

# Punchy: an e-learning project to develop transdisciplinary resources on sustainability

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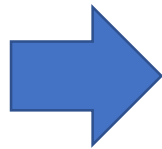
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- Local opportunity : How can RISE\* teachers and scientists be mobilised?  
*\*Research Initiative in Sustainability and the Environment (> 120 people)*

## Context:

- Local needs: How can we raise students' awareness of climate change?
- Local opportunity : How can RISE\* teachers and scientists be mobilised?  
*\*Research Initiative in Sustainability and the Environment (> 120 people)*
- An opportunity: the National call PUNCHY by UNIT



UNIT: Digital University of Engineering and Technology (one of the 8 Thematic digital universities) created on the initiative of Engineering schools, universities and the Ministry of Higher Education and Research.



Meet the strong demand for hybrid training materials  
By creating digital resources with a high potential for re-use



Transition, adaptation  
and resilience of socio-  
ecosystems to global  
change

1 - Introduction unit



1 - Introduction unit

2 – Global Change

3 – Impact of Global Change on water cycle

4 – Energy challenges

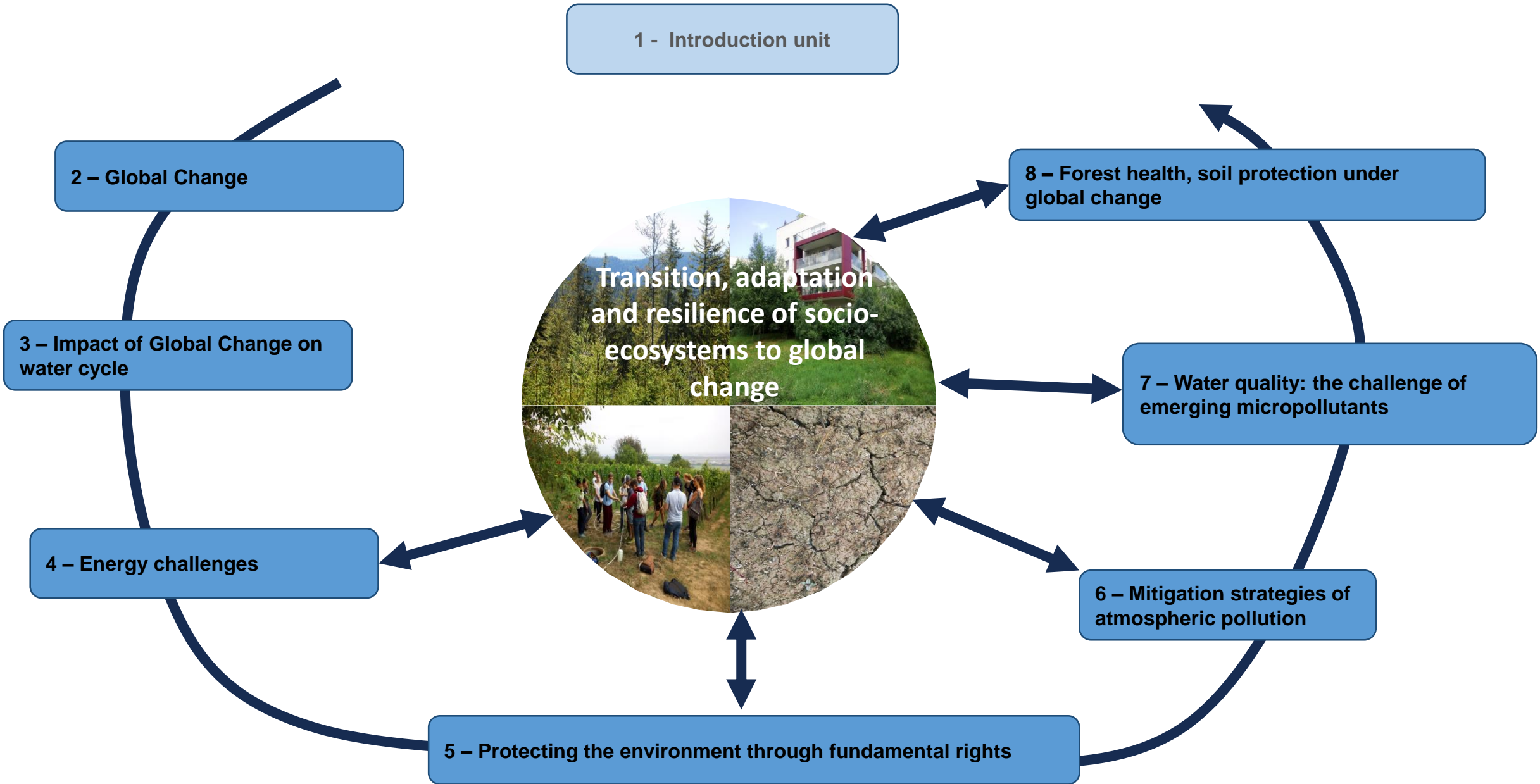
5 – Protecting the environment through fundamental rights

