Lifestyle Impact on Biodiversity and Nature

Exploring how lifestyles around the world impact nature and biodiversity.

Sustainable Lifestyles and Education

UN environment programme

INTRODUCTION

This research reflects how lifestyles around the world impact nature and biodiversity. As a starting point for the desktop research, the existing framework of the Anatomy of Action (which has a climate lens) was used. Evidence for each of the 5 domains (food, stuff, move, money, fun) and 15 key actions have been reviewed with a biodiversity and nature lens. This work not only reinforces many of the existing asks of the Anatomy of Action (AoA) but it also presents new lifestyle areas that have nature impacts.

Led by the Sustainable Lifestyles and Education team, within the Economy Division, it has been reviewed, refined and improved from inputs by: The One Planet Network Programme experts (food, tourism, buildings and construction) and internal United Nations Environment Programme (UNEP) sector experts. It is not meant to be a comprehensive analysis of the impact of lifestyles on biodiversity, but offers a snapshot of the key lifestyle elements that impact nature.

The research aims to understand, address and eventually influence the lifestyles areas that have the greatest impacts. Though most available sources reflect developed country contexts, they remain relevant globally as the growing urban middle class throughout the world is aspiring to similar urban lifestyles AND these aspirations affect ('set the bar' for) lower class consumption – reinforcing increasing consumption patterns.

Within each of the five living areas, evidence and updated AoA messages are presented as well as main trends and geographical references where available.

This is an evolving space so please let us know of additional evidence on how lifestyles impact nature and biodiversity.

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DRIVERS FOR BIODIVERSITY LOSS

While greenhouse gases (GHG) are well identified as the driver for climate change, the drivers for biodiversity loss and ecosystem damage are multiple and need to be well understood. The team focused on the following reports:

- Consumption and Consumer Footprint: methodology and results, 2019, European Commission (EC).
- The Global assessment report on biodiversity and ecosystem services, 2020, IPBES
- Living Planet Report, 2020, World Wide Fund for Nature (WWF)
- Make peace with nature, 2021, UNEP

Conclusions:

- Reports agree that **land use change** is the biggest threat to biodiversity loss and ecosystem damage (today, 50% of habitable land is used for agriculture).

- WWF and IPBES reports agree that species **overexploitation** is the second largest relative impact on terrestrial and freshwater ecosystem (and the first for marine ecosystems alone).

- EC study shows that **climate change** is the 2nd driver for biodiversity loss while IPBES and WWF studies conclude that climate change is respectively the third and fourth driver.

- **Pollution** and **invasion of alien** species are shown to have significant negative impacts on ecosystems and biodiversity loss.

- From 1970 to 2020, trade has grown tenfold, resource used has tripled, GHG emissions have doubled, and now humans impact 3/4 of ice-free land and 2/3 of oceans.

Understanding what drives biodiversity loss and ecosystem damage is key to understanding which aspects of our lifestyles affect nature most.

FOOD

Agriculture uses ~50% of habitable land on the planet and livestock feed takes up nearly 80% of global agricultural land. [1] Agriculture is the single largest cause of land-use change and habitat destruction, [2] accounting for 80% of all land-use change globally. [3] Documented by the International Union for Conservation of Nature (IUCN), agriculture is an identified threat to 24,000 of the 28,000 species that are at risk of extinction. [4] Dietary change is a necessary global enabler to allow widespread adoption of nature-friendly farming without increasing the pressure to convert natural land. [5] Hence, in terms of a lifestyles perspective, the food domain has the largest impact on nature due to land use.

A recent report from the Chatham House Food System impacts on biodiversity loss, three levers of food systems transformation in support of nature, 2021 provides great insights and ways forward.

PROTEIN SWAP

Livestock and its feed takes up nearly 80% of global agricultural land and yet, produces less than 20% of the world's supply of calories. [6]

Food consumed in the EU is estimated to be responsible for 57% of damage done to ecosystems and biodiversity. Animal-based products such as meat, dairy, and eggs, contribute to more than 50% to most environmental impacts, despite being consumed in lower quantities compared to vegetable-based products. [7]

Producing a serving of unprocessed red meat has the highest impact for all five environmental indicators (GHG emissions, land use, acidification, eutrophication and water use). Producing a serving of unprocessed and processed red meat is estimated to have environmental impacts 10 to 100 times larger than those of plant source foods for GHG emissions, land use, acidification, and eutrophication. [8]

A switch from beef to beans in the diets of the entire US population could free up 692,918 km2 – equivalent to 42 per cent of US cropland – for other uses such as ecosystem restoration or more nature-friendly farming. [9]

If everybody eliminates meat and dairy from their diet, there could be a 49% reduction in greenhouse gas emissions from food production, a 76% reduction in land used for food production, and a 49% reduction in eutrophication. [10] Yet, to get a healthy diet, many countries from the global south need to increase their animal-based product consumption. [11]

Finally, lowering livestock production could also significantly reduce pandemic risk. [12]

Key individual actions:

