



# Empowering Action: Behavioural Change to Mitigate Global Environmental Change

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# Outline

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- Introduction
- Global Environmental Change (GEC)
- Human Behaviour in Environmental Change
- Case Studies - Successful Behavioural Change efforts to mitigate GEC
- Strategies and Tools for Promoting Behavioural Change
- Conclusion, Q&A

# Introduction

**What is Global Environmental Change (GEC) ?**

**= significant changes that have taken place in our environment at various scales**

Land-use and land-cover changes (deforestation, rapid urbanization)

Changes in biodiversity (loss)

Unsustainable fisheries

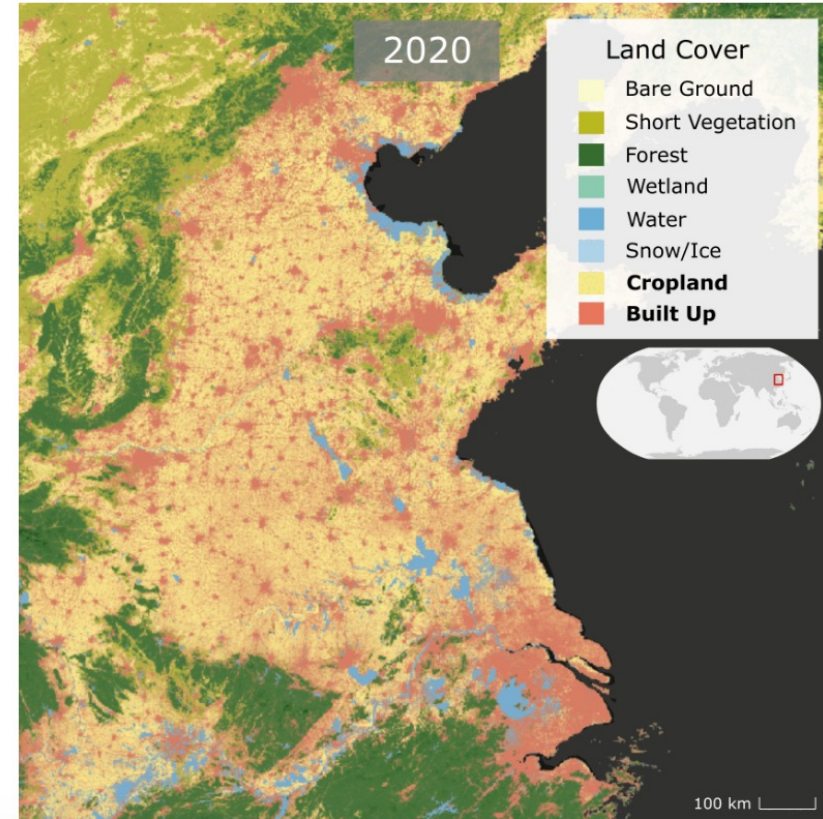
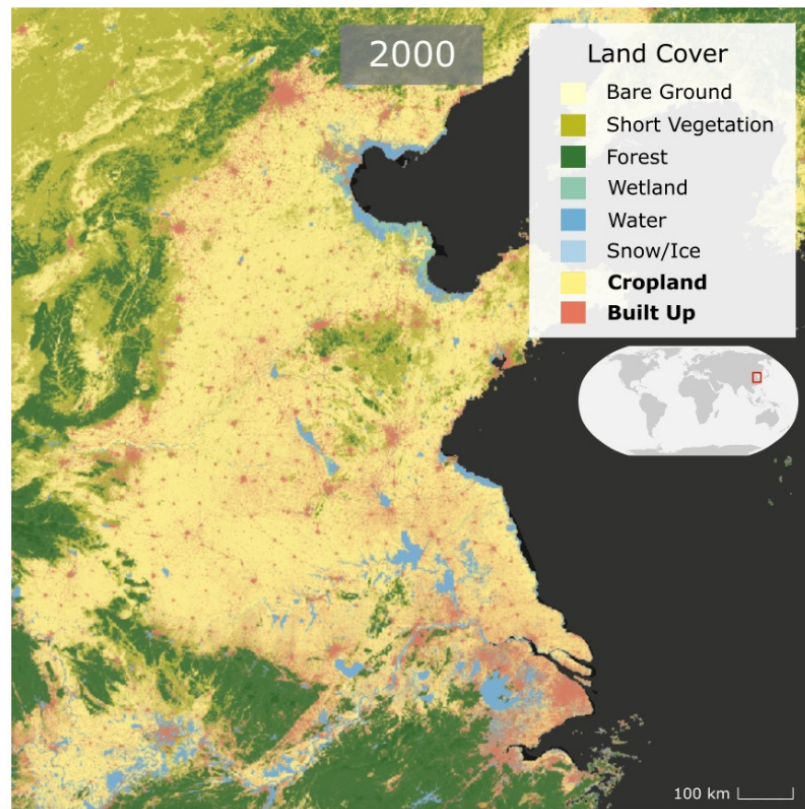
Pollution of environment