8 – Forest health, soil protection under global change

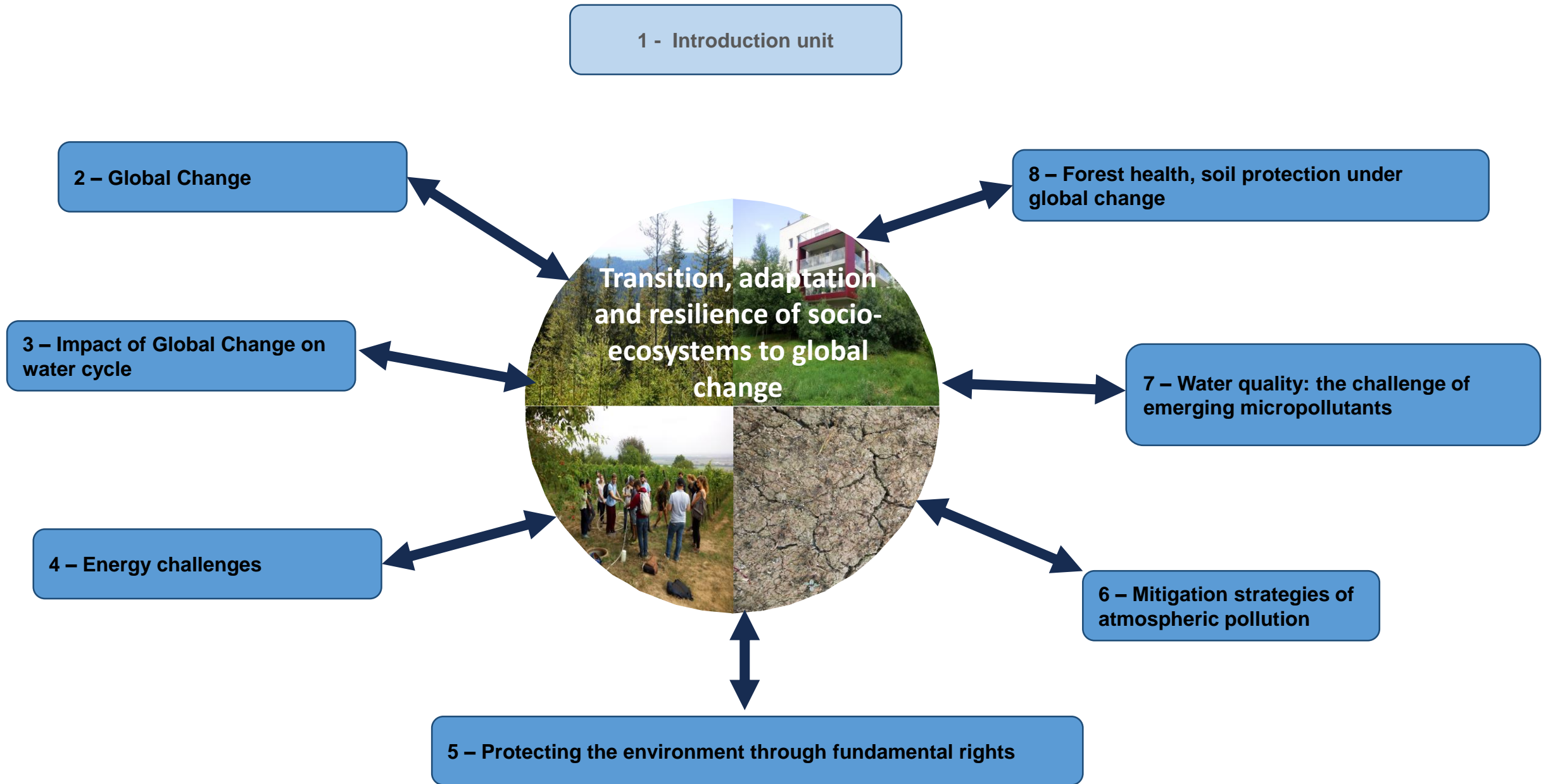
7 – Water quality: the challenge of emerging micropollutants