- Protein swap, from meat to plants
- Adopt a more plant-based diet

In marine ecosystems, direct exploitation of organisms (mainly fishing) has had the greatest relative impact. [13] Today, nearly 90% of the world’s marine fish stocks are fully exploited, overexploited or depleted. [14]

Fishing for human consumption has the greatest impact on ocean biodiversity. Indeed one in three fish stocks assessed is overfished and leads to a lot of by catch, which causes needless loss of billions of fish, sea turtles, whales, dolphins, sea birds, and other species. [15]

Key individual actions:

- Protein Swap, from fish to plants
- Adopt a more plant-based diet

USE ALL YOUR FOOD

Globally, food systems are responsible for 60% of global terrestrial biodiversity loss, [16] and around one-third of the food produced for human consumption is lost or wasted. [17] Therefore, by simply eating all the food we produce we could reduce the impact of food systems on biodiversity and ecosystems by about 20%.

Key individual actions:

- Design your meals to use up the entire food product
- Buy only what you can finish or save

BUY LOCAL

Locally grown food preserves genetic diversity and benefits the environment and wildlife. [18]

Recent oil palm expansion in forested regions of Borneo, Sumatra and the Malay Peninsula, where over 90% of global palm oil is produced, has led to substantial concern around oil palm's role in deforestation. Yet, oil palm's high yields mean that it requires less land to meet global oil demand compared to other oil crops. Global demand for vegetable oils are projected to increase by 46% by 2050. [19]

Key individual actions:

- Be mindful about the products you choose and avoid those with palm oil as much as possible
- Growing your food and buying local is part of the solution

MONEY

ETHICAL INVESTING / DIVESTMENT

Financial institutions provide the capital that funds over-exploitation of lands and seas, positioning biodiversity in free-fall. In 2019, the world's 50 biggest banks provided $2.6tn in loans and other credit to sectors with a high impact on biodiversity, such as forestry and agriculture. [20]

A UNESCO study found that climate and biodiversity loss are the most crucial concerns for peaceful societies this decade and that investment in green solutions is one of the top solutions. [21]

Key individual actions:

- Use your social and environmental principles to guide your investments
- Actively swap your financial institutions or services to more sustainable options

HOUSING & URBANIZATION

Since 1992, urban areas have doubled at the expense of forests, wetlands and grasslands. [22]

Urbanization is the process of human migration from rural to urban areas and involves change of land use from agricultural to non-agricultural. Generally, urbanization is considered as the foundation for advancing human civilization and has had a significant impact on society. However, urbanization has also been linked to destructive geo-hazards around the world – that can cause loss of life, destruction of property, and environmental damage – where implemented in an uncontrolled way. [23]

The construction sector is also an important user of resources and material production and can heavily impact ecosystems and biodiversity. In addition, heating and cooling are responsible for a large share of GHG emission, contributing to biodiversity loss. [24]

Key individual actions:

- Consider how your future neighbourhood interfaces with nature and biodiversity in making housing decisions.
- Enhance your comfort, save energy and money by adapting your home and your habits to be more efficient.

FUN

ENJOY THE JOURNEY / CHOOSE EXPERIENCES

As tourism expands, land is converted (often sensitive ecosystems areas) and GHG are emitted e.g., transportation and accommodation. [25] Both land conversion and climate change are key drivers for biodiversity loss.

Work presented to COP to Convention on Biological Diversity (CBD) in 2012 concluded that tourism is the largest, global market-based contributor to financing protected area systems, through entrance and other user fees, partnerships and concessions. However, many Parties to the CBD underutilize tourism as a means to contribute towards the financial sustainability of protected areas. [26]

Key individual actions:

- Be aware of how your travel affects nature and biodiversity and look for organisations and ways to contribute to its conservation
- Travel closer to home. If you go the distance stay longer, live local and consider offsetting your carbon footprint by planting trees

STAY CURIOUS

Studies show that exposure to nature increases children and youth's emotional affinity toward nature, ecological beliefs, and willingness to engage in pro-environmental behaviors. In the long term, childhood exposure to nature leads to adulthood commitment to nature-based activities, pro-environmental behaviors such as environmental citizenship, and integration of a respect for nature into life pursuits. [27]

Key individual action:

- Offer yourself and your children experiences to connect with nature

STUFF

BEYOND BUYING

Household goods have the largest impact on the environment in upstream stage (production, packaging and logistics). Upstream stage is responsible for ~70% climate change, 80% on air pollution, and 65% for the use of metal and mineral resources. [28]

Household appliances are responsible for over 40% of mineral and metal resources extracted for use in EU. [29] Mineral and metal extraction contributes to land conversion and greatly to land and water pollution. The impact from extraction of natural resources may vary across regions and countries, depending on the extent to which ecosystem and biodiversity policies exist and are enforced.