Climate change

Fresh water scarcity



# What is Global Environmental Change ?



**Rapid urbanization.** In China between 2000-2020 **90 mil ha** of land were converted into urban areas. (<https://www.globalforestwatch.org>)

# What is Global Environmental Change ?

## The Living Planet Index (LPI)

= indicator of the state of global biodiversity, based on trends in vertebrate population

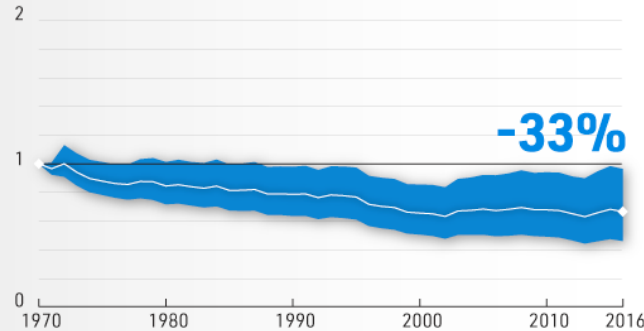
# VISUALIZING THE REGIONAL DECLINE OF EARTH'S BIODIVERSITY

The Living Planet Index (LPI) tracks the abundance of mammals, birds, fish, reptiles, and amphibians across the globe.



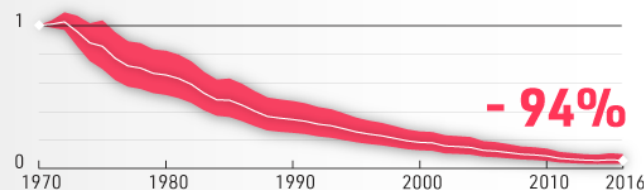
Between 1970 and 2016, vertebrate population sizes dropped by **68%** on average worldwide. However, this rate of this loss varies from region to region.

## NORTH AMERICA

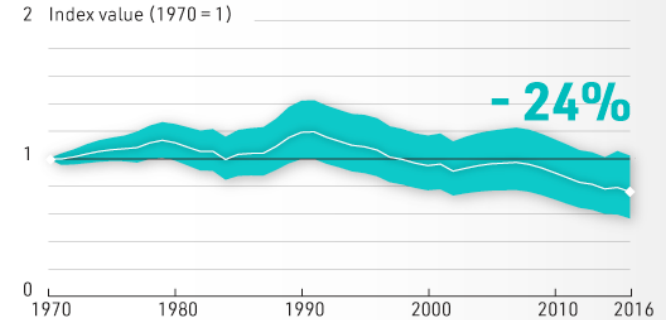


## LATIN AMERICA & CARIBBEAN

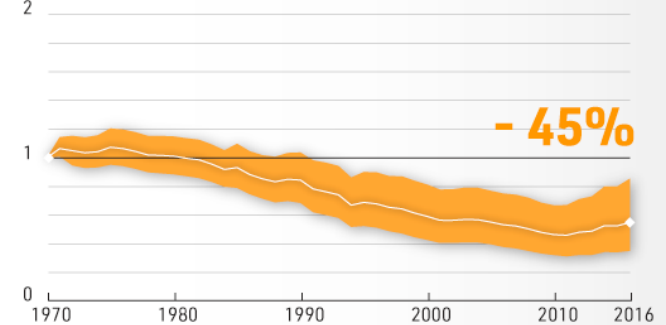
Latin America & Caribbean has seen the largest drop in biodiversity at **94%**, mainly driven by a significant decline in reptile, amphibian, and fish populations.