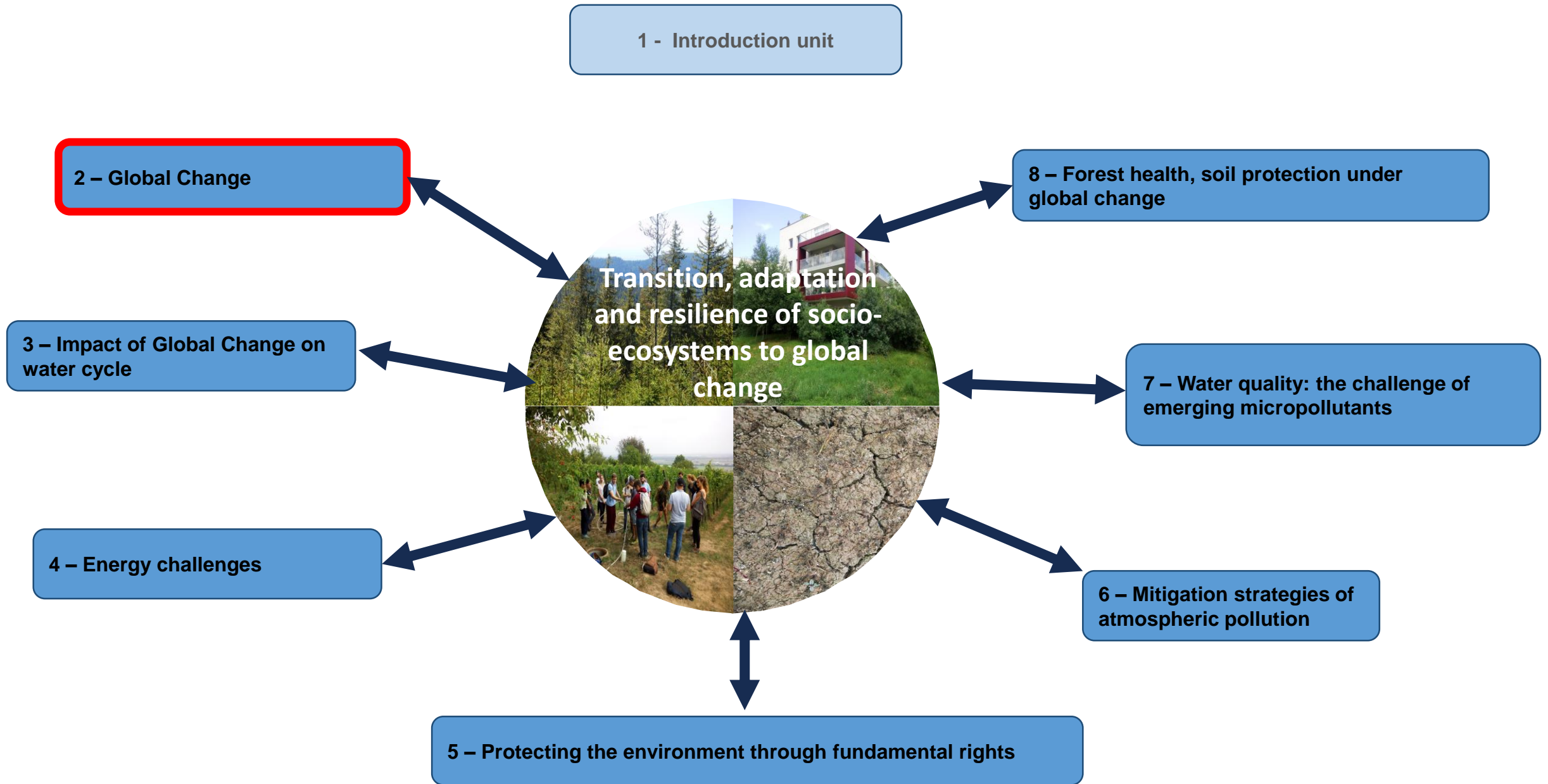
6 – Mitigation strategies of atmospheric pollution