Electronic waste increased by 8% from 2014 to 2016 and was expected to rise by 17 percent by 2021. [30] Dangerous metals and toxic chemicals in E-waste do not organically break down. However, over time, it seeps into the environment around landfills, contaminating local groundwater or get absorbed into the atmosphere. Mercury has devastating effects on fauna and flora and eventually human beings. [31]

Key individual actions:

- Use your goods and appliances until end of life
- When your goods and appliances are at their end of life, hand them over to specialists so parts can be reused or recycled
- Consider what you need and buy products that will last longer, be used multiple times, and can be remanufactured or recycled

FASHION SLOW DOWN

Fast fashion has risen dramatically in recent years: the number of garments purchased per capita between 2000 and 2014 increased by about 60 percent. [32]

Only 12% textile waste is down-cycled and less than 1% is closed loop recycled. 73% of textile waste is incinerated or ends up in landfills, which releases pollutants and contributes to habitat loss. [33]

Fashion industry is directly linked to soil degradation, conversion of natural ecosystems, and waterway pollution contributing greatly to biodiversity loss. 150+ million trees logged annually to make man-made cellulose fibres (MMCFs) and 30% come from endangered primary forests. ~25% of industrial water pollution comes from textile dyeing and treatment. An estimated 35% of primary micro-plastics in the world's oceans originate from washing synthetic textiles. [34]

Plastic micro-fibres and nano-fibres have been identified in ecosystems around the globe. 35% of micro-plastics released into the world's oceans are from synthetic textiles. These accumulate in marine habitats globally, representing a new environmental and health threat. [35] And cotton cultivation uses 2.5% of the world's arable land but some 16% of total global use of pesticide. Other natural fibres also have high land footprints, with wool at the top end of the scale. [36] Both natural and synthetic fibres have very negative impact on biodiversity and ecosystems.

Finally, reducing the impacts on ecosystems will require finding ways of caring for textiles with less electricity and water use, e.g., cold washing, line drying, no ironing, water efficient washing machines etc. Caring for garments is also very important as the number of times a garment is worn has the greatest effect in reducing its environmental footprint. [37]

Key individual actions:

- Celebrate being unique and curate a look that takes into account what lies behind a garment
- Buy fewer and better clothes
- Give your clothes a second chance: share, reuse, repair, recycle, sell, and donate high-quality fashion for second- hand use
- Prefer cold wash, line drying and minimize washing in general, it saves water, energy and will make your clothes last longer

DITCH DISPOSABLES

Thousands of animals, from small birds to blue whales, die from eating and getting caught in plastic. Marine plastic pollution has increased tenfold since 1980, affecting at least 267 species, including 86% of marine turtles, 44% of seabirds and 43% of marine mammals. This can affect humans through food chains. [38]

Mismanagement of personal protective equipment during COVID-19, a monthly estimated use of 129 billion face-masks and 65 billion gloves globally is causing environmental contamination. [39] Face masks are easily ingested by higher organisms, such as fishes and microorganisms in aquatic life. This can affect food chain and therefore cause chronic health problems to humans. [40]

Key individual action:

- Refuse everyday products which cannot be reused and find reusable alternatives

MOVE

KEEP ACTIVE

Climate change drives biodiversity loss and private cars are responsible for ~12% GHG emissions and responsible for 73% GHG emissions in the transportation sector alone. [41]

key individual action:

- Keep or take up walking and cycling to work and ask government and local businesses to provide more sustainable and safer public transport options.

SHARE YOUR RIDE

In the EU, mobility is responsible for ~40% of mineral and metal extracted and 95% of it is extracted for private cars. [42] Mineral and metal extraction contributes to land conversion and greatly to land and water pollution. The impact from extraction of natural resources may vary across regions and countries, depending on the extent to which ecosystem and biodiversity policies exist and are enforced.

Key individual action:

- Continue or opt for public and shared transport instead of driving, and advocate for more options

GO CLEANER

Based on a research conducted in Kolkata (India), Shenzhen (China), Santiago (Chile) and Helsinki (Finland), depending on the battery size and over its life cycle, an electric vehicle (EV) will generate about 18-29% less GHG than a traditional internal combustion engine (ICE) cars. [43]

While the ICE car production accounts for 17% of GHG emissions over its life cycle (6 tCO_2 vs 35 tCO_2 total life), the GHG emission linked to the production of EV ranges from 39-48% over its life cycle. [44]

The mining of metals used in manufacturing renewable technologies like wind turbines, solar power, and electric vehicles has costs, including for biodiversity. A rapid increase in demand for metals (which may exceed the resources we expect to have available) for renewable energy could lead to mining of marginal or unconventional resources, which are often in more remote or bio-diverse places. Negative effects from the mining of metals like aluminium, cobalt and rare earths could impact a range of creatures from flamingos to gorillas, plants, and even deep-sea creatures. [45]

Key individual actions:

- Keep your car for as long as possible, particularly if it is an electric one
- When your car is at its end of life, make sure the manufacturer has a program to recover resources from it
- Only if you have a thermic car and really drive a lot, you may consider investing in a cleaner one

RESOURCES

FOOD

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MOVE

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