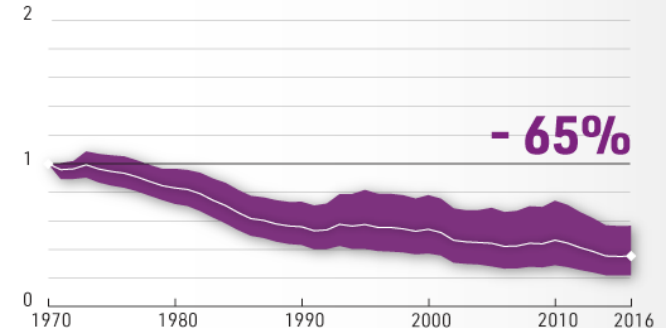
## EUROPE



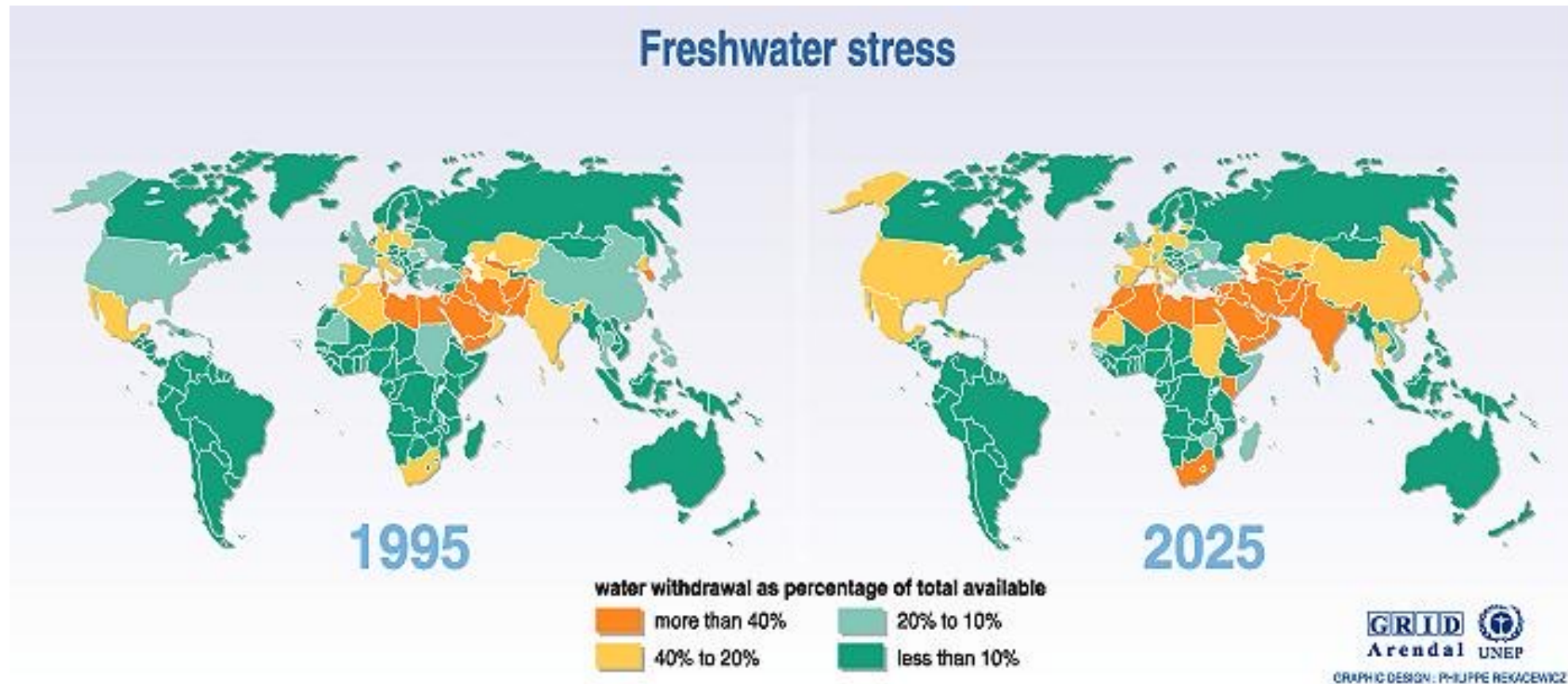
## ASIA



## AFRICA



# What is Global Environmental Change ?



Fresh water scarcity between 1995 and 2025.