1 - Introduction unit

2 – Global Change

Part 1

Part 2

3 – Impact of Global Change on water cycle

Part 1

Part 2

4 – Energy challenges

5 – Protecting the environment through fundamental rights

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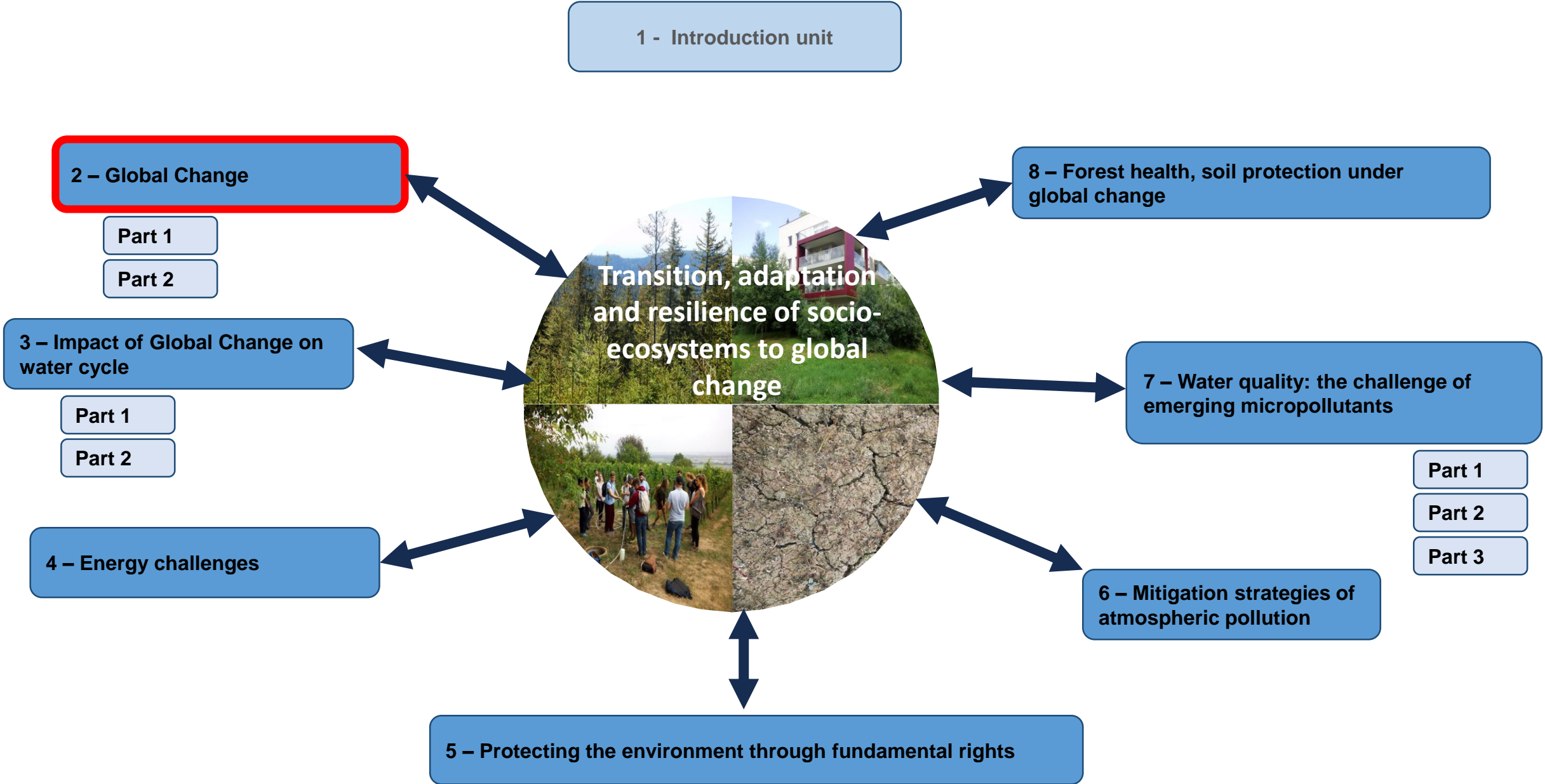
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Part 1

