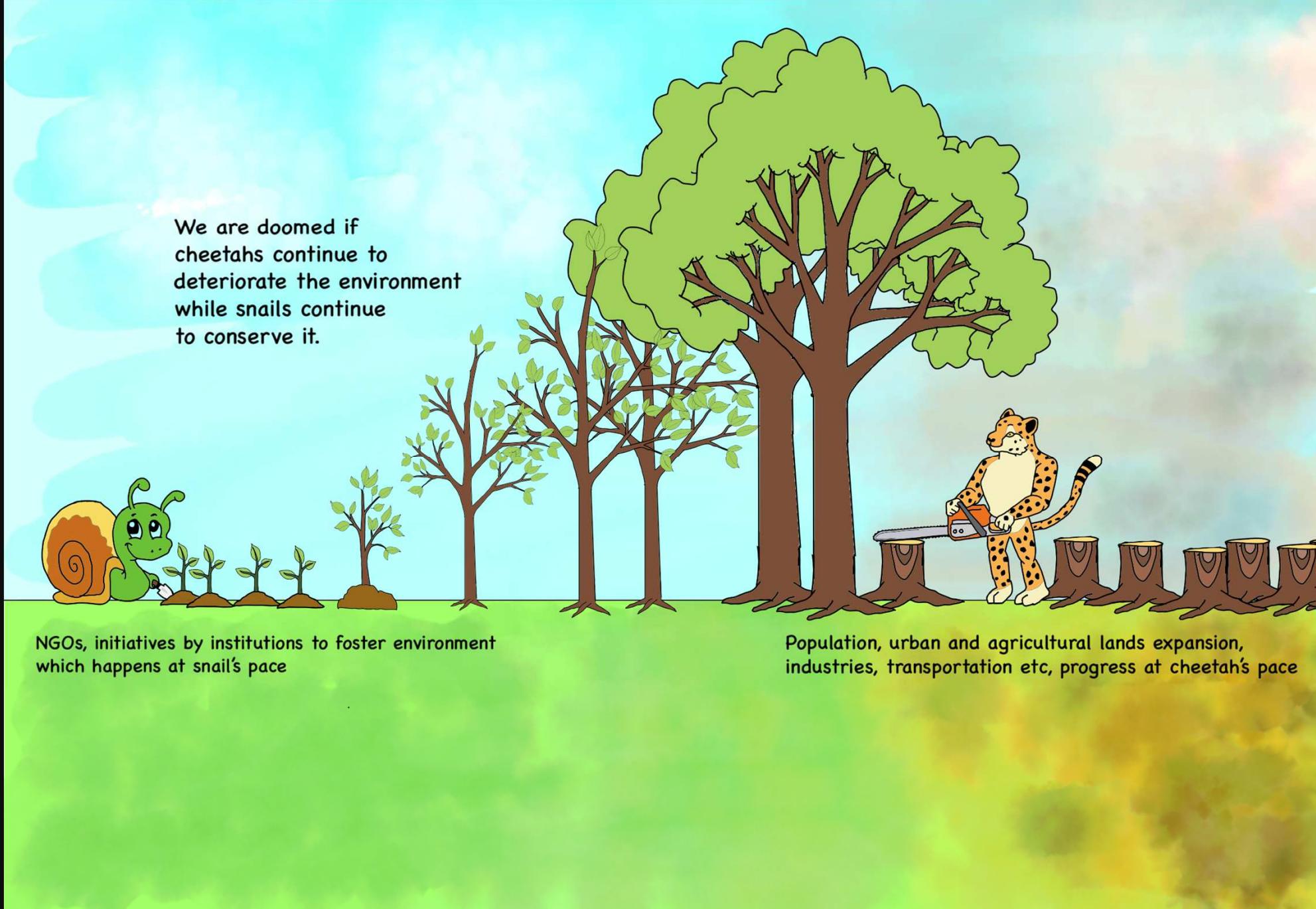
"COMMERCIAL CARBON SEQUESTRATION"

Abinash Maharana

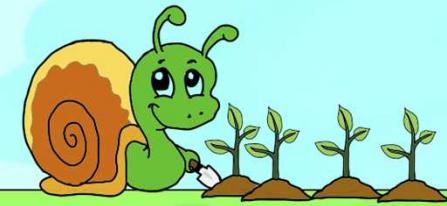
2018/11/033

2019/01/10 4
Syed Afrin





We are doomed if
cheetahs continue to
deteriorate the environment
while snails continue
to conserve it.