# Impacts of environmental change

## ➤ Direct Impacts

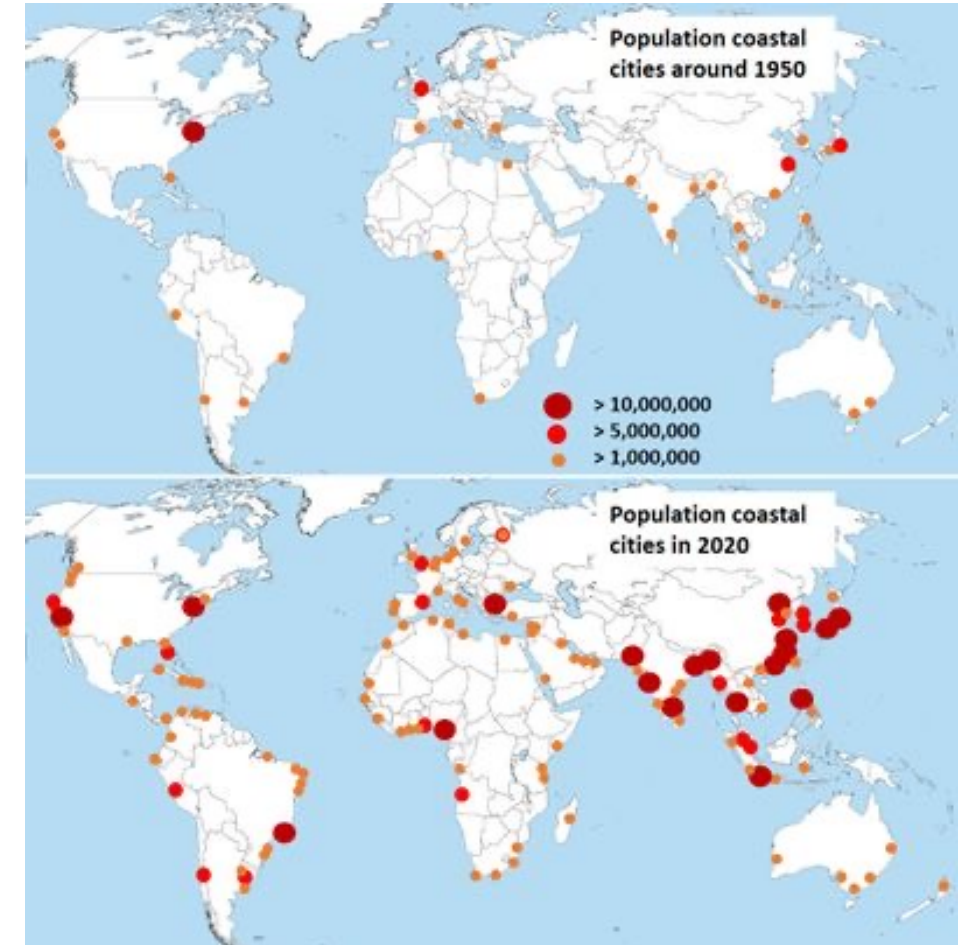
- species, ecosystems

## ➤ Indirect Impacts

- humans (food security, health risk, economic disruptions)



Slums on a sandspit at the coast of Monrovia (Liberia).