Part 2

Part 3

6 – Mitigation strategies of atmospheric pollution



## 1 – Introduction unit

## 2 – Global Change

### Part 1

# FERED Module n°2 - Partie 1 - Découverte et contestation du changement climatique

Tableau de bord > Mes cours > FEREDModule2Partie1



### Objectifs : comprendre

- Les origines du changement climatique
- Comment les scientifiques étudient le climat
- Les causes et effets du changement climatique
- Les arguments utilisés dans les controverses



### Créateurs - créatrices :

Florentin Breton (LIVE)  
Rémi Barbier (ENGEES)  
Didier Hauglustaine (LSCE)

Enseignantes-chercheuses /  
enseignants-chercheurs

Chercheuses / chercheurs

Principalement du site  
universitaire de Strasbourg et  
écoles partenaires réunis au sein  
de la FERED, avec quels invités



## Mobilising different educational activities

### Quizzes at the beginning and/or end of teaching units (H5P tool in Moodle)

Quelle région climatique contient selon vous le plus de forêts?

- Tropicale
- Boréale
- Sous-tropicale
- Tempérée

✓ Vérifier

# Mobilising different educational activities

## Drag & drop tools (H5P tool in Moodle)

Drag and drop the pollutant to its main source

The diagram illustrates a river ecosystem with three main areas: **Cities** (left), **Factories** (middle), and **Agriculture** (right). The river flows from right to left, labeled **Upstream** on the right and **Downstream** on the left. A wastewater treatment plant labeled **STEP** is located in the city area. A green tractor is shown in the agriculture area. A sun and a rain cloud are in the sky. A red question mark in a circle is in the water. A matching interface is overlaid on the diagram, consisting of a grid of pollutant categories and empty boxes for their sources.

Pharmaceuticals	Metals	PAH
Chlorinated solvents	Antibiotics	
Pesticides	Bactericides	

Factories

Cities

Agriculture

Upstream

Downstream

STEP

?