NGOs, initiatives by institutions to foster environment
which happens at snail's pace



Population, urban and agricultural lands expansion,
industries, transportation etc, progress at cheetah's pace

BIO MAGNIFICATION

GLOBAL WARMING
MELTING



LARGE BEASTS ARE THE MOST VULNERABLE NOW

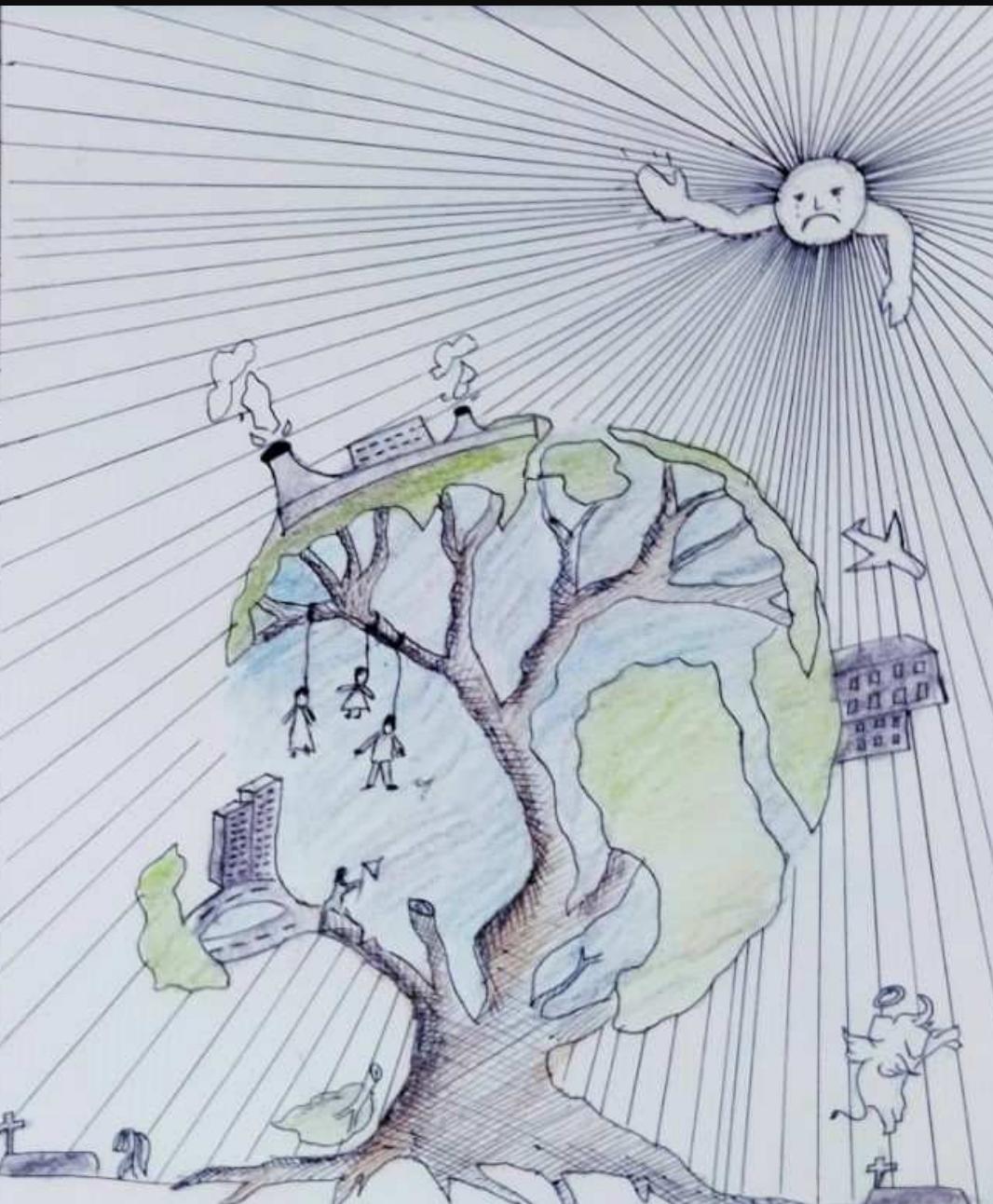
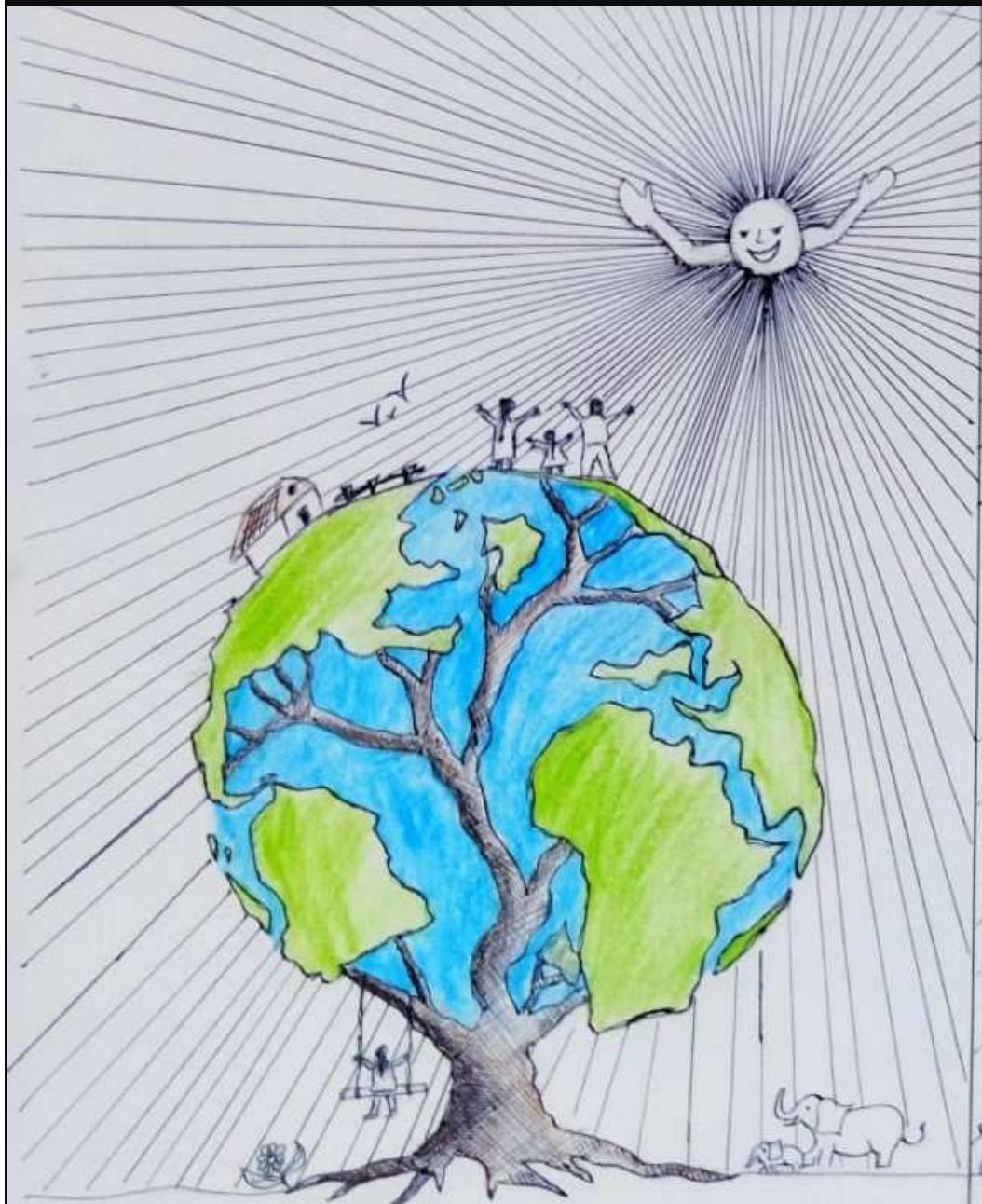