Population of coastal cities around 1950 and in 2020. Adapted from Barragan et al. (2015)

**Behavioural change**

**= a central element  
of addressing GEC**





# Human Behaviour in Environmental Change

## Theories of Behaviour Change - main theoretical Frameworks:

- **Theory of Planned Behaviour (TPB)** - attitude, subjective norms, and perceived behavioural control influence our behaviour.
- **Value-belief norm (VBN)** – pro-environmental behaviour in mind, emphasize on the role of personal norms in personal action
- **Transtheoretical model (TTM)** - contemplation, preparation, action, and maintenance of behavioural change

# Theory of Planned Behaviour/Reasoned Action (Ajzen and Fishbein 1991)

= a central theory in addressing the global environmental crisis

## Concept of subjective norms:

= *our actions are shaped by our personal beliefs about **what we think that important people in our lives think about the behaviour** (“My family thinks I shouldn’t smoke”)*

# Human Behaviour in Environmental Change

## 2 levels:

- Often perceived as **individual-level consumer action** (e.g., buying a low-carbon product, recycling, reducing meat-eating)
- **But there are also other roles and contexts** – as members of communities, organizations, as citizens with influence on policies (installing insulation, grassroots activities e.g. transport initiatives, low-carbon lifestyle)



# Human Behaviour in Environmental Change

## Efficacy of different interventions:

- **informational campaigns** generally **less effective** than other types of intervention (may raise awareness and concern but do not always produce behaviour change)
- **Social influence is one of the strongest factors shaping behaviour**, yet rarely recognised by individuals themselves
- **Adoption of low-carbon innovations**, such as electric cars and solar panels, is **significantly shaped by neighbourhood effects**



ELSEVIER

Review

Available online at [www.sciencedirect.com](http://www.sciencedirect.com)

ScienceDirect

Current Opinion in  
Psychology

**Behaviour change to address climate change**


Lorraine Whitmarsh<sup>1,3</sup>, Wouter Poortinga<sup>2,3</sup> and  
Stuart Capstick<sup>2,3</sup>

# Human Behaviour in Environmental Change

- not only **how** to intervene but also **when**
- **Habits** = the strongest impediments to change, acting to ‘**lock-in**’ **behaviour**
- many interventions = ineffective as they are **not strong enough to disrupt habits**
- times of **significant change** = key **opportunities** to effectively change behaviour (Covid-19, extreme weather events, moving home)\*

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\*low-carbon behaviours have been shown to be more effectively changed **in the 12 weeks after relocation** (Verplanken and Roy, 2016)



**5 Case Studies of Successful Behavioural Change efforts to mitigate global environmental change**



# 1. Plastic Bag Reduction in Rwanda

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- **2008: a nationwide ban** on non-biodegradable plastic bags
- Strict enforcement and public awareness campaigns
- **Outcomes:** switching to reusable bags and alternatives, visible clean environments previously littered with plastic



## 2. “Setsuden” = Japan’s Energy Conservation

- major energy shortages after Fukushima nuclear disaster (2011)
- People encouraged to reduce electricity usage (turning off unnecessary lights, adjusting air conditioner temperatures, and shifting work hours to daylight times)
- **Outcome:** significant reduction in electricity use nationwide (**by 20%**), collective response to an energy crisis



thejapantimes

This summer, signs of *setsuden* will again be all around us



Sign of the times: Posters explaining that setsuden (energy saving) is in effect, such as this one in a Tokyo subway station, are now a common sight. | YOSHIKI MIURA

**Water is a precious resource**  
Supply is squeezed between a growing population and changing climate.



**1.4 million**  
population growth  
since 2001.

We need to save 4 litres  
per person per day.

Sustainable  
water use:

**155**  
litres

Current  
water use:

**159**  
litres



People are saving water in easy ways.