✓ Vérify

## Mobilising different educational activities

### Interactive videos (H5P tool in Moodle)

Transition énergétique, développement et évolution économique

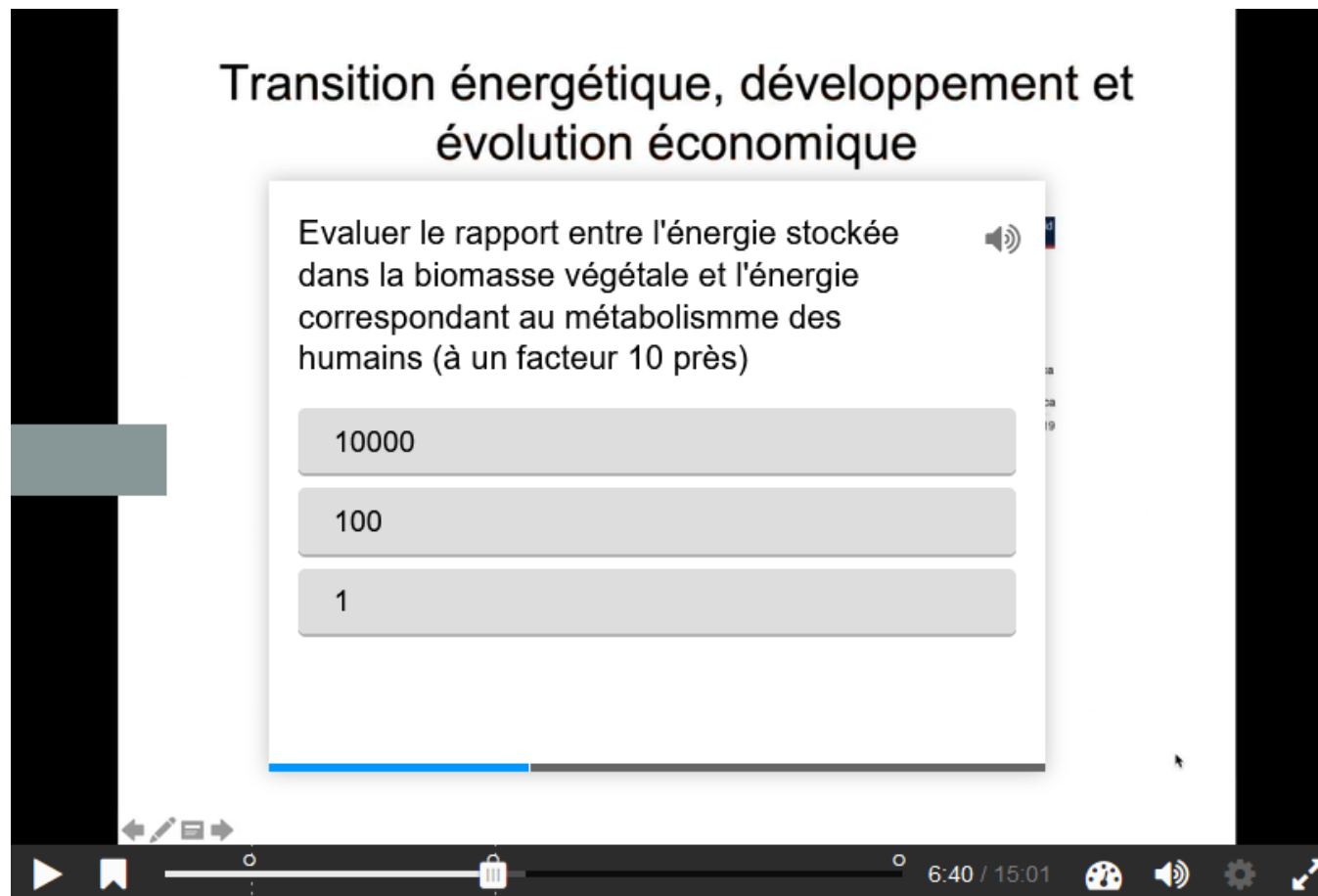
Evaluer le rapport entre l'énergie stockée dans la biomasse végétale et l'énergie correspondant au métabolisme des humains (à un facteur 10 près)