KARTIK GARG
2019101060



Idea: Class 7 : Climate System Impact (Tiger extinction)

Class 8 : Unexpected Climate change (Antarctica Ice sheet)







Project Topics

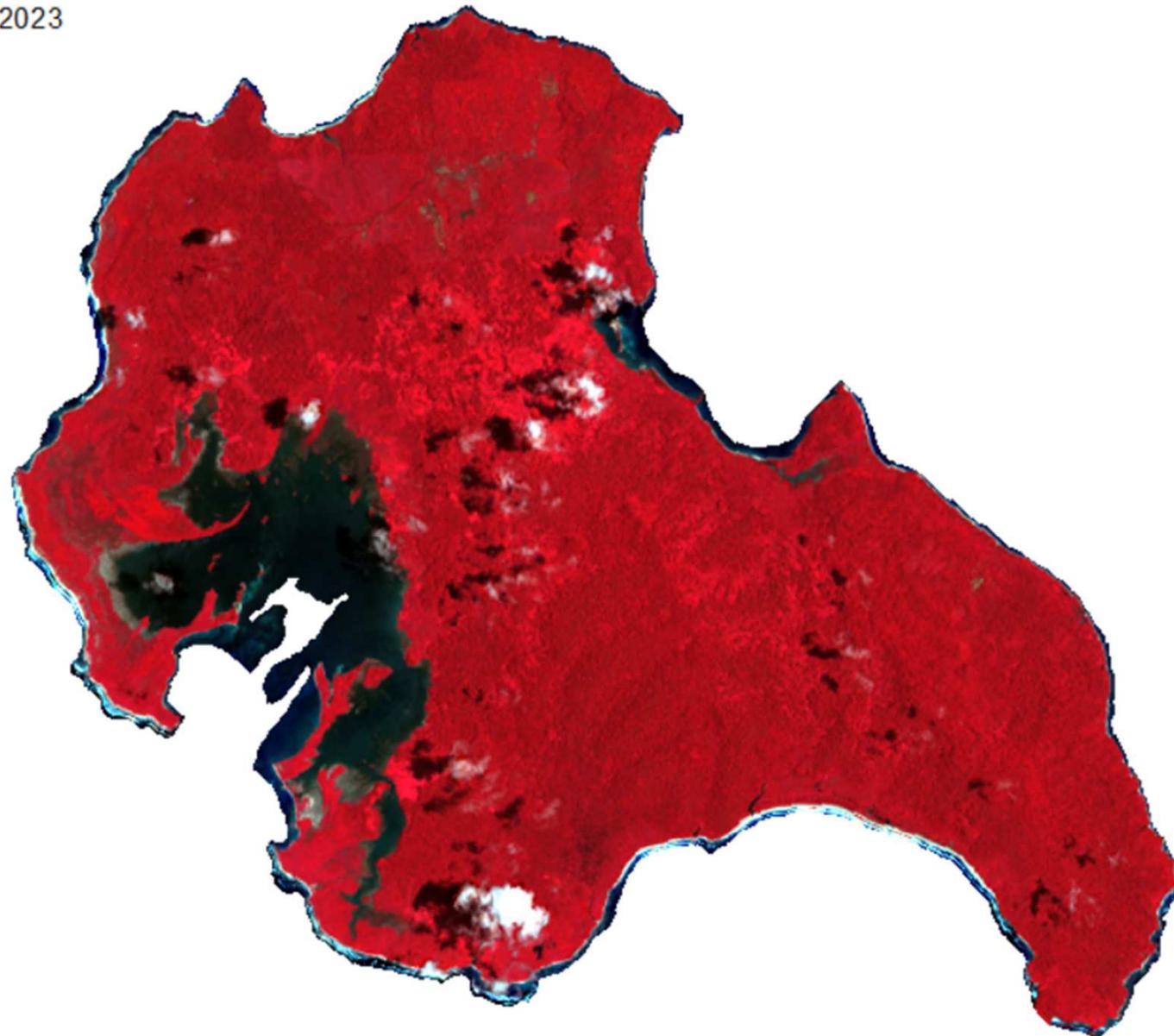
Government Schemes/policies – impact on Environment
Landscape history – Spatial changes – evolution- current state

Environment and AI: Ensemble learning, deep learning approaches for remote sensing data analysis, spatial-temporal modelling, uncertainty quantification, transfer learning, reinforcement learning for optimization, explainable AI, ecological modelling, social network analysis. Clustering with machine learning in environmental science.

Tool or Website development.

Open data, Tools Software – Analysis, Modeling.

2023



Assessment methods

- | | |
|----------------------|-----|
| 1. Assignments | 20% |
| 2. Project | 30% |
| 3. Mid-term Exam | 20% |
| 4. Quiz (2) | 10% |
| 5. End-Semester Exam | 20% |