Keeping  
showers  
short (**38%**)



Installing a  
water-saving  
shower head  
(**57%**)



Turning off the  
tap while shaving  
or brushing their  
teeth (**63%**)

We're all in this together.

**29%**

of Melburnians say  
they aren't doing  
enough to save water.

**80%**

believe water  
conservation is "very or  
extremely important".



Learn more and share tips: [makeeverydropcount.com.au](http://makeeverydropcount.com.au)

Statistics recorded by the Saving water in Melbourne (SWIM) survey, 2021.



City West



South East



VICTORIA

## 3. Water Conservation in Australia: Target 155 Campaign

- **2007: the Target 155 campaign** aiming to **limit individual water use to 155 l per day**
- Residents provided with tips and tools to reduce their water use (fixing leaks, taking shorter showers, water-efficient appliances)
- **Outcomes: a significant decrease in daily water consumption** per capita, sustaining the community through the drought, influence on water usage practices thereafter



# 4. Community Solar Projects in Denmark

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- Denmark: renewable energy solutions at a community level, focus on community-owned solar panels
- Investing in and co-own renewable energy resources, sense of responsibility and direct benefits
- **Outcomes:** reduced carbon footprints, strengthened community bonds, promotion of widespread acceptance of renewable energy



35 MW rooftop solar power plant at DSV's new logistics center in Horsens – to be completed in Dec 2024 (cleantechnica.com)

# 5. Meatless Monday Global Movement

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- a campaign encouraging individuals to **reduce meat consumption one day a week**
- social media, local events, and institutional programs (e.g., schools, hospitals)
- **Outcomes:** significant participation (reduced meat consumption in over 40 countries)



**Eat for the Earth.  
Go Meatless Monday.**



#EarthDay

@MeatlessMonday  
#MeatlessMonday

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# Reflection

- What were the key elements for success?
- Can these elements be replicated elsewhere?
- Can these elements be replicated in your country?

How can we promote these changes?



# Strategies for Promoting Behavioural Change

## Education and Awareness Campaigns:

**Providing information and raising awareness** about the impact of certain behaviours on the environment can help individuals make **more informed choices**.

- **Example:** workshops, seminars, ... about sustainable practices (composting, energy conservation, or water-saving techniques)

## Social Norms and Peer Influence:

Leveraging social norms and peer influence to **encourage sustainable behaviours through positive reinforcement**

- **Example:** Organizing community challenges or competitions (e.g. for reducing energy consumption, promoting biking to work within social circles,..)

# Strategies for Promoting Behavioural Change

## Incentives and rewards:

Offering **incentives or rewards that can motivate** individuals to adopt environmentally friendly behaviours.

**Example:** A rewards program for recycling, discounts for using public transportation, tax benefits for investing in renewable energy solutions,...

## Policy Interventions:

Policies and regulations that **push towards sustainable behaviours** can drive widespread change.

**Example:** Implementing plastic bag bans, imposing carbon taxes, setting energy efficiency standards for buildings

# Tools for Promoting Behavioural Change

## Technology and Apps:

Mobile apps, online platforms can be used to **track individual environmental impacts**, set goals, provide tips for sustainable living

- **Example:** JouleBug or Oroeco => sustainability practices, encouraging users to reduce their carbon footprint.

## Behavioral Nudges:

Implementing subtle cues or reminders to influence behaviour without restricting choice

- **Example:** Placing prompts or signs near light switches (reminding individuals to turn off lights when not in use, footprints on the floor encouraging recycling)