10000

100

1

6:40 / 15:01

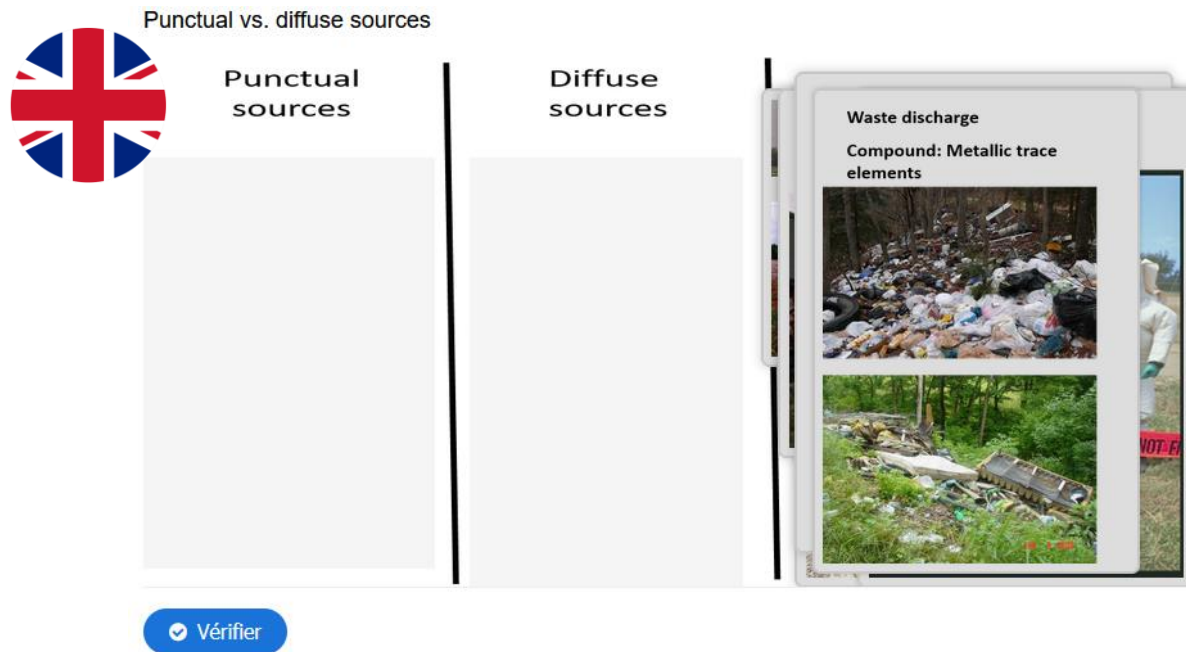
The image shows a screenshot of an interactive video player. The video content is centered on a white background with black text. The title 'Transition énergétique, développement et évolution économique' is at the top. Below it is a question in French: 'Evaluer le rapport entre l'énergie stockée dans la biomasse végétale et l'énergie correspondant au métabolisme des humains (à un facteur 10 près)'. There are three radio button options: '10000', '100', and '1'. A speaker icon is visible to the right of the question. At the bottom, there is a video player control bar with a play button, a progress bar, a volume icon, and a settings icon. The time '6:40 / 15:01' is displayed on the right side of the control bar.



## Mobilising different educational activities

- Audio resources are in French
- with written support in English or French

Punctual vs. diffuse sources



Punctual sources

Diffuse sources

Waste discharge  
Compound: Metallic trace elements

Vérier



Pourquoi faudrait-il reconnaître un droit fondamental à un environnement sain ?

Hypertrophie des droits : Alain Supiot

CF: James W. Nickel, The Human Right to a Safe Environment: Philosophical Perspectives on Its Scope and Justification, 18 Yale J. Int'l L. (1993): <http://digitalcommons.law.yale.edu/yjil/vol18/iss1/9>

Quatre critères

-3:55

Discovering the Franco-English vocabulary of transition, adaptation and resilience of socio-ecosystems to global change



## And go further with the resources at the end of the capsules

### ✚ Ressources pour aller plus loin ✎

- **Dernier rapport du GIEC (base physique) :**

<https://www.ipcc.ch/report/ar6/wg1/>

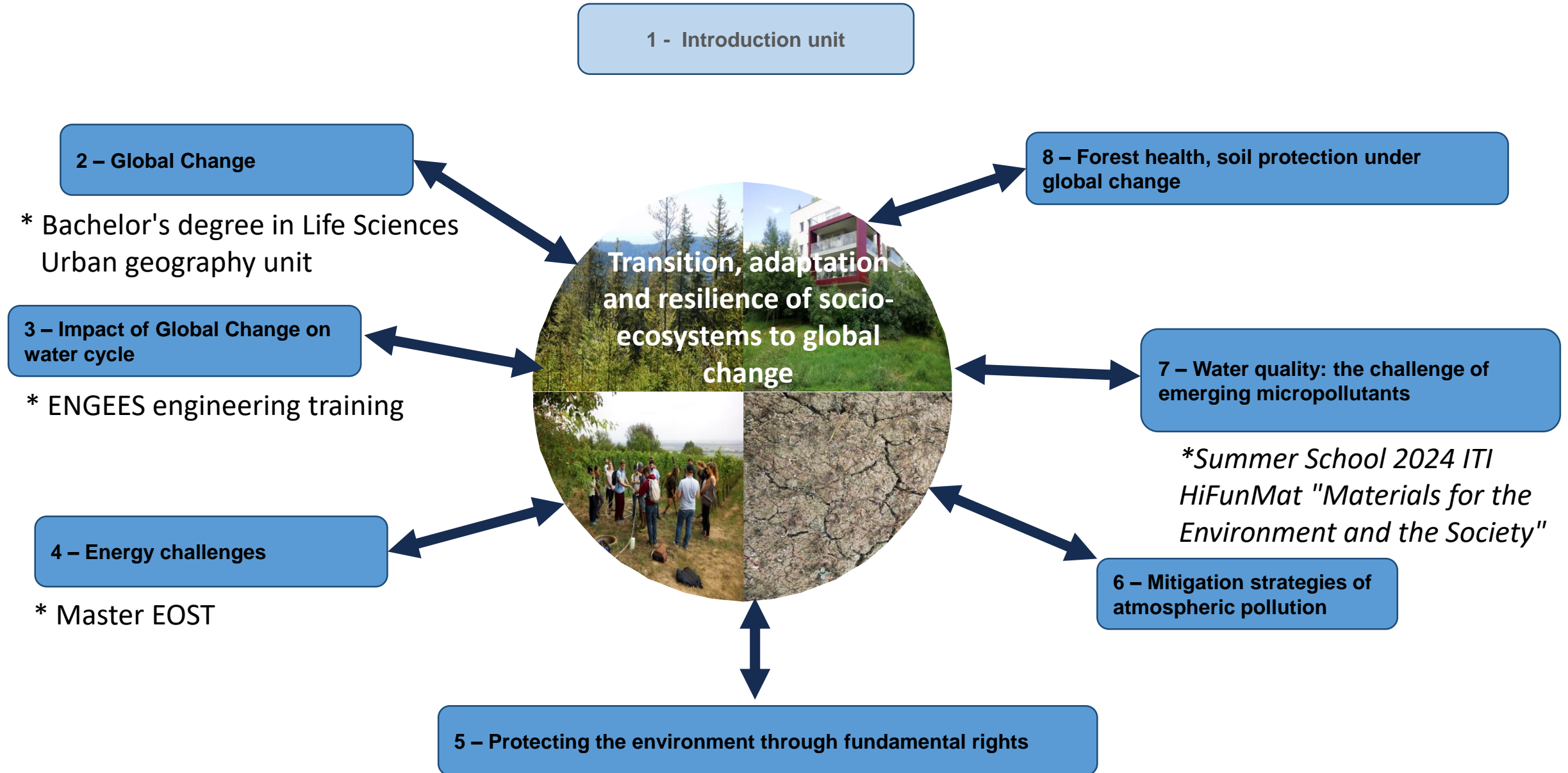
- **Visualiser le changement climatique :**

- Monde : <https://interactive-atlas.ipcc.ch/> et <https://climate.nasa.gov/>
- France : <https://files.cmcc.it/g20climaterisks/France.pdf>
- Régions françaises : <https://meteofrance.com/climathd> et <http://www.drias-climat.fr/>
- Alsace : <https://gis.clim-ability.eu/>

- **Livres :**

- Bonneuil, C., & Frescoz, J. B. (2013). *L'événement Anthropocène: la Terre, l'histoire et nous*. Média Diffusion.
- Conway, E. M., Oreskes, N., & Treiner, J. (2021). *Les marchands de doute*. Le Pommier.
- Mann, M. E., & Toles, T. (2016). *The madhouse effect: How climate change denial is threatening our planet, destroying our politics, and driving us crazy*. Columbia University Press.
- Ramstein, G. (2015). *Voyage à travers les climats de la Terre*. Odile Jacob.
- Ramstein, G., & Huet, S. (2022). *Le climat en 100 questions*. Tallandier.
- Rich, N. (2019). *Perdre la Terre-Une histoire de notre temps*. Média Diffusion.

# Resources already used in hybrid mode in existing Master programs or trainings



These resources are evolving and a number of complementary issues have been identified which could be the subject of additional resources.

Santé environnementale – One Health

Applications of microbes to support the transition and counter climate change

Pollution de l'air

Principes juridiques de la politique européenne de l'énergie -  
Marché intérieur de l'électricité

Réponses des espèces sauvages aux changements climatiques  
et à l'expansion urbaine



Direct access

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**Thank you for your attention**