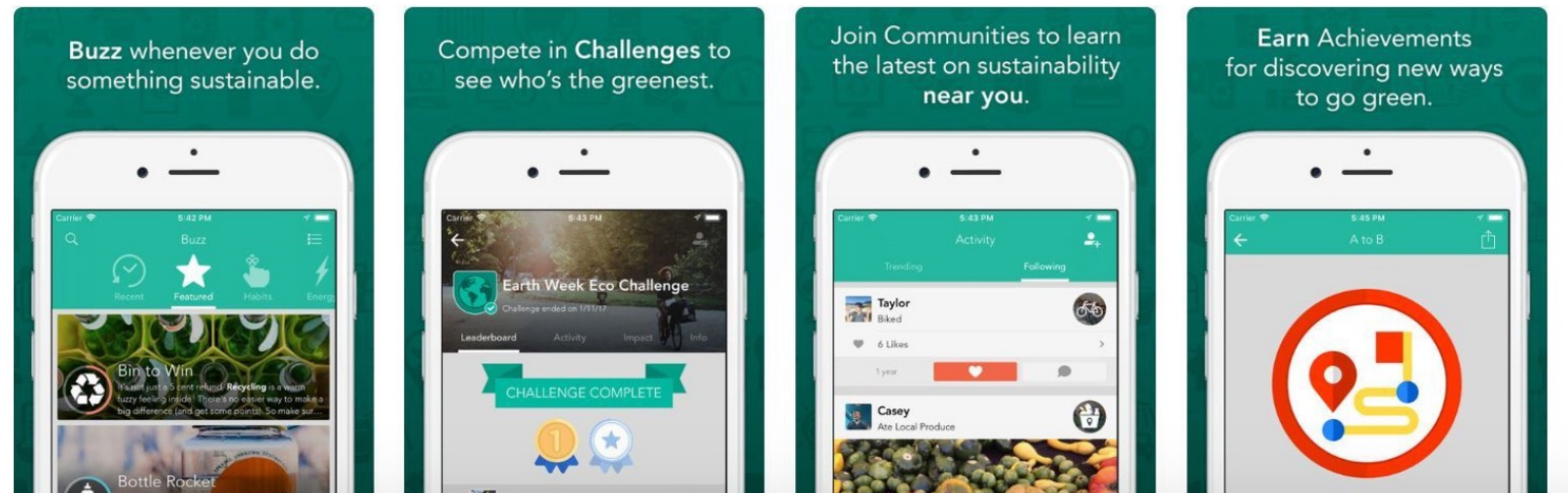
# Tools for Promoting Behavioral Change

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## Joulebug

Joulebug can help making the right choices and live a sustainable life even if you have a busy schedule. It gives you tips, impact statistics, and challenges. You can track your daily progresses and complete challenges with simple actions including eating local, producing and saving water and electricity.

You can also share your activities with friends and communities. Social features available in the app, like local community groups and a news feed, will make helping the environment a pleasant and enjoyable experience. Joulebug can help local communities around the world to act for the environment. Living a sustainable lifestyle with Joulebug will have a positive impact on your wallet as well.





# Tools for Promoting Behavioral Change

## Oroeco

Oroeco helps you track your carbon footprints by using measurements and rankings. It shows how your everyday life choices can impact climate change. It also gives personalized tips to help improve and reduce emissions. The founding team of the app combines Nobel Prize winners, scientists, and tech engineers and with this kind of background you can be sure the data provided are the most accurate available.

Oroeco footprint calculator will automatically shows the climate impacts of your actions. You can also compare your actions with friends and local communities. Oroeco makes trying to fight climate change and reducing your carbon footprint a daily task.



# Tools for Promoting Behavioural Change

## Gamification and Challenges:

Turning sustainability initiatives into **engaging games or challenges** can increase participation and motivation

- **Example:** Creating a "30-day Eco Challenge" with daily tasks (using reusable bags, taking shorter showers, planting a tree)

## Community-Based Programs:

Establishing community-based programs that promote collective action and shared responsibility for environmental conservation

- **Example:** Setting up community gardens, organizing neighborhood clean-up events, eco-friendly workshops.

# Conclusion

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**"We cannot solve our problems with the same thinking  
we used when we created them."**

**(Albert Einstein)**

There is a need for a shift in mindset and approach to address the environmental challenges we face today.

The journey to a sustainable world begins with our behaviour.

**Thank you  
for your attention and participation !**





## **'A Day in the Life' Visualization Exercise**